

# **Focused on Rare Earths**

October 2011



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### **COMPETENT PERSONS STATEMENT**

- Information in this presentation that relates to exploration or exploration results is based on information compiled by Mr Geoff Collis, who is a member of the Australasian Institute of Mining and Metallurgy and has sufficient exploration experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activities which are being undertaken to qualify as a Competent Person as defined in the 2004 Edition of the "Australian Code for Reporting of Mineral Resources and Ore Reserves". Mr Collis consents to the inclusion of these estimates in the form and context in which they appear.
- Information in this presentation that relates to Mineral Resources is based on a resource estimate at Cummins Range performed by Dr Phillip Hellman FAIG, who is a Director of Hellman and Schofield Pty Ltd and who has had sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activities which are being undertaken to qualify as a Competent Person as defined in the 2004 Edition of the "Australian Code for Reporting of Mineral Resources and Ore Reserves". Dr Phillip Hellman consents to the inclusion of these estimates in the form and context in which they appear.



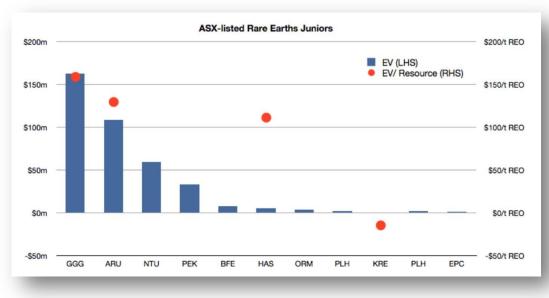
## A New Company

## ASX:KRE

- **2011 IPO** Raised \$18.2m. ASX Listed 18 May 2011
- **SHARE CAPITAL** 125.6 million shares. 6 million options

A\$16.1m

- SHARE PRICE A\$0.11
- MARKET CAPITAL A\$13.8m
- CASH ON HAND



### Peer Comparison - 4 October

### VALUATION KRE EV/Resource Tonne Currently Negative

#### SOURCE: BGF Equities Research – 4 October 2011

## KIM BERLEY RARE EARTHS

## **Non-Executive Directors**



### Ian Macpherson

#### Non-Executive Chairman

Ian is a chartered accountant with 30 years experience in corporate advisory, specialising in capital structuring, equity and debt raising, corporate affairs and Stock Exchange compliance procedures for public companies, both mining and industrials. Ian holds directorships of several Australian public companies.



## Dr Allan Trench

#### Non-Executive Director

Allan is a geologist/geophysicist and business management consultant with over 20 years experience within the Australian resources sector across a number of commodity groups including gold, copper, nickel, oil and gas, and LNG. Allan holds directorships of several Australian public companies.



### Peter Rowe

#### Non-Executive Director

Peter is a chemical engineer with recognised international experience gained over a 35 year career, based mainly in Australia and South Africa. He has managed complex large scale mining and metallurgical operations and projects. Peter holds directorships of several Australian public companies.



## Gerry Kaczmarek

#### Non-Executive Director

Gerry is an accountant and economist with almost 30 years experience in the resources and minerals processing industry covering projects in Australia and overseas. Gerry is currently the Chief Financial Officer/Company Secretary of Navigator Resources.



## Management



### Tim Dobson

#### Managing Director

Metallurgist with 23 years of continuous, broad-based experience in a range of ASX-listed and international mining companies including Placer Dome, Lihir Gold Limited, OM Group, and Norilsk Nickel. Technical and management roles in large, complex hydrometallurgical operations including gold pressure oxidation (Porgera and Lihir) and nickel-cobalt laterite (Cawse). Extensive feasibility study, project development and organisational development experience.



### **Geoff Collis**

#### General Manager-Exploration

26 years continuous experience as an exploration geologist working throughout Africa and Australia for a number of highly successful companies, across a range of commodities and within a variety of different geological terrains. Involved in the discovery of numerous gold deposits, the discovery of the Youanmi vanadium deposit in Western Australia and the Hartley Platinum Project prefeasibility study. Corporate experience as Exploration Manager ranging from pre-IPO through to successful M&A.



### Darren Crawte

#### **Company Secretary**

Over 14 years experience in corporate advisory as a qualified chartered accountant in both the UK and Australia. Currently a Director of Audit and Corporate services at MGI Perth, where he specialises in providing corporate advisory, financial accounting/audit management, transactional support, taxation and other back office services to junior listed companies. Darren has acted as Company Secretary to a number of companies in the junior resources sector having managed a number of these through an initial public offering.



## **Company Objective**

### KRE Strategic Aims

- 1. Advance the scale, geological and metallurgical understanding of the Cummins Range rare earths deposit.
- 2. Undertake metallurgical test work studies targeting the test-scale production of rare earth metal concentrates for the purpose of achieving near term commercial development.
- 3. Assess and, if warranted, acquire other rare earths projects that have potential to add value to the Company.

### OUR OBJECTIVE

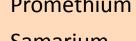
KRE will rapidly take its place amongst the front line of rare earth producers and will be recognised by all stakeholders as a high quality company that delivers

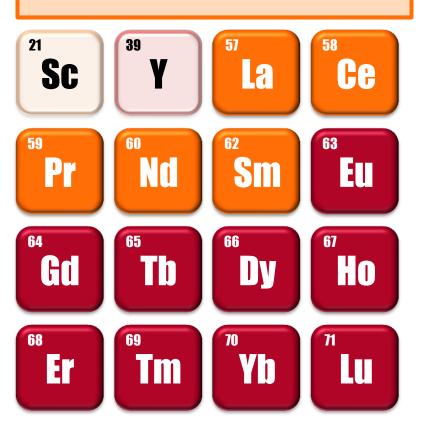


## The Rare Earth Metals

### **'Light' REE**

- Lanthanum
- Cerium
- Praseodymium
- Neodymium Promethium
- Samarium .





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Li	Be	1											В	C	N	0	F	Ne
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potassium 19	calcium 20	, I	scondium 21	litanium 22	vanadium 23	chromium 24	manganese 25	iron 26	cobalt 27	nickel 28	copper 29	zinc 30	gallium 31	germanium 32	arsenic 33	selonium 34	bromine 35	krypton 36
K	Ca	, I	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
39.098 rubidium	40.078 strontium	1 1	44.956 yttrium	47.867 zirconium	50.942 niobium	51.996 molybdenum	54.938 technetium	55.845 ruthenium	58.933 rhodium	58.693 palladium	63.546 silver	65.39 cadmium	69.723 Indium	72.61 tin	74.922 antimony	78,96 teiturium	79.904 Iodine	83,80 xenon
37	38	, I	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
<b>Rb</b>	Sr	,)	Y	2r	Nb	Mo		Ru	Rh	Pd	Ag	Cd	In 114.82	<b>Sn</b>	<b>Sb</b> 121.76	Te 127.60	126.90	Xe
caosium 55	barium 56	57-70	lutetum 71	hafnium 72	tantalum 73	tungsten 74	rhonium 75	osmium 76	102.91 Hidium 77	platinum 78	00/8/ 00/0	morcury 80	114.52 thallium 81	load 82	bismuth 83	polonium 84	astatino 85	radon 86
Cs	Ba	*	Lu	Ĥf	Ta	Ŵ	Re	Os	lir	Pt	Au	Hg	TI	Pb	Bi	Po	At	Rn
132.91 francium	137,33 radium	<u> </u>	174.97	178.49	180.95	183.84 seaborgium	186.21 bohrium	190.23 hassium	192.22 moltnerium	195.08	196.97 unununium	200.59	204.38	207.2 Ununguadium	208,98	[209]	[210]	[222]
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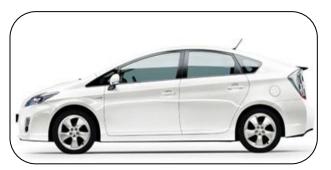
## **'Heavy' REE**

- Europium
- Gadolinium Holmium
- Terbium Erbium
- Thulium Dysprosium
  - Ytterbium
  - Lutetium

**Other REE** Scandium

Yttrium

## **Critical For Green Technologies**



## **Hybrid cars**

## (neodymium & dysprosium)

• Rare earth magnets used in batteries and other components requiring small, lightweight motors.

## **Fluorescent lights**

### (terbium, europium, gadolinium & yttrium)

• Combination of red, blue & green phosphors to make white light that is more efficient than incandescent bulbs





## Wind turbines

## (neodymium & dysprosium)

• Rare earth magnets used in motor, where lightweight is important due to the position of the motor on top of a tall, thin support, subject to high winds

### Rechargeable batteries (lanthanum)

Non-toxic replacements to nickel and cadmium batteries



### Non-toxic pigments (lanthanum & cerium)

• Non-toxic replacements to cadmium and other heavy metals in red-orange pigments.





## ...and Consumer Technologies

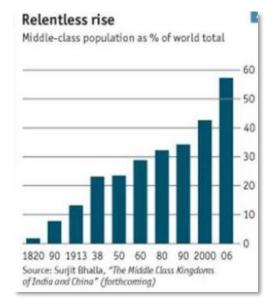
# *"By 2030, developing countries will be home to 93% of the world's middle class"*

The World Bank (2011)







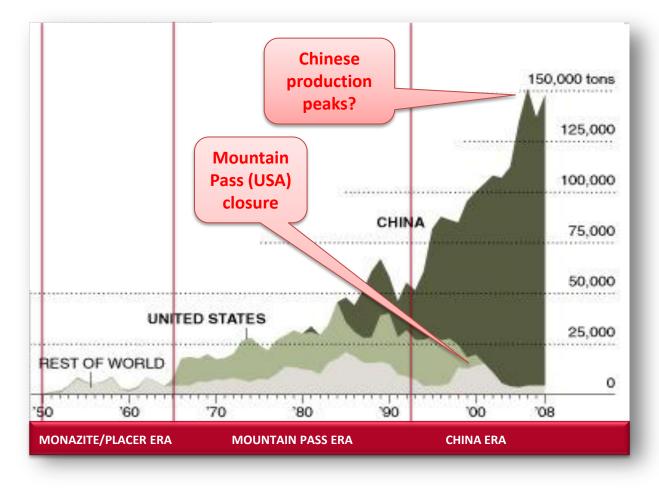








## A New Industry with a 3-Phase History



### THE LAST 10 YEARS

- **2002** Mountain Pass, USA, stopped mining
- **2002 2007** China supplied over 95% of global rare earth oxides
- 2007 China commenced reducing export quotas

#### WHY?

- 1. Developed in-house downstream capacity
- 2. Soaring domestic demand
- 3. Environmental issues and illegal operations



## **Chinese Export Restrictions In Progress**

## "China cuts 2011 rare earths export quotas"

MarketWatch, 19<sup>th</sup> Oct 2010

Year	REO Export Quota	% Change	Demand Outside China	Surplus (Shortfall)
2005	65,609 t	0%	48,000 t	17,609 t
2006	61,821 t	-6%	53,000 t	8,821 t
2007	59,643 t	-4%	55,000 t	4,643 t
2008	56,939 t	-4.5%	54,000 t	2,939 t
2009	50,145 t	-12%	25,000 t	25,145 t
2010	30,258 t	-40%	62,000 t	(31,742) t

## "China plans to fix rare earth prices"

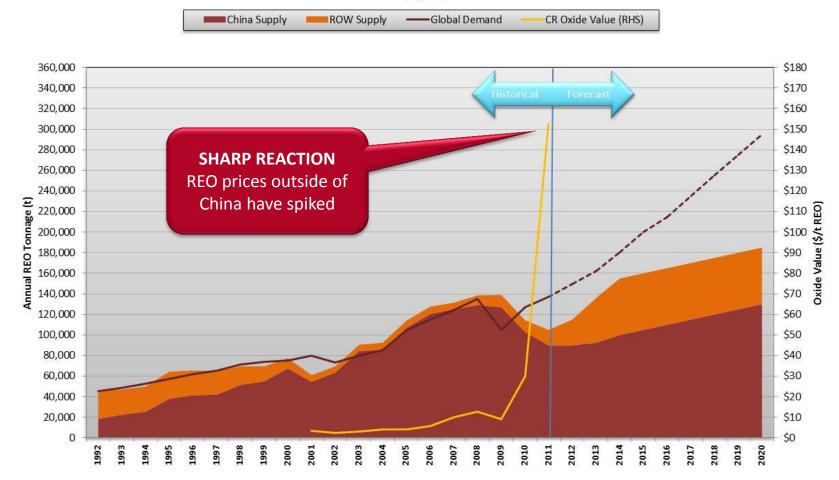
Reuters, 8th July 2010

SOURCE: Objective Capital Global Mining Investment Conference 2010 - Outlook for Rare Earths, Gary Billingsley, Great Western Minerals

The RE Market Outlook

## KIM BERLEY RARE EARTHS

## **Rare Earths Supply and Demand**





## Have RE Prices Retreated Recently?



It is now only **1,548%** higher than the 30 June 2010 Price

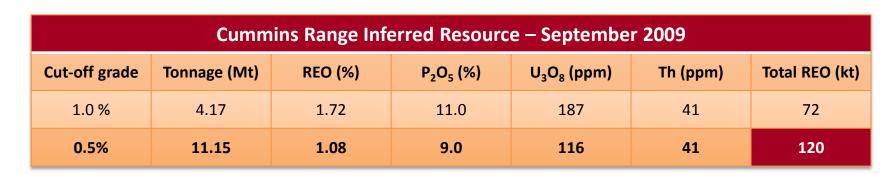


## What It All Means

- There is a medium to long term RE supply bottleneck
  - SUPPLY DOWN China is methodically restricting exports
  - DEMAND UP Demand is increasing through consumer growth and green technologies
- Substitution options either not possible, novel (years off) or more expensive
- It is now critical that RE mines are developed outside China to maintain supply



## CUMMINS RANGE A Developing REO Resource



- JORC compliant Inferred Resource containing 120,000 tonnes of REO (equivalent to global 2010 consumption)
- One of only 22 formally defined rare earth deposits in the world\*
- Rare earth oxide blend similar to Mt Weld
- Low thorium levels

ARTHS



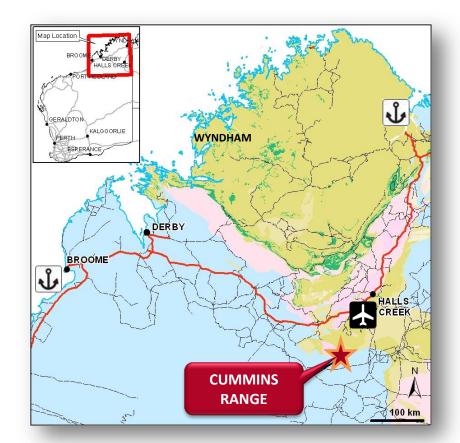
Favourable Terrain at the Cummins Range Prospect

## CUMMINS RANGE In a Favourable Location

130 km to Halls Creek
 Town and airstrip

FARTHS

- 500 km to Wyndham
  Town and seaport
- 700 km to Broome
  Major town, seaport and airport
- No tourism or community overlaps
- Several operating mines in the area



Northern Australia is the nearest future REO region to Japan (5,500km) and China (4,500km)

## CUMMINS RANGE KRE Joint Venture With NAV

## THREE STAGES

### 1. COMPLETED

Upon listing, KRE acquired 25% ownership of Cummins Range.

### 2. IN PROGRESS

Additional 30% interest earned with expenditure of A\$10 million in exploration within 4 years.

### 3. THEN

Additional 25% interest earned through completion of a Bankable Feasibility Study (\*BFS).



## CUMMINS RANGE High REO Grades Near Surface

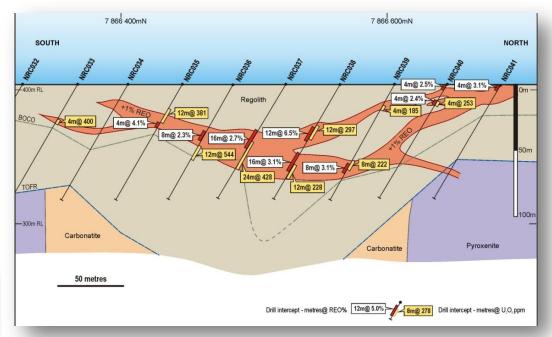
- Carbonatite Hosted
  Similar to Mt Weld geology
- Historically Processed Minerals
  Predominantly monazite and minor apatite mineralogy
- Near Surface

EARTHS

Rare earths concentrated in weathered zone of earths crust

+ 2007 NIAV duill :

Best 2007 NAV drill intersections							
Drill hole	Width Grade		Depth				
NRC038	17m	5.27% REO	42m				
NRC058	29m	4.57% REO	27m				
NRC038	20m	5.55% REO	2m				
NRC059	33m	382ppm U <sub>3</sub> O <sub>8</sub>	24m				
NRC066	20m	919ppm U <sub>3</sub> O <sub>8</sub>	73m				
NRC058	35m	962ppm U <sub>3</sub> O <sub>8</sub>	27m				



Cross section of Cummins Range deposit showing horizontal mineralisation within the weathered layer overlying an intrusive carbonatite pipe

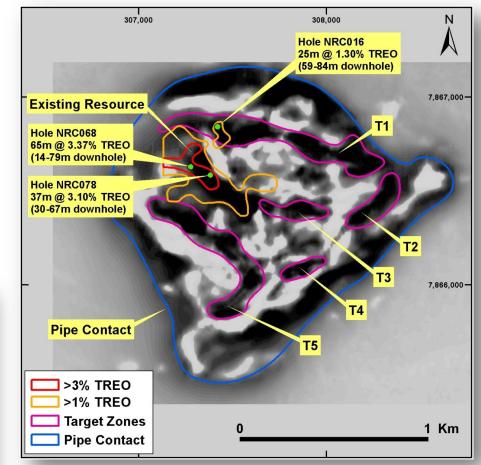


## CUMMINS RANGE Potential for Resource Expansion

- Current Inferred Resource open to north and west
- New geophysics has revealed multiple new targets
- RC Drilling commenced 9<sup>th</sup> September



RC Drilling at Cummins Range – September 2011



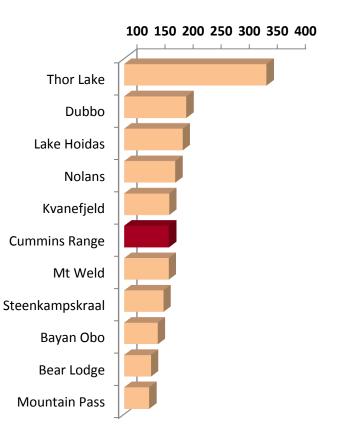
New aeromagnetic image of Cummins Range showing resource location and opportunities for further exploration

## CUMMINS RANGE A Competitive RE Blend



Cummins Range Resource Composition							
Metal	1 <sup>st</sup> -13 <sup>th</sup> Sep 2011 oxide price (US\$/kg)	Proportion in resource (%)	Value of resource oxide blend (US\$/kg)				
Lanthanum	110	27.3%	30.03				
Cerium	110	47.7%	52.47				
Praseodymium	248	4.8%	11.93				
Neodymium	309	15.2%	46.99				
Samarium	128	1.6%	2.06				
Europium	4,810	0.4%	19.24				
Gadolinium	192	1.0%	1.93				
Terbium	3,710	0.1%	3.71				
Dysprosium	2,290	0.5%	11.45				
Others	-	1.4%	-				
Total		100.0	US\$179.80/kg				

### **Resource oxide blend (US\$/kg)**



**Data Compilation:** John P. Sykes Mining Consultancy; **Oxide prices:** Metals Pages; **Resource data:** Green Leader Cummins Range Rare Earth Project – March 2011



## CUMMINS RANGE The Scale to be a Producer

### POSSIBLE OPERATIONAL PARAMETERS

#### Production Rate

Deposits of similar size and grade indicate 2,000-4,000 tpa REO may be possible

### Mine Life

Assuming 60% recovery<sup>\*</sup> indicates a possible mine life of +10 years

## Likely Operating Scenario FIFO Operation

**Open Pit Mine** 

On-site Process Plant to produce REO intermediate product

Off-site downstream processing to produce marketable products

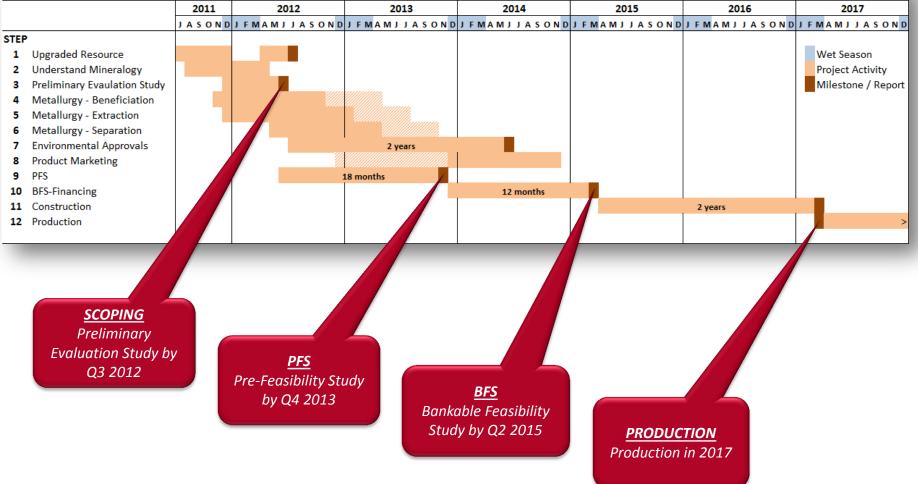
Project	Resource	Status	Production target (REO tpa)
Mountain Pass	39.9Mt @ 9.4% REO	Operating & expanding	Currently 3,000t expanding to 19,000t then 40,000t
Mt Weld	17.5Mt @ 8.1% REO	Commissioning	11,000t ramping up to 22,000t
Steenkampskraal	0.25Mt @ 11.8% REO	Construction	5,000t
Nolan's Bore	30.3Mt @ 2.8% REO	Feasibility	20,000t
Thor Lake	175.9Mt @ 1.4% REO	Feasibility	10,000t
Bear Lodge	17.5Mt @ 3.5% REO	Pre-Feasibility	~10,500t
Kangankunde	0.11Mt @ 4.2% REO	Advanced exploration	5,000t
Cummins Range	4.2Mt @ 1.7% REO	Advanced exploration	2,000-4,000t ?

#### **Production Potential of Advanced REE Projects**



## CUMMINS RANGE A Realistic Development Timeframe

#### CUMMINS RANGE - Path to Production

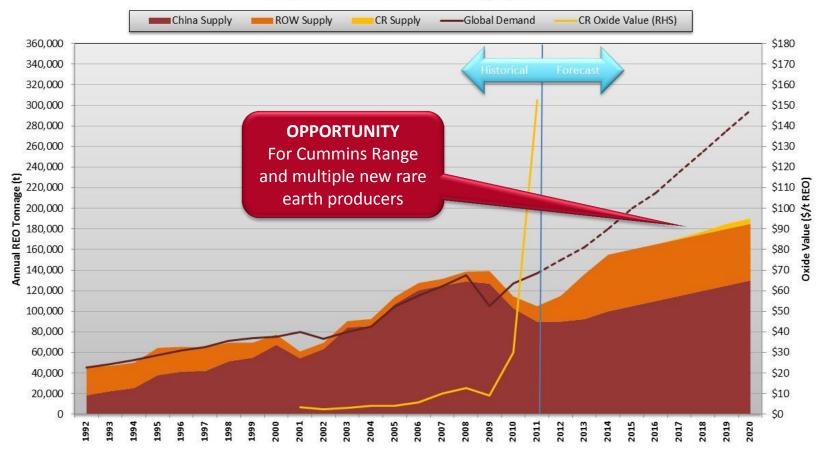


## CUMMINS RANGE Fit in the Global RE Market Future

## **Rare Earths Supply and Demand**

EARTHS

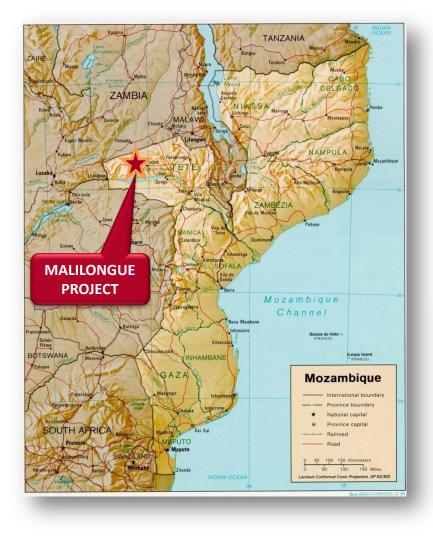
Where does Cummins Range fit in?



Based on Kimberley Rare Earths understanding of the rare earths market, drawing from data sources including Lynas Corporation and Arafura Resources. Historic price information from Metal Pages



## A New RE Project in Mozambique



 Heads of Agreement Signed with GWM (Great Western Mining Lda - a gemstone mining company)

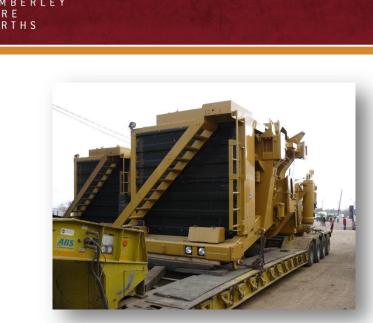
MALILONGUE

- \$300,000 for initial 40% interest\* in non-gemstone rights
- Farm-in rights to earn up to 90% by sole funding to production



Established transport road to the Malilongue site

## MALILONGUE Project Location Highlights



TETE - Heavy mining equipment in Tete, Mozambique

300 km from Tete

Rapidly becoming a local mining hub Including 3 Australian drilling companies

- Established road and operations at the site
- Other Infrastructure

Hydroelectric power grid and mobile phone network 60 km from site

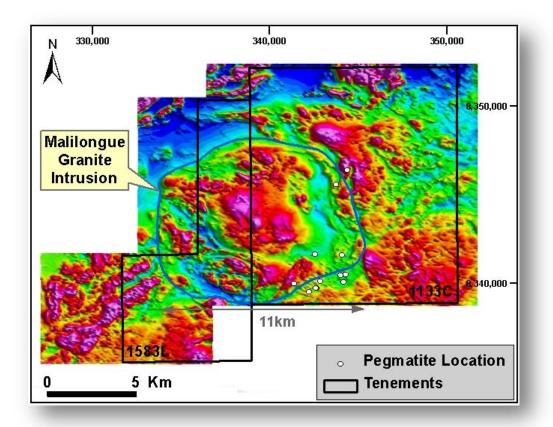




SITE - Current owner has an established gemstone mining operation at the site

## MALILONGUE Ready to Explore for RE





## No systematic exploration for REO mineralisation

### • Two exploration licences

Contain over 40 pegmatite dykes worked by artisanal miners for gemstones

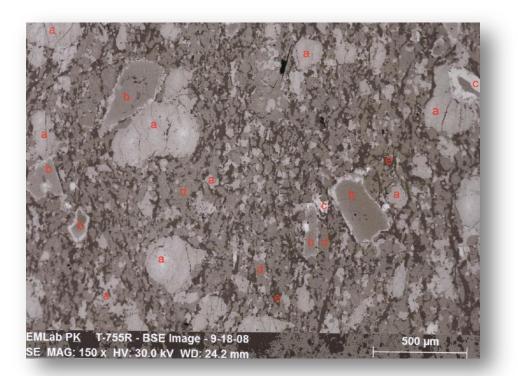
9km wide circular granite intrusive



A large topaz crystal from artisanal workings in pegmatite at Malilongue

## MALILONGUE Existing RE Information





SEM Image of a Malilongue pegmatite sample <u>Minerals</u>: (a) monazite, (b) ferrocolumbite, (c) microlite, (d) xenotime, (e) zircon

- Good Aeromagnetic Data Set
- 15 Rock Chip Samples

3 logged as pegmatite with 20% TREO assays

 38 Alluvial Pit Samples (Jig Concentrate)

average assays = 26% HREE, 20% LREE

• Mineralogy Report (Single Sample)

Contains major xenotime

Xenotime shows yttrium along with appreciable dysprosium and erbium



## Summarising

### **KIMBERLEY RARE EARTHS LTD**

New ASX company, cashed up, experienced team, strategy in action

### **RARE EARTH MARKET**

SUPPLY – Rapidly being restricted by Chinese export policy DEMAND - Growing relentlessly through consumer and green technologies NET RESULT - Critical need on non-Chinese rare earth supply

### **KRE ASSETS**

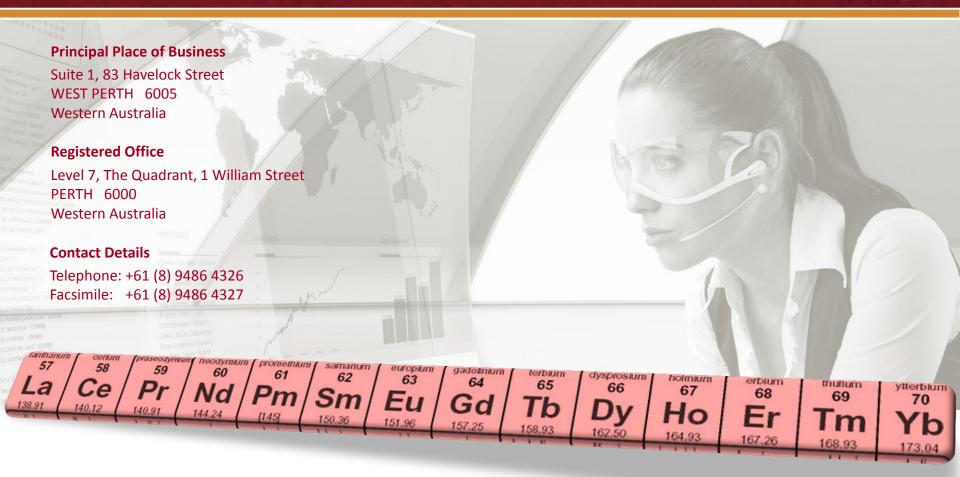
CUMMINS RANGE – An advanced Australian RE Resource, one of few outside China MALILONGUE – Exciting heavy rare earths exploration project in Mozambique

### **KRE FOCUS**

Rapidly advancing rare earth projects through exploration and development into production



## Focused On Rare Earths



## www.kimberleyrareearths.com.au