2023 Diggers and Dealers Mining Forum

AUSTRALIAN RARE EARTHS

Australian Rare Earths:

Bringing Diversity to Global Rare Earths Supply

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Non-Executive Chairman

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COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration results is based on information compiled by Australian Rare Earths Limited and reviewed by Mr. Rick Pobjoy who is the Technical Director of the Company and a member of the Australian Institute of Mining and Metallurgy (AusIMM). Mr. Pobjoy has sufficient experience that is relevant to the style of mineralisation, the type of deposit under consideration and to the activities undertaken 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". Mr. Pobjoy consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement (ASX announcement dated 3 April 2023) and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement (ASX announcement dated 3 April 2023) continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement (ASX announcement dated 3 April 2023).

RARE EARTH SUPPLY CHAIN MINE TO SHOWROOM FOR AN ELECTRIC VEHICLE

Every OEM Supply Chain begins in a Mine

- For too long many OEM's have conveniently talked about supply chains beginning with a metal
- Every supply chain begins at a mine the operators of which have a responsibility to convince all stakeholders that the environmental impacts are managed in accordance with international standards

Step	Process	Value/kg or unit *(Indicative Only)*	Comments
1	**Mining**	Typical monazite rich ore at 8% REO ~US $½/kg REO	Only Chinese entities can own a proportion, however small, of Chinese rare earth deposits/mine. China has ~40% of global rare earth reserves, which are being squandered due to inefficient mining and poor environmental practice.
2	**Beneficiation**	Monazite rich concentrate at 55% REO US $7-9/kg REO	Must be 100% Chinese owned in China. Currently >80% of global extraction capacity is effectively Chinese controlled. In Australia CSIRO and several independent laboratories have proven beneficiation expertise and pilot plant facilities.
3	**Extraction**	Rare earth chemical concentrate at 45% REO ~US 15-40/kg REO	China and ROW have good technology for processing monazite, xenotime and bastnasite; although experienced practitioners are scarce. China leads the processing of (>98%) ionic clays, sourced from China and Myanmar with export of the technology/practice prohibited. ROW making big investment in the development of ionic clay processing. ANSTO recognised as a leader. 80-90% of global capacity controlled by China; could fall to 75% with of ROW projects under construction.
4	**Separation** (primarily SX)	Neodymium Oxide ~US $50-70/kg REO	Excellent technology and expertise in China; where capacity is 200% of global demand. Good basic SX (non-REO) expertise in ROW. ANSTO has proven experience/ capability and a large pilot plant capacity. 80-90% of production is from China.
5	**Oxide to Magnet Alloy**	Magnet Alloys ~US $15-40/kg RE Alloy	>85% undertaken in China due to low costs and lax environmental standards. Limited production in Japan, Vietnam, Thailand, EU, UK and USA, but increasing with government support. Large price range due to large range of REPMs in terms specifications.
6	**Alloy to REPM**	Rare Earth Permanent Magnets ~US $30-300/kg magnet	>90% undertaken in China due to automation accompanied by low costs and lax environmental standards. Japan, Korea, USA and the EU have superior technology 'high-end' magnets. China while investing in training/education of REPM technologists has effectively commoditised production/sale of low value REPMs. Private investment supported by government grants required in ROW training of REPM technologists and researchers.
7	**REPM Component Production**	Luxury vehicle and EV sub-assemblies/drives Large range	Vertical integration from the mine to the REPM and often a drive containing an REPM, supplemented by taxes and quotas is the key to China's competitive position. Over the past 20-30 years China has encouraged ROW automotive manufacturers to progressively move downstream through tax relief and ready access to local materials/components produced under lax enforcement of environmental legislation.
8	**Electric Vehicle Production**	Electric Vehicle ~US $20-150,000 each	There are a large number of Chinese EV companies driven by government subsidies many of whom were co-founded by Li- battery manufacturers; a major cost of an EV and a sector in which China is the market leader. In the drive to a carbon-free global economy in 2050 there are increasing incentives for consumers to buy EVs. The growing middle class coupled with the significant financial incentives China is the leading global producer (~50-60% numerically) and buyer of EVs; particularly the smaller/cheaper models.

Notes: 1. The industry in China was highly fragmented, but through government intervention/direction is now vertically integrated to a high degree and investing in downstream activities. 2. China has a dominance that is still driving automotive companies to make heavy investments in developing substitutes for rare earths.

SUCCESSFUL TRIAL MINING & REHABILITATION DEMONSTRATED

Commitment to continuous land rehabilitation

- Innovative trial mining program successfully undertaken in April-June 2022
- Confirmed opportunity for continuous land rehabilitation
- No long-term impact on the landscape – minimal disturbance with the land rapidly returned to its former use
- Provided insights into geological interpretation and mine design
- Collected a 500t mineralised clay sample for metallurgical testing
- Rehabilitation witnessed by local stakeholders; “seeing is believing”

SEPARATED RARE EARTHS DEMAND AND SUPPLY

Rare Earths Demand

- 2022 Total Demand: 260-280 ktpa REO, growing at 6-8% p.a.
- 2022 Magnet Rare Earths Demand: 60-80 ktpa REO, growing at 8-10% p.a.
- 2027 Total Demand: 340-370 ktpa REO
- 2027 Magnet Rare Earths Demand: 110-130 ktpa REO

Rare Earths Supply

- 2022 Light Rare Earths in Surplus
- 2022 Magnet Rare Earths Demand and Supply in Balance
- 2023 Onwards Growing Deficit of Magnet Rare Earths

2030 Potential Magnet Rare Earths Deficit:

20-40 ktpa REO (10-15%)

Source: Adamas Intelligence 2023

CHINA'S 50 YEAR JOURNEY TO RARE EARTHS MARKET DOMINANCE

Goal: to maximise the benefits of China's rich endowment of rare earths to the Chinese people through long-term downstream job creation

- **1970s:** Rare earth mineral concentrates
- **1980s:** Mixed rare earth chemical concentrates
- **Early 1990s:** Separated rare earth oxides and metals
- **Late 1990s:** Magnets, phosphors, polishing powders
- **This Century:** Electric motors, computers, batteries, LCDs, mobile phones, EVs, hybrid vehicles
- **The Goal:** *Made in China 2025* -
  Downstream process >50% of domestic rare earths through to final products (OEMs) by 2025

China's objective is to create manufacturing jobs for the 200 million people moving from the country to the cities between 2015 and 2025. **Are those manufacturing jobs still being lost to the Rest of the World (ROW)?**

2021 to 2023 CHINESE RARE EARTH PRODUCTION QUOTAS*

RARE EARTH GROUP	2021 TOTAL TPA REO		2022 TOTAL TPA REO		2023 TOTAL TPA REO	
	MINING	SEPARATION & SMELTING	MINING	SEPARATION & SMELTING	MINING	SEPARATION & SMELTING
Northern Rare Earth	88,250	76,550	141,650	128,935	161,900 (67%)	146,800
Southern Rare Earth**	20,450	28,650	62,210	58,500	71,100 (30%)	66,600
Guandong Rare Earth	3,250	12,700	2,700	10,605	3,100	12,050
Xiamen Tungsten	4,150	4,750	3,440	3,960	3,900	4,550
China Non-Ferrous Metal Industries	51,900	39,350	-	-	-	-
TOTALS	168,000	162,000	210,000	202,000	240,000	230,000

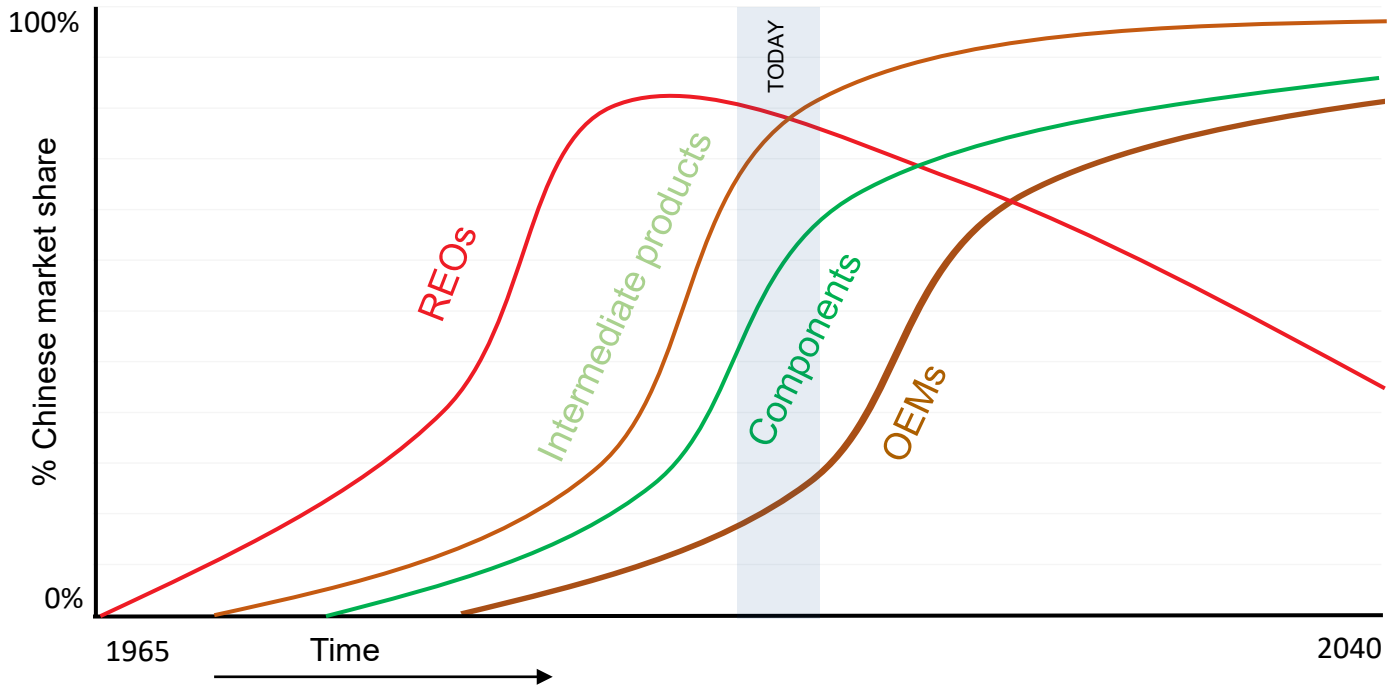
NOTES:

*The Quota is the volume of rare earth carbonate (RECO3), allowing for recoveries during primary processing the actual volumes mined are ~25% greater.

** 40-60% of the ionic clays processed in China are imported from Myanmar, where the impact on the environment and local communities is significant and of concern:

https://www.globalwitness.org/en/campaigns/natural-resource-governance/myanmars-poisoned-mountains/

IMPACT OF CHINA'S VERTICAL SUPPLY CHAIN



~ US $40 Billion

~ US $400 Billion

~ US $4 Trillion

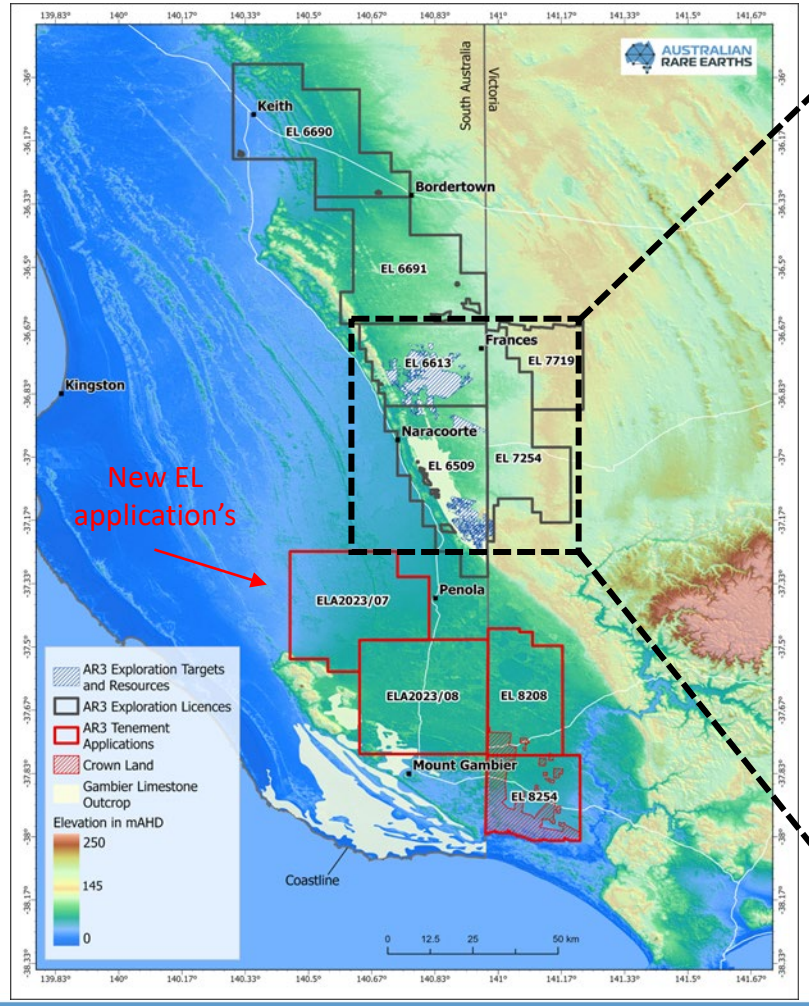
~ US $12 Billion

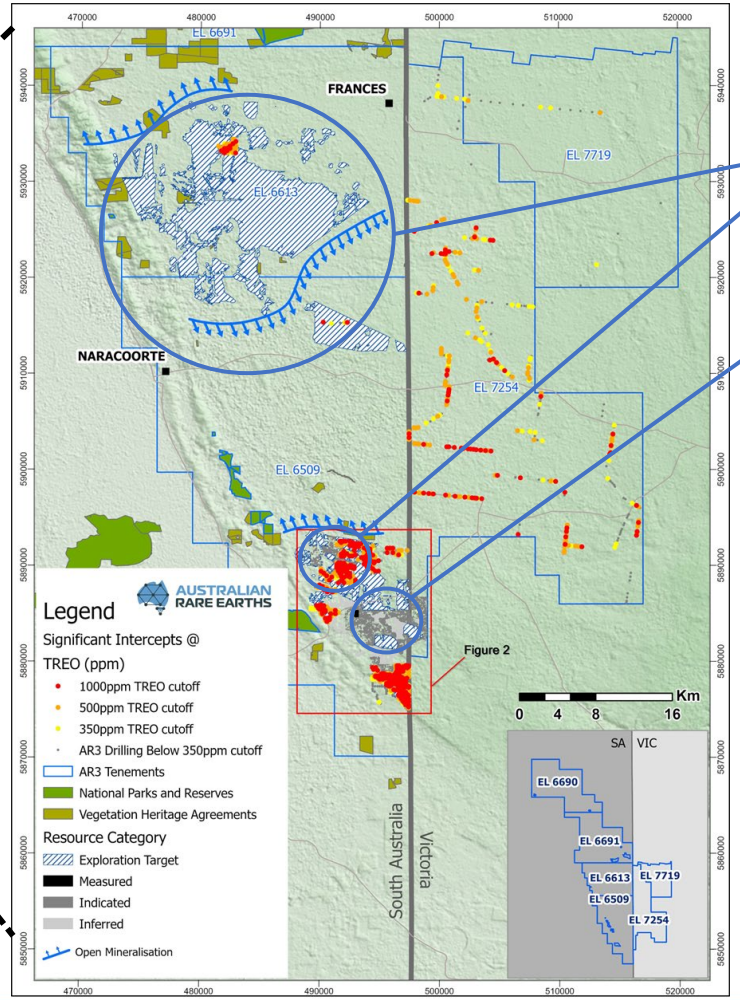
China is becoming more and more dependent upon Myanmar for heavy rare earth (HREE) concentrates

China's goal is not to export unimproved rare earths but the OEMs containing rare earths; in essence just as France will sell you a bottle of wine but not the grapes

KOPPAMURRA PROVINCE POTENTIAL

Large, consistent, shallow deposit with exceptional growth potential





- Exploration Target: 330Mt to 1,400Mt[1]
- Mineral Resource: 101Mt at 818ppm TREO[1]

- Additional 2,700km^2 tenure under application expanding project area to more than 6,700 km^2
- Mineral Resource and Exploration Target update H2 2023

[1] AR3 ASX release 3 April 2023 *"Koppamurra Mineral Resource Up 25%, Indicated Resource up 40%, drilling points to a rare earth mineral province"*

KOPPAMURRA – MULTI-GENERATIONAL SUPPLY POTENTIAL

THE OPPORTUNITY

- Global efforts to decarbonise are driving increasing demand for Rare Earth Elements (EVs, wind turbines)
- Western World is seeking sustainable independent supply chains
- Deposits containing all four REEs (Nd/Pr/Tb/Dy) are rare

CRITERIA FOR A SUCCESSFUL RARE EARTHS PROJECT	KOPPAMURRA
Scale, grade and composition of the deposit	✔ Ionic clay hosted deposit containing all four key REEs ✔ Mineral Resource of 101Mt at 818ppm TREO with 21.5% NdPr, 2.6% Dy[1] ✔ Exploration Target 330Mt to 1,400Mt @ 540-780ppm1 ✔ Significant exploration upside; Multi-generational Province potential
Established processing pathway	✔ Process development in collaboration with world experts ✔ Successful pilot scale production of a Mixed Rare Earth Carbonate ✔ Simple flow sheet with low technical risk
ESG practice that is in keeping with international standards	✔ Tier 1 jurisdiction with robust regulatory framework ✔ Sustainable mining practices including rapid progressive rehabilitation ✔ Early and ongoing community engagement
Customer support	✔ MOU with Neo Performance Materials; includes input to test work
Low Capex and Opex	✔ Processing is at ambient temperature and pressure. ✔ No drill and blast; mineralisation close to surface. ✔ Local workforce; no FIFO

[1] AR3 ASX release 3 April 2023 *"Koppamurra Mineral Resource Up 25%, Indicated Resource up 40%, drilling points to a rare earth mineral province"*


AUSTRALIAN
RARE EARTHS
The AR3 Team is at Booth FC13 to answer your questions
ASX: AR3
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