

21 March 2023

## Chairmans letter to Shareholders

Dear Shareholders,

On behalf of Australian Rare Earths (ASX: AR3), I am delighted to provide the Company's updated Corporate Presentation.

As you will see in the presentation, AR3 has made outstanding progress towards its goal of becoming a significant producer of rare earths. This will in turn enable our Company to capitalise on the rapidly growing demand for rare earths which are sourced from outside China.

The combination of this exceptional market outlook, the growing resource inventory at our Koppamurra rare earths project and the recent strong metallurgical results underpins an extremely bright future for AR3.

An integral part of the exploration and development strategy has been the ongoing test work being undertaken at the Australian Nuclear Science and Technology Organisation (ANSTO). This is aimed at developing a process which will enable AR3 to produce a rare earth concentrate that can be sold on the international market.

This work recently resulted in a major milestone for AR3, with the successful pilot-scale production of a Mixed Rare Earth Carbonate (MREC) containing all the rare earths needed to produce rare earth permanent magnets. This is a first for an Australian ionic clay-hosted rare earth resource. The results highlight not only the immensely valuable characteristics of the Koppamurra deposit but also the skill, expertise, and commitment of the AR3 team. On behalf of the Board, I would like to thank everyone who contributed to this outstanding achievement.

AR3 is now focused on growing the inventory at Koppamurra- drilling completed late last year and additional drilling currently underway will underpin an upgrade of the existing resource. It is also expected to reinforce the immense prospectivity of the tenements that extend more than 40km to the north. The ionic clay-hosted rare earth mineralisation defined at Koppamurra has substantial district-scale potential, giving us every confidence in our ability to grow the Resource and demonstrate the scope for multi-generational supply from Koppamurra.

These recent achievements and the strong outlook are consistent with our overarching goal to become a global supplier of added-value rare earth products, working alongside landowners, community, government, and academia. We believe this strategy stands to generate excellent returns for all our stakeholders.

Yours faithfully,

Dudley Kingsnorth  
Chairman

The announcement has been authorised for release the by the Board of AR3 Limited.

**For further information please contact:**

**AR3 Limited**

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Read Corporate  
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**About Australian Rare Earths Limited**

*Australian Rare Earths is committed to the timely exploration and development of its 100% owned, flagship Koppamurra Project, located in South Australia and Victoria. Koppamurra is a prospective ionic clay hosted rare earth deposit, uniquely rich in all the elements required in the manufacture of rare earth permanent magnets which are essential components in electric vehicles, wind turbines and domestic appliances.*

*The Company is focused on executing a growth strategy that will ensure AR3 is positioned to become an independent and sustainable source of rare earths, playing a pivotal role in the global transition to a green economy.*



# KOPPAMURRA:

## Bringing Diversity to Global Rare Earths Supply

*Establishing an independent source of critical rare earths for a clean energy future*



## DISCLAIMER & IMPORTANT INFORMATION

Australian Rare Earths Limited ('AREL' of the 'Company') does not purport to give financial or investment advice. No account has been taken of the objectives, financial situation or needs of any recipient of this document. The opinions and recommendations in this presentation are not intended to represent recommendations of particular investments to particular persons. This presentation does not constitute financial product advice.

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Some of the statements contained in this presentation are forward-looking statements. Forward looking statements include but are not limited to, statements concerning estimates of expected costs, statements relating to the advancement of the Company's investments and other statements which are not historical facts. Although the Company believes that its expectations reflected in the forward-looking statements are reasonable, such statements involve risk and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements. Various factors could cause actual results to differ from these forward-looking statements include the potential that the Company's projects may experience technical, geological, metallurgical and mechanical problems, changes in product prices and other risks not anticipated by the Company or disclosed in the Company's published material.

## 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 4 July 2022) and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement (ASX announcement dated 4 July 2022) 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 4 July 2022).

The information in this report that relates to metallurgical results is based on information compiled by Australian Rare Earths Limited and reviewed by Mr. James Davidson who is the Technical Director of Wallbridge Gilbert Aztec and a member of the Australian Institute of Mining and Metallurgy (AusIMM). Mr. Davidson has sufficient experience that is relevant to the metallurgical testing which was 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. Davidson consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.



## KOPPAMURRA – MULTI-GENERATIONAL SUPPLY POTENTIAL



### THE OPPORTUNITY

- EV's, wind turbines, robotics and domestic appliances require Rare Earth Elements
- Western World is seeking sustainable independent supply chains
- Deposits containing all four key REEs are rare



### THE KOPPAMURRA PROJECT

- Has all four key REEs including the key heavy rare earths Dy & Tb
- Substantial JORC Resource of 81.4Mt at 785ppm TREO (Total Rare Earth Oxide)
- Resource open in all directions and has an adjoining (up to) 200Mt exploration target
- Clay-hosted deposit – same style that underpins China's massive rare earths industry
- Immense growth potential – Current Resource contained on < 5% of current tenement holdings



### THE PATH TO PRODUCTION

- Updated JORC Resource end Q1 2023
- MOU signed with NEO Performance Materials for a Joint Development and Offtake Agreement
- Landholder Agreements in place
- Development pathway targeting first production in 2025/26



## AN AUSTRALIAN CRITICAL METALS COMPANY

Experienced team, strong backing, well-funded with community support



**Professor Dudley  
Kingsnorth**  
Independent Chair

Internationally recognised rare earths industry expert, providing advice to producers, end users and governments.

- Professor Western Australian School of Mines
- Previous roles with Ashton Mining (Mt Weld) and Greenbushes



**Bryn Jones**  
Non-executive director  
Co-Founder of AR3

Skilled in process and technology development, specialising in uranium.

- MD entXLtd, NED Boss Energy, NED DevExResources
- Previous roles with Laramide Resources, SO4 and Uranium Equities



**Rick Pobjoy**  
Executive director  
Acting MD  
Co-Founder of AR3

Geologist with extensive experience in mineral sands exploration.

- Previous roles with Heathgate and Iluka



**Pauline Carr**  
Independent Non-executive  
director

Experienced company director in compliance, governance and risk over 30 years in resources sector.

- Chancellor of UniSA,
- Chair of National Pharmacies,
- Chair of Minerals and Energy Advisory Council
- NED Highfield Resources
- Previous roles with Normandy Mining and Newmont

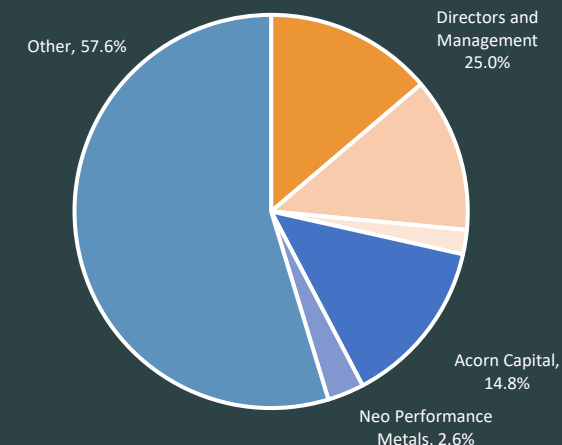


**Angus Barker**  
Independent Non-executive  
director

20 years experience as a mergers and acquisitions and capital markets adviser, working with global investment banks in Hong Kong, Australia and the United Kingdom.

- B.Com (Hons), University of Melbourne
- M.Phil, University of Cambridge Graduate
- Member of Australian Institute of Company Director
- Trusted adviser to corporations and governments for decades.

### Distribution of shareholders



### CORPORATE SNAPSHOT

**\$9.0m**

Cash at 31 Dec 2022

**129.5m**

Shares on Issue

**\$40m**

Market capitalisation  
@ \$0.31

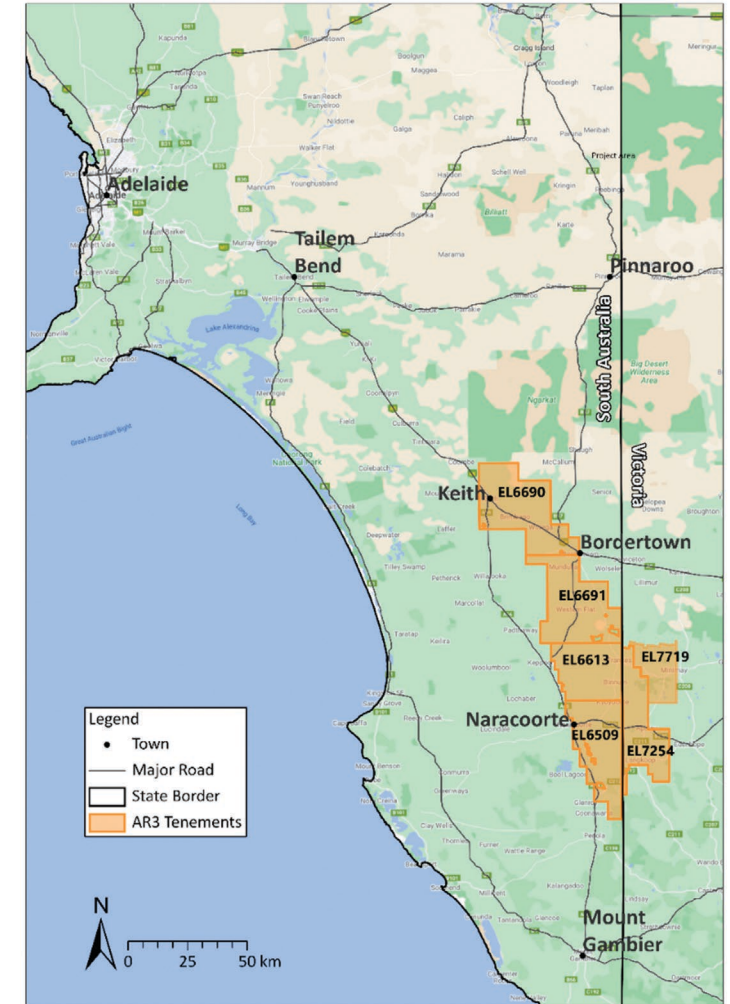
**30.9m**

Options on issue  
Exercisable at \$0.30-  
\$1.95  
Expiry Dec 2023 - Jul  
2025

## KOPPAMURRA – AR3's CONERSTONE ASSET

A highly valuable potential source of critical rare earths in a **Tier-1 location**

- **100%-owned** clay-hosted critical rare earths deposit located ~300km SE of Adelaide, in southern Australia
- 4,000km<sup>2</sup> of prospective tenure
- A Mineral Resource of **81.4Mt at 785ppm TREO** confirms Koppamurra as a globally significant resource (To be upgraded Q1 2023)
- Consistent and shallow mineralisation facilitates **rapid, low-cost exploration and resource definition**
- Drill core assays confirm the presence of light and the **highly sought after heavy rare earth elements**
- Metallurgical testwork confirms that all four rare earth elements essential for rare earth permanent magnets can be **recovered at ambient temperatures and pressures**.



## KOPPAMURRA - GLOBALLY SIGNIFICANT RESOURCE

Large, consistent, shallow deposit – exceptional growth potential

- Updated July 2022 Indicated and Inferred Resource – 81.4Mt at 785ppm TREO (Total Rare Earth Oxide) - ASX announcement dated 4 July 2022
- >55% is in the Indicated classification – 45Mt at 835ppm TREO
- 15% higher grade within Indicated Mineral Resource
- Updated Mineral Resource based on 26,185m of drilling (2,727 holes)
- Strong potential for growth, with Exploration Target<sup>2</sup> of 90-220Mt subject to additional drilling

### Koppamurra Mineral Resource Estimate – July 2022

JORC	Tonnes	TREO	Magnet Rare Earths							
			Praseodymium <sup>1</sup>		Neodymium <sup>1</sup>		Terbium <sup>1</sup>		Dysprosium <sup>1</sup>	
Category	Mt	ppm	ppm	% TREO	ppm	% TREO	ppm	% TREO	ppm	% TREO
Indicated	45	835	37	4.4	142	17	4	0.5	22	2.6
Inferred	36	721	32	4.4	122	17	3	0.5	19	2.6
Total	81	785	34	4.4	133	17	4	0.5	21	2.6
<b>Exploration</b>										
Target <sup>2</sup>	90-220	629-849	29-41	4.6-4.8	110-150	17-18	3-4	0.5-0.5	16-22	2.5-2.6
<b>April 2021 Initial Resource</b>										
Inferred	39.9	725	32	4.4	124.6	17.2	3.5	0.5	19.2	2.6

<sup>1</sup> For the purposes of this report the primary focus elements for the Koppamurra project are converted to their oxide form for reporting purposes, using known conversion factors, they are Pr<sub>6</sub>O<sub>11</sub>, Nd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub> & Dy<sub>2</sub>O<sub>3</sub>.

Mineral Resources reported at a cut-off grade of 325 ppm TREO-CeO<sub>2</sub>, consistent with the previous MRE.

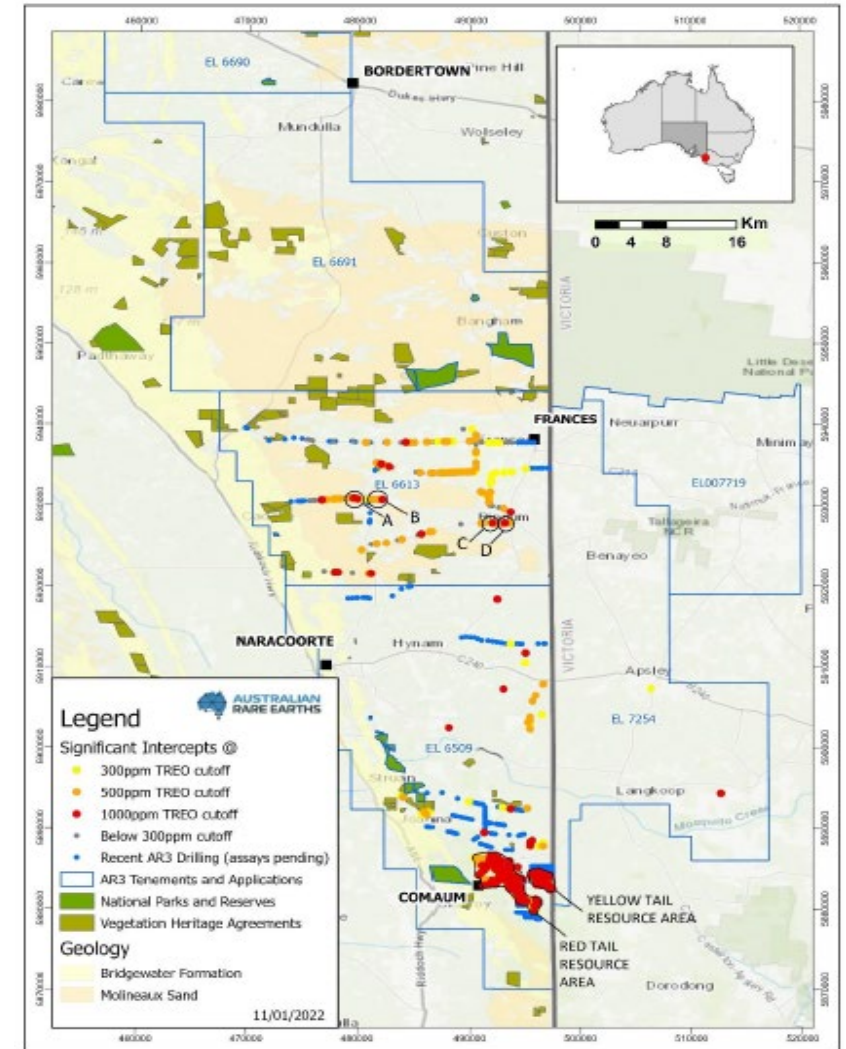
<sup>2</sup> The potential quantity and grade of the Exploration Target is conceptual in nature. Further exploration is required to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.



## OUTSTANDING GROWTH POTENTIAL

Deposit remains open with a substantial upside remaining

- **~4,000km<sup>2</sup> of granted tenure** in South Australia and Victoria
- Updated July 2022 Mineral Resource based on **drilling conducted over ~200km<sup>2</sup>** – equivalent to ~5% of the total area
- Rare earth mineralisation **hosted in a clay layer < 10m from surface**, deposited above a limestone base
- **Consistent mineralisation observed** over the entire drilled area – ongoing drilling will unlock further exploration upside
- Proven prospectivity extends 40km north of existing Resource (ASX Announcement 19/01/22)
- **Current drilling program well advanced** aiming to grow the total Resource volume and demonstrate multi-generational supply potential

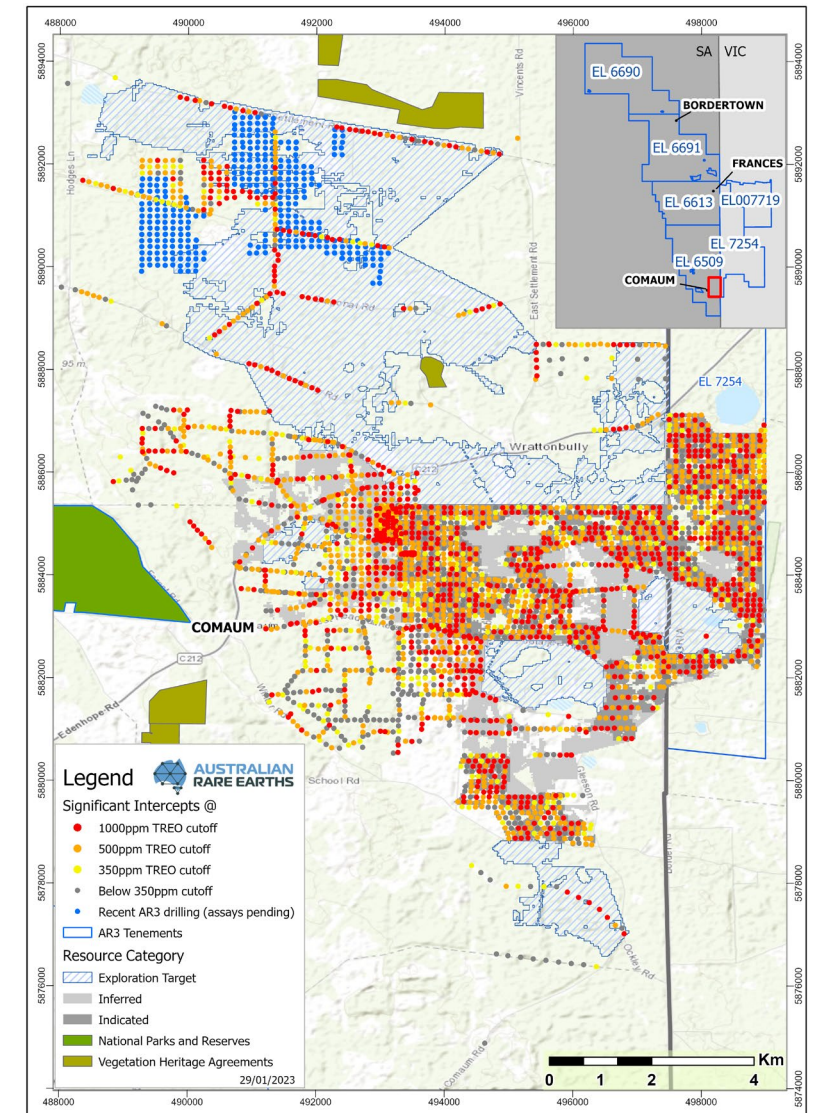


## RECENT RESOURCE EXPANSION DRILLING

Validating consistent mineralisation across the project area

Strong assays reveal **significant extensions of clay-hosted mineralisation beyond the current Mineral Resource and Exploration Target areas**. Results include:

- KM2403 - 6m @ 1,668ppm TREO from 6m, with 28.2% combined Neodymium / Praseodymium (Nd/Pr) and 2.74% Dysprosium (Dy)
- KM2409 - 3m @ 1,177ppm TREO from 6m, with 23.8% combined Nd/Pr and 2.83% Dy
- KM2440 - 6m @ 1,123ppm TREO from 4m, with 21.4% combined Nd/Pr and 2.76% Dy
- KM2482 - 2m @ 1,169ppm TREO from 2m, with 18.4% combined Nd/Pr and 2.51% Dy
- KM2483 - 2m @ 1,527ppm TREO from 2m, with 26.5% combined Nd/Pr and 2.40% Dy
- KM2520 - 2m @ 2,199ppm TREO from 4m, with 23.0% combined Nd/Pr and 2.49% Dy
- KM2531 - 3m @ 1,227ppm TREO from 2m, with 19.7% combined Nd/Pr and 2.92% Dy





## KOPPAMURRA NEXT STEPS

Establishing a valuable potential source of critical rare earths in a **Tier-1 location**

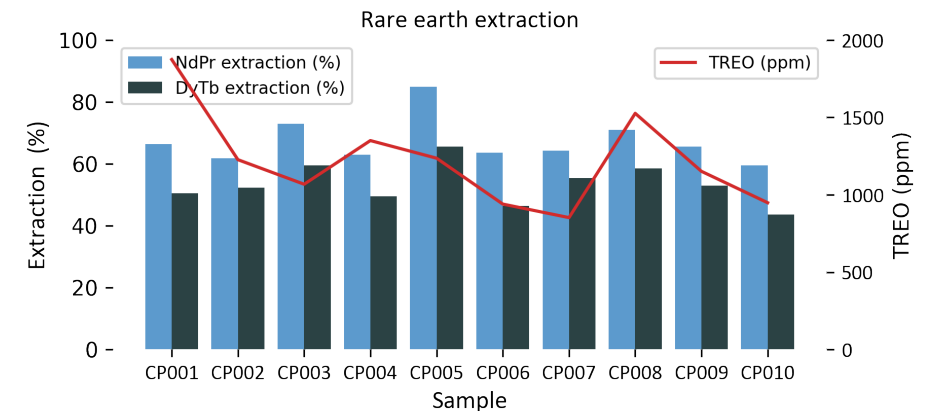
- Continuing our early and active **engagement with local communities**, their support is key to building a successful business
- Further Exploration and **Resource Definition Drilling** is well advanced
- Non-binding MOU signed with NEO Performance Materials for a Joint Development and **Offtake Agreement**
- **Metallurgical** test work continues – focused on optimising the production process flow sheet
- Preparing inputs for a Q2 2023 Mine Lease application
- Our **aim is to become a global supplier** of added-value rare earth products, working alongside landowners, communities, government, academia and research organisations



## KOPPAMURRA METALLURGY

Process development in collaboration with world experts

- Successful pilot scale production, at ambient temperatures and pressures, of a Mixed Rare Earth Carbonate (MREC), **a first for an Australian ionic clay hosted rare earth resource**
- Consistent magnet rare earth recoveries demonstrated across a wide geographical area
- **ANSTO has produced a mixed rare earth carbonate (MREC) from 800kg bulk sample**
- Initial process flow sheet design and water balance well understood
- **Assembled a world class metallurgical team:**



Valuable rare earth extraction for the Koppamurra Mineral Resource area composite samples CP001 to CP010, Diagnostic Leach at pH 1, 6 hours





## Ionic Clay Hosted REE Deposits



### Location

- Historically mined **in China, now in Myanmar**, but resources are depleting



### REE Assemblage

- Supply virtually **all heavy REE (>80%)** and a portion of light (La-Eu) REE globally



### Scale

- Scalable development – **lower initial capex** requirements



### Exploration

- Quick and cheap to define** resources given shallow drilling using aircore, auger, push-tube core



### Mining

- Shallow free digging material with low strip ratio
- Progressive and quick restoration of landscape



### Processing

- Simple metallurgy; ambient temperature & pressure.  
**No radioactive waste streams**

Fast to develop, low capex and high value product

## Hard rock

- China dominates but mines in production (limited) and under consideration in Australia, USA, Africa

- Monazite or Bastnaesite ores which **typically do not contain high heavy REE component**

- Typically require significant scale for economic viability giving **very high capex requirements**

- Similar to other hard rock base metals requiring substantial drilling, geochemistry, geophysics etc

- Drill and blast with large mining fleet
- Deep open pits or underground mining

- High temperature calcining + pressure leaching
- Radioactive tailings

Significant time and cost to develop, complex processing, radioactivity issues, lower product value

## SUCCESSFUL TRIAL MINING & REHABILITATION PROGRAM

Commitment to continuous land rehabilitation

- Innovative trial mining program successfully undertaken in April-June 2022
- Opportunity to confirm 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
- Provided an opportunity for stakeholder engagement; “seeing is believing”





## COMMUNITY AND LAND

AR3 is an active and responsible member of the community

- Building an open and collaborative community relationship underpins AR3's approach to engagement
- AR3 has established an office and warehouse in Naracoorte managed by local personnel
- Groundwater, ecological and heritage studies have commenced
- Educational initiatives underway with local schools and Universities

- ✓ *Naracoorte Office Opening*
- ✓ *Full-time local Personnel*
- ✓ *Sponsorships*
- ✓ *South-East Field Day exhibit*
- ✓ *Student Awareness*
- ✓ *60 Meetings, 7 Feature Articles*



AR3 Exhibit at Naracoorte Show



AR3 Office/Warehouse Officially Opened



Year 11 students learning about Rare Earths

## WHY AUSTRALIAN RARE EARTHS?



### THE KOPPAMURRA PROJECT

- Large resource with exceptional potential for multigenerational growth
- Substantial market opportunity driven by global decarbonization efforts
- Endowment of all four of the high value rare earth elements
  - Critical rare earths Nd-Pr and Dy-Tb are essential ingredients in permanent magnets for EV's, wind turbines, robots and domestic appliances
- Tier-1 location with strong community, landowner and government support
- Demonstrated production of a mixed rare earth carbonate (MREC) at scale
- Project Support through NEO Performance Materials MOU
- Strong demand growth supported by need for a sustainable independent supply chain





**AUSTRALIAN  
RARE EARTHS**  
*Metals for our future*

ASX: AR3

Securing Australia's rare earths for a diversified sustainable future



## SUPPLEMENTARY INFORMATION



## SEPARATED RARE EARTHS DEMAND AND SUPPLY

### Rare Earth demand

- 2022 Total Demand: 260-280 ktpa REO, growing at 6-8% p.a
- 2022 Magnet Rare Earths Demand: 70-80 ktpa, growing at 8-10% p.a.
- 2025/26 Total Demand: 320-350 ktpa REO
- 2025/26 Magnet Rare Earths Demand: 110-130 ktpa REO

### Rare Earth supply

- 2022: Surplus of light rare earths (La, Ce), magnet rare earths OK
- 2023 onwards magnet rare earths in growing deficit
- 2022 ROW Supply: 25-35 ktpa REO, 8-12 ktpa REO magnet rare earths
- 2025/26: If ROW can increase supply by 60% of the growth this equates to total 60-70 ktpa REO, including total magnet rare earths of 20-25 tpa REO





## 2020 to 2022 CHINESE RARE EARTH PRODUCTION QUOTAS\*

GROUP	2020 TOTAL TPA REO		2021 TOTAL TPA REO		2022 TOTAL TPA REO	
	MINING	SEPARATION & SMELTING	MINING	SEPARATION & SMELTING	MINING	SEPARATION & SMELTING
NORTHERN RARE EARTH	70,750t	60,984t	88,250	76,550t	141,650t (67%)	128,934t
SOUTHERN RARE EARTH**	16,850t	21,879t	20,450t	28,650t	62,210t (30%)	58,499t
GUANGDONG RARE EARTH	2,700t	10,604t	3,250t	12,700t	2,700t	10,604t
XIAMEN TUNGSTEN	3,440t	3,963t	4,150t	4,750t	3,440t	3,963t
JIANGSU RARE EARTH	36,250t	23,912t	49,500t	32,550t	Nil	Nil
CHINA MINMETALS	2,010t	5,658t	2,400t	6,800t	Nil	Nil
TOTALS	132,000t	127,000t	168,000t	162,000t	210,000t	202,000t

NOTES:

\*The Quota is the volume of rare earth carbonate (RECO<sub>3</sub>), allowing for recoveries during primary processing the actual volumes mined are ~25% greater.

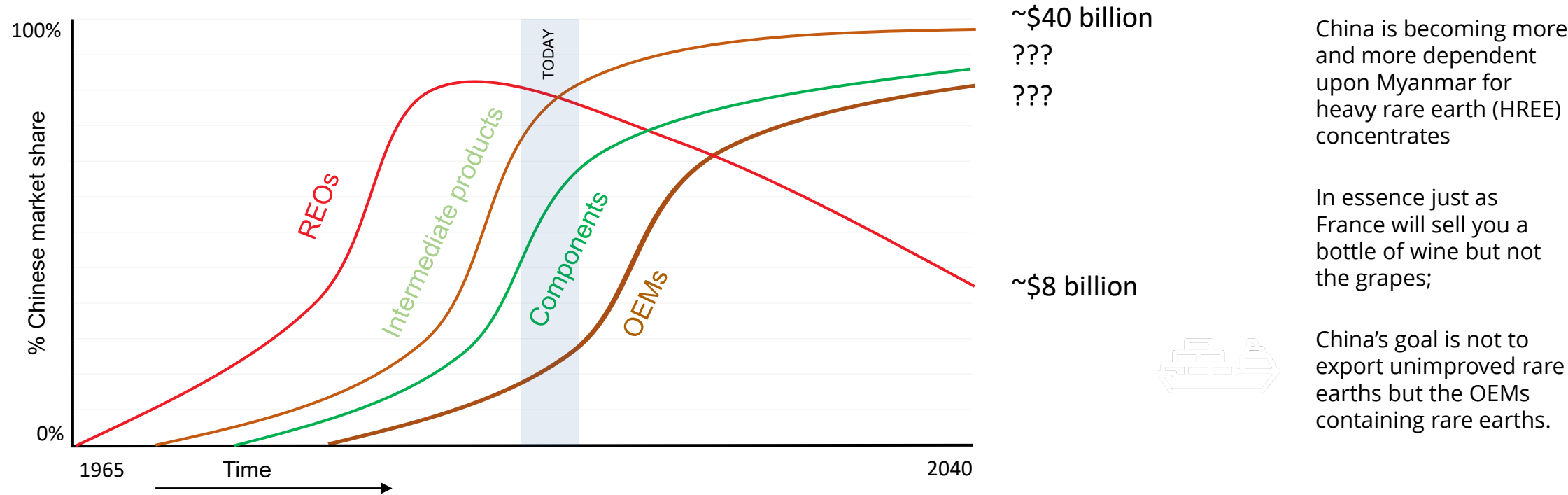
\*\* 40-60% of the ionic clays processed in China are imported from Myanmar, where the impact on the environment and local communities is significant and of concern:

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





# IMPACT OF CHINA'S VERTICAL INTEGRATION OF RARE EARTH SUPPLY CHAIN

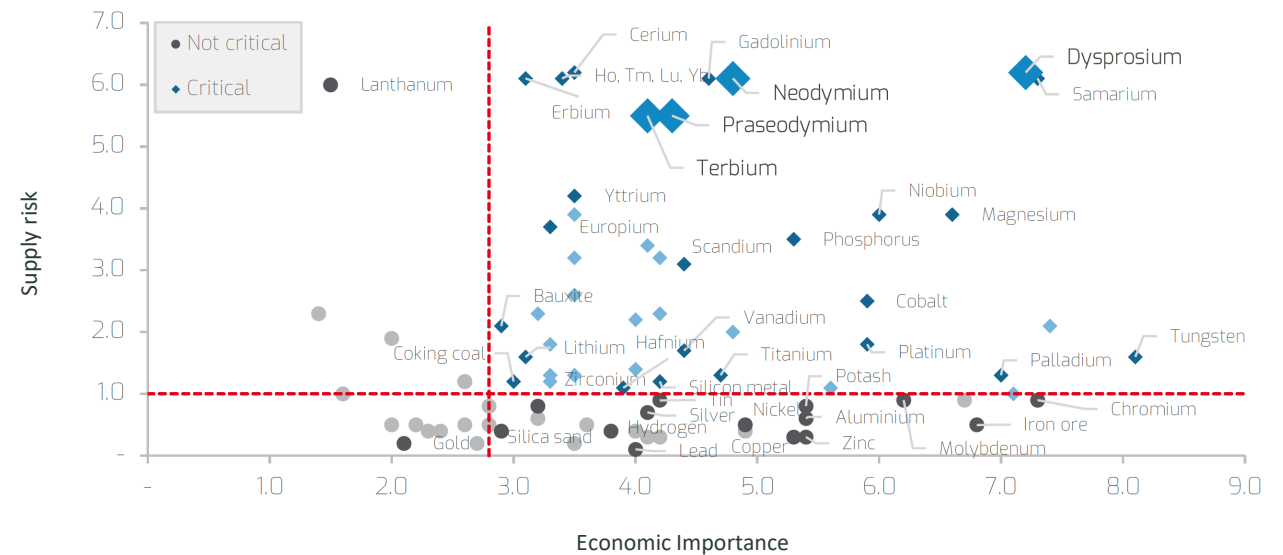


## THE RARE EARTHS SUPPLY CHAIN

China and Myanmar dominate the supply chain, including majority of heavy rare earth production and end uses

- Minerals containing Neodymium and Praseodymium are mined from multiple global sources, **however, Dysprosium and Terbium are almost entirely sourced from ionic clays** in China and Myanmar
- Chinese reserves are depleting**, with downstream producers turning to Myanmar and rest-of-world mixed rare-earth hard rock suppliers
- Dysprosium and Terbium are **considered highly critical by the US, Japanese and European governments**
- An ionic clay resource in Australia** containing Dysprosium and Terbium is of **global significance**

### EU Critical Raw Materials list 2020<sup>1</sup>

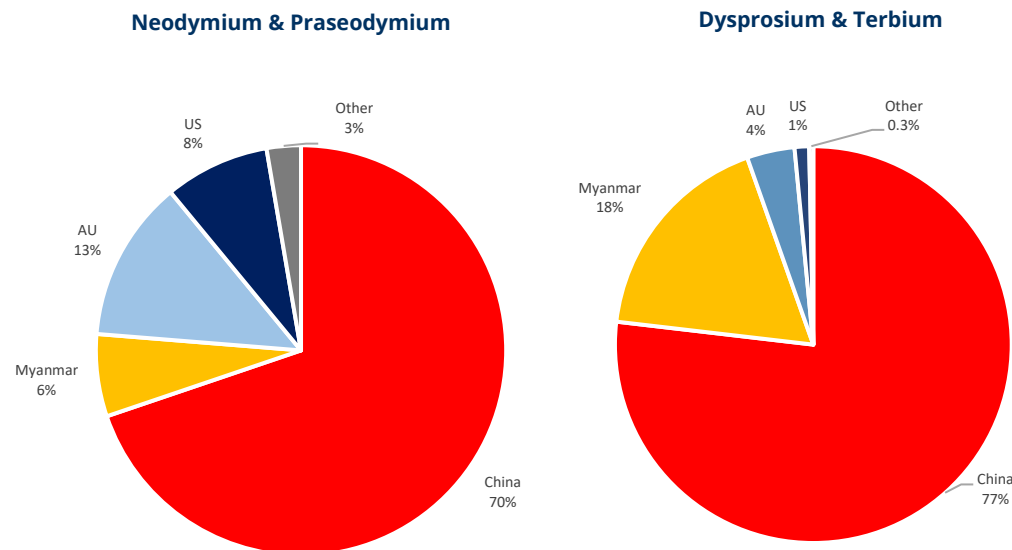


Sources: (1) European Commission Study on the EU's list of critical raw materials (2020)

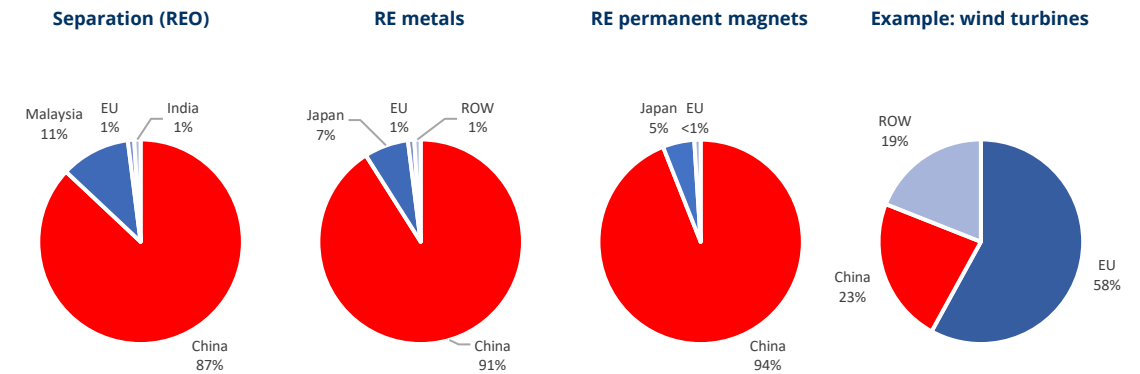
## THE RARE EARTH SUPPLY CHAIN

China and Myanmar dominate the supply chain, including majority of heavy rare earth production and end uses

### Historical rare earth mine production by country<sup>2</sup>



### Downstream supply chain also dominated by China<sup>2</sup>



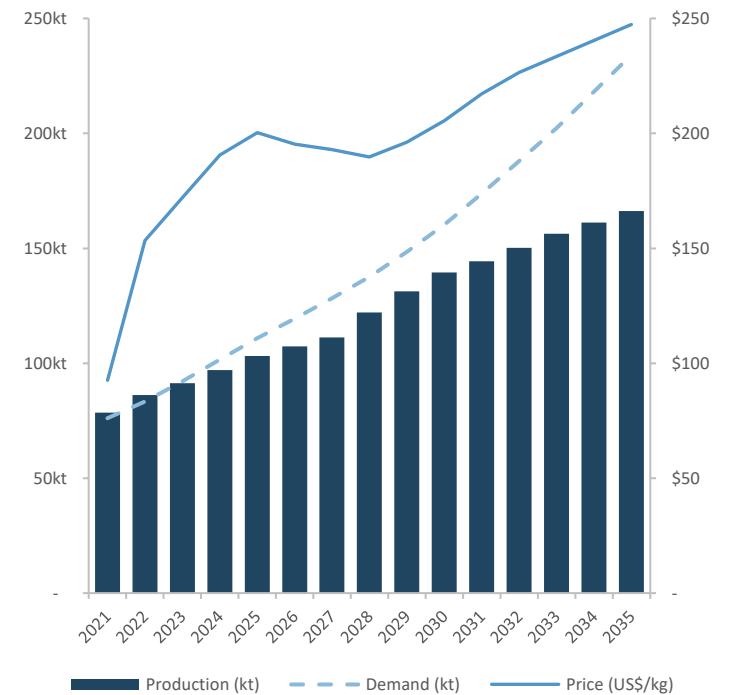
*China currently produces 94% of permanent rare earth magnets, highlighting the urgent need for new independent supply sources.*

(2) Adamas Intelligence, April 2022

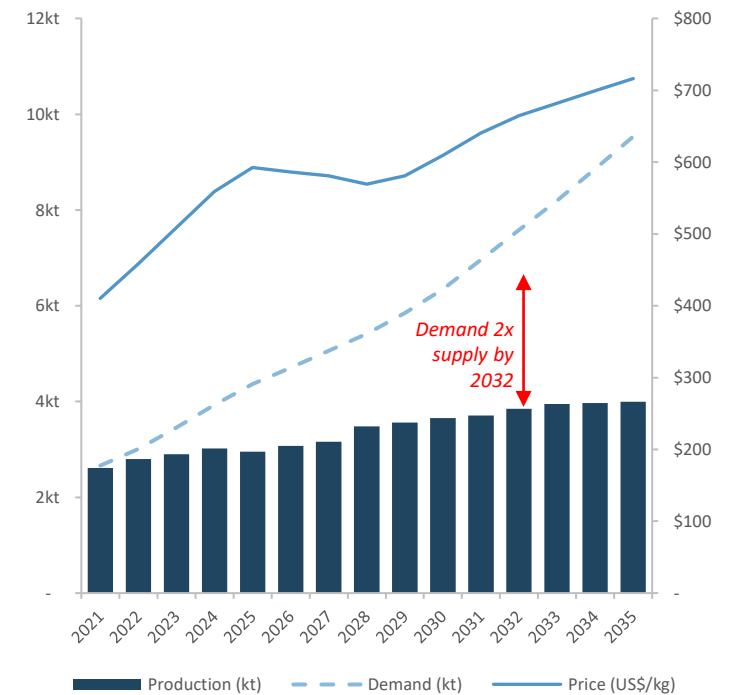
# ADAMAS INTELLIGENCE FORECASTS

Supply deficits across all magnet REO's is expected to support price accretion for the remainder of this decade

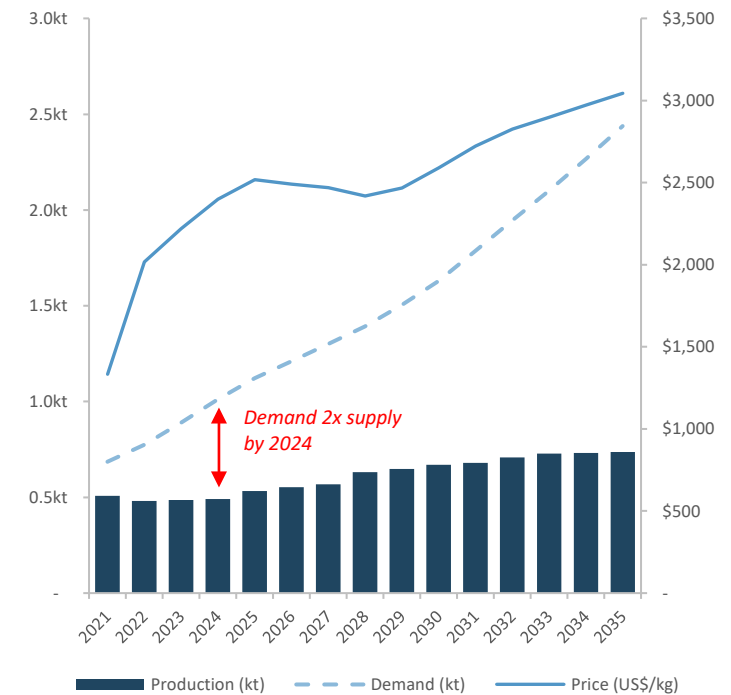
NdPr demand-supply balance (LHS) vs price (RHS)



Dy demand-supply balance (LHS) vs price (RHS)



Tb demand-supply balance (LHS) vs price (RHS)





# Koppamurra is a unique & strategically significant asset

The only confirmed ionic adsorption clay Resource in a Tier-1 mining jurisdiction

