

# Disclaimer & Competent Persons' Statements



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Competent Person's Statement - Geology: The information in this presentation relating to the Mineral Resource Estimate for the Cummins Range Rare Earths Project is extracted from the Company's ASX announcement dated 01 May 2023 which was reported in accordance with Listing Rule 5.8. REE confirms that it is not aware of any new information or data that materially affects the information included in the original announcement and that all material assumptions and technical parameters underpinning the Mineral Resource Estimate continue to apply. The Company confirms there have been no material changes to exploration results since first reported in accordance with Listing Rule 5.8.

Competent Person's Statement – Metallurgy: The information in this presentation relating to metallurgy was first reported in accordance with Listing Rule 5.7. REE confirms that it is not aware of any new information or data that materially affects the information included in the original announcement.

#### **Global Resource (JORC 2012)**

| 2.5% P <sub>2</sub> O <sub>5</sub><br>Grade Cut | Tonnes<br>Mt | TREO ppm | P <sub>2</sub> O <sub>5</sub> % | NdPr<br>ppm | Nb <sub>2</sub> O <sub>5</sub> ppm | HREO ppm |
|---|--------------|----------|---------------------------------|-------------|------------------------------------|----------|
| Indicated                                       | 66.6         | 5,010    | 6.8                             | 1,100       | 830                                | 290      |
| Inferred  | 452.7        | 2,900    | 4.2                             | 630         | 550                                | 170      |
| Total   | 519.3        | 3,170    | 4.6                             | 700         | 580                                | 190      |



# DSO Phosphate Enabled Rare Earths





James Durrant CEO

**2-years with RareX** initially as GM, then COO leading studies, heritage, environment, metallurgy and ESG.

**Operational leader**, Quarry Manager and engineer at Tier 1 iron ore miner in the Pilbara – 7 years.

Previously led studies for juniors in Africa transitioning fertiliser and bauxite projects from exploration to FID – 7 years.

# RareX Flagship Cummins Range Project

A **Direct Shipping Ore** (DSO) Phosphate enabled Rare Earths Critical Minerals Project – Scoping Study released.

**Stage 1**: DSO Phosphate fertiliser **Stage 2**: P-RE mineral con - regolith **Stage 3**: P-RE mineral con - fresh

Initial Capex: AU\$ 45M NPV<sub>8</sub> pre-tax: AU\$ 549M

IRR pre-tax: 39%

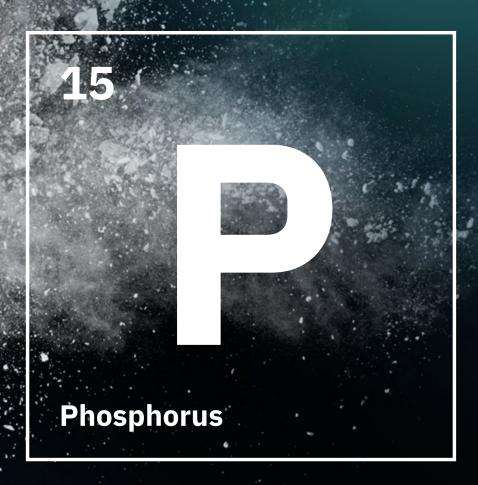
Close to a mineral corridor and bulkready Wyndham Port in the East Kimberley of Western Australia.

Well progressed heritage and environmental approvals with regulator submissions planned in early 2024.



Phosphate Enabled Rare Earths

Rare Earths



## **RareX Value Proposition**



Rare Farths

1

Positive scoping study on a large deposit

#### **Low-risk 3-Staged development**

**IRR** – 39% pre tax, 27% post tax

**NPV**– \$549M pre tax, \$333M post tax

**Stage-1 \$45M** initial capital for DSO

phosphate

**Stage-2 \$304M** at Y3 for rare-earth and

phosphate mineral concentrate

**Stage-3 \$63M** for plant upgrade moving

into fresh rock

# Australia's largest undeveloped rare earths project

**24Mt** – Contained P<sub>2</sub>O<sub>5</sub> **1.6Mt** – Contained rare earths

2

# Team able to engineer, approve, fund and deliver

#### **Action orientated board**

Cameron Henry – Process plant construction
Danny Goeman – Marketing, sales & shipping
Jeremy Robinson – Corporate finance
John Young – Mine developer
Shaun Hardcastle – Corporate Lawyer

# Relevant core team with Tier 1 operational experience

Kay Hofmann – Mining and approvals

Guy Moulang – Geology and Exploration

Lu Zhang – Metallurgy and Process

Damien Krebs, Gavin Beer – Metallurgy

BHP, Rio Tinto, FMG, MinRes, Pilbara Lithium, Primero, Mets Engineering

# 3

# RARESPLORATION

#### Investments in strategic companies

Kincora – 5M shares Cosmos – 10M shares CREC – 25M shares

# Exploration upside on and beyond Cummins Range

#### **Rationalisation**

focusing on technical and regional synergies

#### **Target generation**

On existing portfolio, including at Cummins Range

#### Growth

Expanding our portfolio in the right areas

# Corporate Snapshot Well suited for value growth



#### **Capital Structure**

ASX Code
OTCQB
REEF
Share Price (22.08.2023)
Shares on Issue
Market Capitalisation
Cash & Investments (June Qtr)
Enterprise Value

REE
REEF
A\$0.038
A\$0.038
A\$25.96M
A\$25.96M
A\$31.213M

#### Key people

Chairman Jeremy Robinson CEO James Durrant

#### **Major Assets**

Cummins Range Project100%Kincora Copper5M shares\*Cosmos Exploration Limited10M sharesCanada Rare Earths Corp25M sharesVarious Rare Earth exploration projects100%

#### **Shareholders**

Top 50 Shareholders Number of Shareholders Major Shareholders ~38% ~5,437

Simon Lee AO (5.2%)

**Jeremy Robinson (4.3%)** 

#### **Share Price Information**

ASX: **REE** 



0.03 Nov 2022 Aug 2023

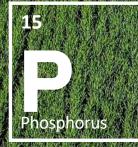
#### \* Note

Subject to shareholder approval, RareX will transition its free carry in 5 tenements into 40M new shares. Until then RareX maintains a 35% free carry Trundle. Fairholme. Jemalong. Cundumbul and Condobolin exploration licences in NSW. in addition to 5M shares.

# Cummins! Range

Fertiliser for

Critical Minerals 15





# 2023 JORC Resource 519.3Mt @ 4.6% P<sub>2</sub>O<sub>5</sub>, 0.32% TREO

#### **Australian Undeveloped Rare Earth Deposits**







#### Sources

See slide: List Of Sources For Grade And Resource Graphs ASX Announcement 01 May 2023



# 2 Global **Mega Trends**



Rare Earths

#### **Food Security**

#### **Population growth** Another 1.7B people by 2050 to a

total of 9.7B

#### **Depleting soils**

Intensive farming and inefficient applications

#### **LFP Batteries**

Doubled market penetration last year

#### **Strategic Drivers**

#### **Constrained supply - Russia, China & North Africa**

Export loss resulted in a global supply shortfall

Phosphate growing in critical mineral recognition

#### **The Electric Revolution**

#### Wind farms

200kg NdPr per MW of turbine Net Zero goals by 2050

#### **Electric Vehicles**

1kg NdPr per vehicle \$1T invested in electrification Net Zero goals by 2050

#### **Consumer electronics**

Population growth and increased technology

#### **Strategic Drivers**

#### **Concentrate supply - China**

Government mandates for independent supply chains

United Nations Department of Economic and Social Affairs

https://www.reuters.com/business/autos-transportation/exclusive-global-carmakers-now-target-515-billion-evs-batteries-2021-11-10/

CRU research

# Simplified path to operations

a de-risked way to Rare Earths





Rare Farths

#### **3 Project Stages**

#### **Tactical Advantages**

## Stage 1: DSO

Organic Rock Phosphate 23% P<sub>2</sub>O<sub>5</sub>, 5x bioavailability c. 1Mt from surface

- Existing infrastructure bulk ready with road and port
- Local product placement opportunities
- ✓ Significant de-risking step for developing Stage 2

## Stage 2: P-RE

Regolith Concentrate 33% P<sub>2</sub>O<sub>5</sub>, 2.3% RE 5Mt over 10 years

- Simple beneficiation to high grades on site
- ✓ Target market: phosphoric acid producers in SE Asia
- ✓ Simple dilute acid leach to separate and monetise RE from P minerals

## Stage 3: P-RE

Fresh Rock Concentrate 32% P<sub>2</sub>O<sub>5</sub>, 1.6% RE 2.2Mt over 5 years

- ✓ Plant upgrade from Stage-3 for mineral change
- ✓ Potential alternative separation techniques can be employed
- Opens up downstream processing optionality

"simpler, faster, staged"

# Positive economics and low initial capital From a 3-Staged development





## Stage 1: DSO rock phosphate

#### **Premium direct application fertiliser**

Mined from a simple quarry – a low risk platform for growth

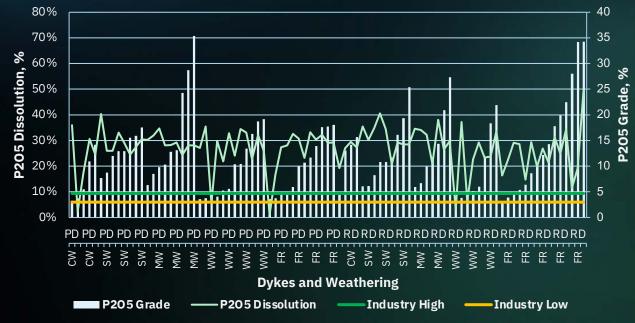
High value-in-use

- √ 23% phosphate
- ✓ 5x bioavailability
- ✓ West Australian made
- Organic certification potential
- Low deleterious elements < 60 mg Cd / kg P; < 0.02% Cl; < 4% F

#### **Next steps**

- Product R&D with OrdCo
- Advance placement into retail and broad acre sector
- Branding and certifications

#### **Cummins Range phosphorus bioavailability tests**





## Stage 2: Phos-RE mineral con

#### Phosphate mineral concentrate with RE

The proposed installation of a beneficiation plant to upgrade the lower grade phosphate

#### **Metallurgical Highlights**

- ✓ Positive beneficiation performance on Phos optimised floats
- ✓ High deportment of RE to monazite across the resource & clean apatite without heavy metals
- ✓ Successful monazite (RE) separation from apatite (P) from low concentration acid leach

# RE monetisation from phosphate:

- Yara's SecREEts project
- Rainbow RE phosphogypsum
- LKAB 's ReeMAP tailings recycling project

#### **Market Focus**

#### India

Phos mineral demand heading to 9Mt Installed REO capacity is 10ktpa

#### **Indonesia**

Phos mineral consumption 2.3Mtpa capacity increase planned

#### S-Korea & Philippines

Phos mineral consumption via import trade is around 0.6Mtpa+ Substantial growth potential

#### **Vietnam**

Phos mineral process expansions underway
Rare earth processing growing

#### Japan

Phos mineral consumption around 0.2Mtpa

Second largest rare earth consumer

#### Sources:

RareX ASX Announcement: 04 October 2022 RareX ASX Announcement: 13 April 2023 RareX ASX Announcement: 11 July 2023 RareX market research

#### Sources:

European Commission, 2023, Extracting rare earth elements from fertiliser production https://www.rainbowrareearths.com/

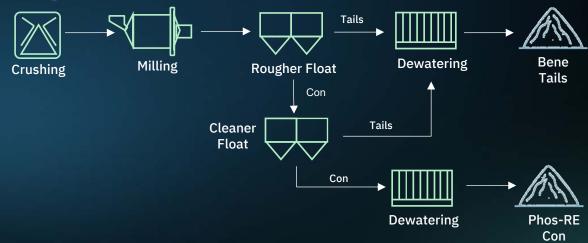
https://lkab.com/en/what-we-do/our-transformation/critical-minerals-exctracted-frommining-waste/

Japan aims to diversify rare earth supply (argusmedia.com)

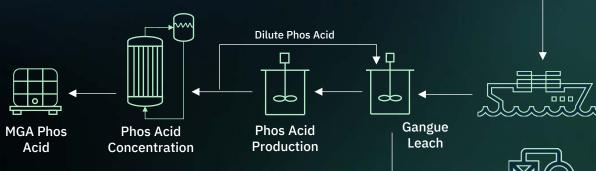


Enabled
Rare Farths





#### **Offtake**



"A rare approach to rare earth extraction"



**RE Rich Residue** 

**RE Refining** 

# Stage 3: Fresh ore concentrate with upside potential

The proposed modification of Stage 2 plant and potential installation of the Rare Earth value chain

#### **Positive analysis:**

# Encouraging results from Stage 2 flowsheets:

- Monazite-apatite relationship different and potentially favourable relative to regolith
- ✓ High deportment of RE into monazite, bastnasite and parasite
- ✓ Potential for Phos-RE concentrate at significant grades

#### **Transition to Fresh**

#### Mineralogy revealed:

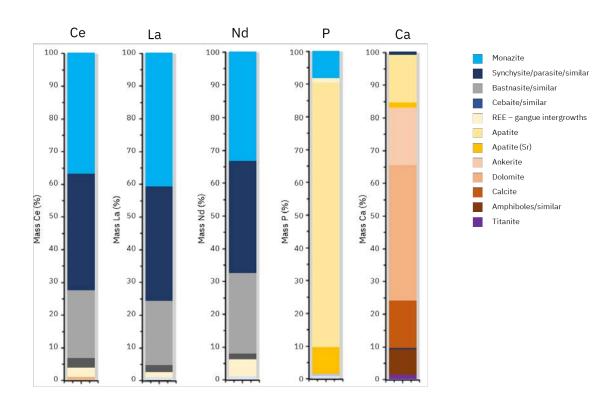
- √ >90% RE spread across monazite, bastnasite & parasite
- ✓ Coarser RE particles
- ✓ RE minerals also not associated with apatite

#### **Hypothesis:**

- Potential to implement ore sorting
- Novel upgrades to Stage 2 float circuit being considered
- Potential for in-house monaziteapatite separation



# Rare Earth Mineral Deportment Fresh Rock



"R&D underway to understand bene plant and hydromet implications"

# Monetising in a sustainable manner

#### **ESG Framework**

- WEF consistent designed by Top5 advisor
- Aligned to stakeholders' expectations
- Mapped out through exploration, development and into operations

# Social Performance Framework

- Designed to International standards
   UN and IFC
- Maximises potential for positive indigenous relations
- Provides for progressive development of social performance for all project stages

# What we're currently doing

- ✓ TO negotiations towards a Mining Heritage Agreement
- ✓ Environmental Baselines +50% complete
- ✓ Aboriginal impact assessment defined for execution
- ✓ Recruitment process to remove barriers for aboriginals and minority groups
- ✓ Employment and Contracting of local and regional TOs
- ✓ **Jaru Ranger programme** being investigated in conjunction with KLC

"Doing the right things, the right way and holding ourselves accountable"



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Environmental, Social & Governance Framework and Maiden Sustainability and Self-Assessment Report

2022

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ASX: REE

# Team to deliver







"I've been supporting the management team in defining the product suite and identifying prospective offtake markets and customers.

Through this process the value-in-use of Stage 1 and Stage 2 products is now increasingly apparent, and I look forward to supporting the team in progressing long-term contract negotiations with strategic offtake partners"

**Danny Goeman Non-Executive Director** 

# An evolved board of company-building directors



Enabled Rare Earths



Jeremy Robinson Chairman Fund raising, Strategy, Corporate Development

Founder of RareX and Managing Director for 5 years leading the Company through massive resource expansion

18 years in **corporate finance** both in investment firms and in-house

Bachelor of Commerce from the University of Western Australia majoring in Corporate Finance, Investment Finance and Marketing

#### Danny Goeman Non-Executive Director Offtake, Marketing, Shipping

Ex FMG director of sales and marketing and advisor to the CEO, following 20 years with Rio Tinto in management, sales and marketing, strategy development and high level commercial negotiations

As Head of Marketing, then CEO; responsible for the 2018, 10-year binding take-or-pay offtake deal for junior SOP developer Danakali (ASX: DNK)

Holds a Masters in Business
Administration and Postgraduate
Diploma in leadership &
Management from Curtin University





Cameron Henry
Non-Executive Director
Engineering,
Construction. Operations

**Founding managing director** of EPCM engineering firm, **Primero Group** Limited

Over 20 years' experience in development and delivery of global minerals processing, energy and NPI projects

Holds a Masters in Project
Management from Curtin University
and is a Member of the Australian
Institute of Company Directors
(MAICD)



Co-founder and executive director of successful ASX200 lithium producer Pilbara Minerals Limited (ASX: PLS)

Led the growth of Pilbara from a junior ASX-listed company to a globally significant \$2 billion lithium producer in the Pilbara region of Western Australia

Holds a Bachelor of Geology from Curtin University and is a director on a number of ASX listed companies





Shaun Hardcastle
Non-Executive Director
Corporate Law, Finance
Law, Governance

Partner at Hamilton Locke law firm covering corporate and finance law, corporate governance, risk management and compliance

Involved in a broad range of crossborder and domestic transactions including joint ventures, corporate restructuring, **project finance**, resources and asset/equity sales and acquisitions

**Bachelor of Law from UWA** and currently a non-executive director of a number of ASX listed companies

# Growing in-house capability Focus: Development & Ops



## James Durrant Chief Executive Officer

Mining and Mechanical Engineer with nearly 20 years across Tier 1 operations and junior company project development in Africa and Australia



#### Guy Moulang Head of Geology

Geologist and AIG Member with nearly 20 years experience in technology metals, base metals and gold exploration. 5 years with RareX on Cummins Range



Kay Hofmann Study & Approvals Manager

Ex Mineral Resources Limited and BHP. Lead engineering and operational teams across mine planning, production, drill & blast, A&I, hydrogeology and environmental baselines

# **Greg Wynne Senior Geologist**

Geologist, project manager and mines rescue qualified

# Lu Zhang Process & Product Engineer

Metallurgist and process engineer. Ex Mets Group

#### Damien Krebs Lead Metallurgist

Rare Earth and Phosphate metallurgist

#### Gavin Beer Consultant Metallurgist

Rare Earth process designer and metallurgist





# Infrastructure in place Ready for bulk operations and future processing

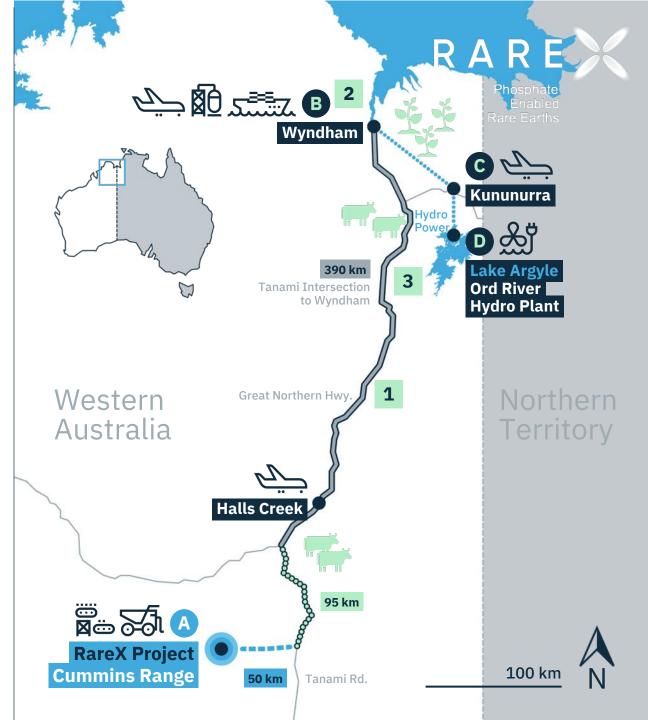
# **Fundamentally Good Infrastructure**

- A road network becoming sealed from mine to port
- An established port rising in stature
- Reticulated hydro electric power to 2 industrial locations

# **Enabling the Proposed Approach**

- Bulk commodities need good transport corridors, efficient ports
- Speed to market needs established infrastructure, with spare capacity and ready markets
- Processing facilities need access to low-cost power and water

"good existing infrastructure with a local workforce and a potential market"



# Mineral corridor in place Sealed roads being installed

#### Mine to Tanami

50km of station fence-line

- Miscellaneous License process about to commence, heritage agreement includes road
- Local Aboriginal companies from Jaru and Gilganyem to participate in installation; quotes received
- Phased build up from track to all weather track to product haul road

#### **Great Northern Highway**

390km of existing sealed highway

- Linking The Tanami turn off to Wyndham Port
- Past Halls Creek, ADM

#### **Tanami Road**

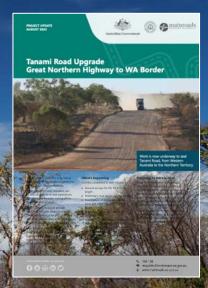
95km of existing gravel highway

- Creek crossings and sealing commencing this year
- Progressive construction by year driven by Main Roads WA and the Shire with State and Federal support
- Opportunity to utilise pre-mobilized equipment and plant for Project

"we are now engaged in trucking contract negotiations with local support"



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Tanami Road Upgrade

Great Northern Highway to WA border

Planning to seal the unsealed section of Tanami Road

Share this project 😝 🎔 🛅

# **Port Wyndham Port** 1 Cummins Wyndham Lake Argyle, **Hvdro Plant** Western Australia

## **Bulk ready**



#### Good facilities for tactical integration

Managed by CGL with operations for haulage, fuel, and roll on roll off

✓ Good personal and contractual relations already established

Vacant land primed for industrial development

✓ Land purchase being negotiated

### Transshipment operations conducted regularly

 Transshipping agreement being negotiated

#### Good base for haulage HQ

✓ Haulage and handling infrastructure agreement being negotiated

#### Potential to use new facilities

✓ MOU with Agrimin (ASX: AMN) to develop integrated infrastructure may short-cut development

**Hydro power availability** and upgrade options now understood with Horizon Power

✓ Draft power purchase agreement with PacHydro

#### Mineral loading infrastructure

already in place, owned by others, and with spare capacity

 Facility sharing agreement being negotiated

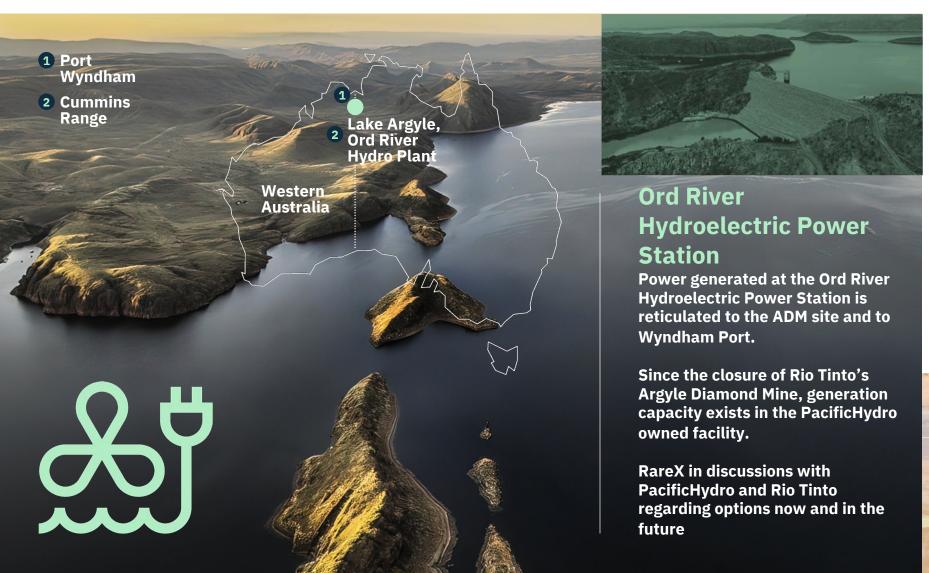
#### Strategic upgrades pending

State and federal governments aware of the strategic nature of the port

KPA applied to Commonwealth Government for POFE

Collaborating group of future users across agriculture and mining advocating for higher status

# **Lake Argyle – Hydro Plant Optionality for a Low Carbon Operation**



# Optionality for low carbon facilities

- Electrified haulage fleets
- Brownfield infrastructure at the old Argyle Diamond Mine site for magnetic mineral separation
- Processing facilities at Wyndham with high renewable penetration and augmentation



# Good corporate citizen in a collaborative region

#### OrdCo MOU

Collaborating to develop and place Phosphate products locally

- Product R&D
- Product development roadmap
- Local distribution



#### **Agrimin MOU**

Collaborating across the supply chain from trucking to OGV loading

- Infrastructure integration study
- Infrastructure sharing
- Implementation roadmap



# Community Membership Becoming locals

- Sponsors of the Kununurra Muster
- Members of EKCCI
- Working with TAFE and East-Kimberley Job Pathways







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# Project execution

# Positive progress through approvals roadmap

# Good progress on primary approvals

- ✓ Mining lease application
- ✓ Flora & Fauna baseline complete
- Mining heritage agreement well advanced
- Hydro monitoring halfway through

# Miscellaneous license - road

- Ongoing stakeholder consultation
- DFS road design
- Miscellaneous license application

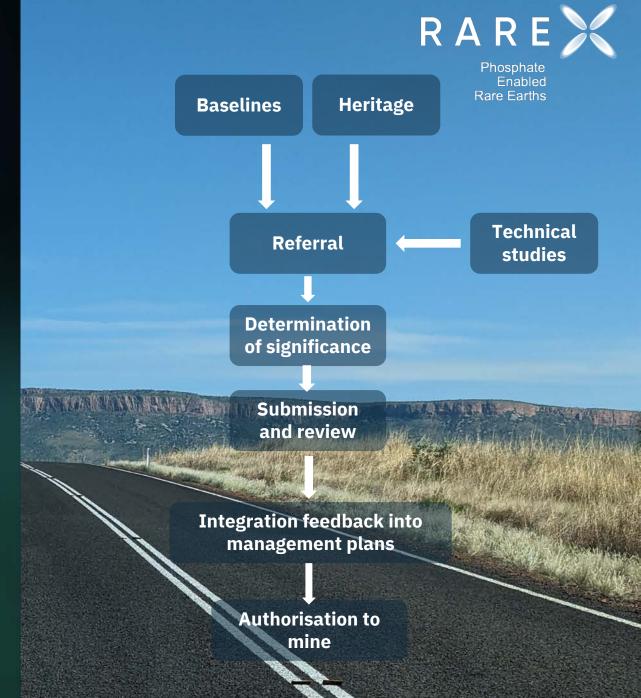
#### **Next steps**

#### **Mining agreement**

- Jaru consultation on agreed agreement key terms
- Execute mining heritage agreement with Jaru
- Mining lease grant

#### **Environmental approvals**

- Full heritage survey
- Soils and waste baseline
- Complete 1 year of hydro studies
- Pre-submission engagement with EPA



"Stage-1 allows for a simpler approvals process, buying time for Stage-2"

# Project well aligned to government initiatives

#### Kimberley location Halls Creek, Billiluna – Jaru and Tjurabalan

- Regional Grants Programme (up to \$15M)
- Kimberley Development Commission Grants
- State and federal budget inclusion
- \$15B National Reconstruction Fund

# **Critical minerals Rare Earths (phosphates)**

- CMDP grant (\$50M over 3 years)
- NAIF Loan (\$500m earmarked from Critical Minerals Strategy)
- Export Finance Australia Critical Minerals Facility Loan (\$2B facility)

# Regional agriculture Phosphate product could be used locally

· Ord River Improvement Scheme

"low up-front capital makes this achievable and there's the potential for government funding"



## The Future is Bright...

Fast Track to DSO Operations
Catalysing a Large Critical Minerals Project

RARE

Phosphate Enabled Rare Earths

# 2023-24

## Stage 1 – DSO

- ✓ Global DSO resource
- ✓ Scoping Study
- Lock in product placement
- Close infrastructure gaps deals and designs
- Definitive Feasibility Study
- Complete approvals and heritage agreement.

2025

2026+

- FID
- Installation
- Operations

Continued operations

#### Stage 2 & 3 – Phos & Rare Earths

- ✓ Define resource and geometallurgy
- Pre-feasibility study
- Market segmentation and target analysis
- Approval submissions
- Pilot plant

- Advanced resource definition
- Definitive feasibility
- Strategic offtake

- FID
- Construction

#### **Board of Directors**

**Jeremy Robinson –** Non-Executive Chairman

John Young - Non-Executive Director

**Danny Goeman – Non-Executive Director** 

Shaun Hardcastle - Non-Executive Director

Cameron Henry - Non-Executive Director

#### **Company Secretary**

**Oonagh Malone** 

#### **Chief Executive Officer**

**James Durrant** 

#### **RareX HQ**

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**ASX: REE OTCQB: REEEF** 

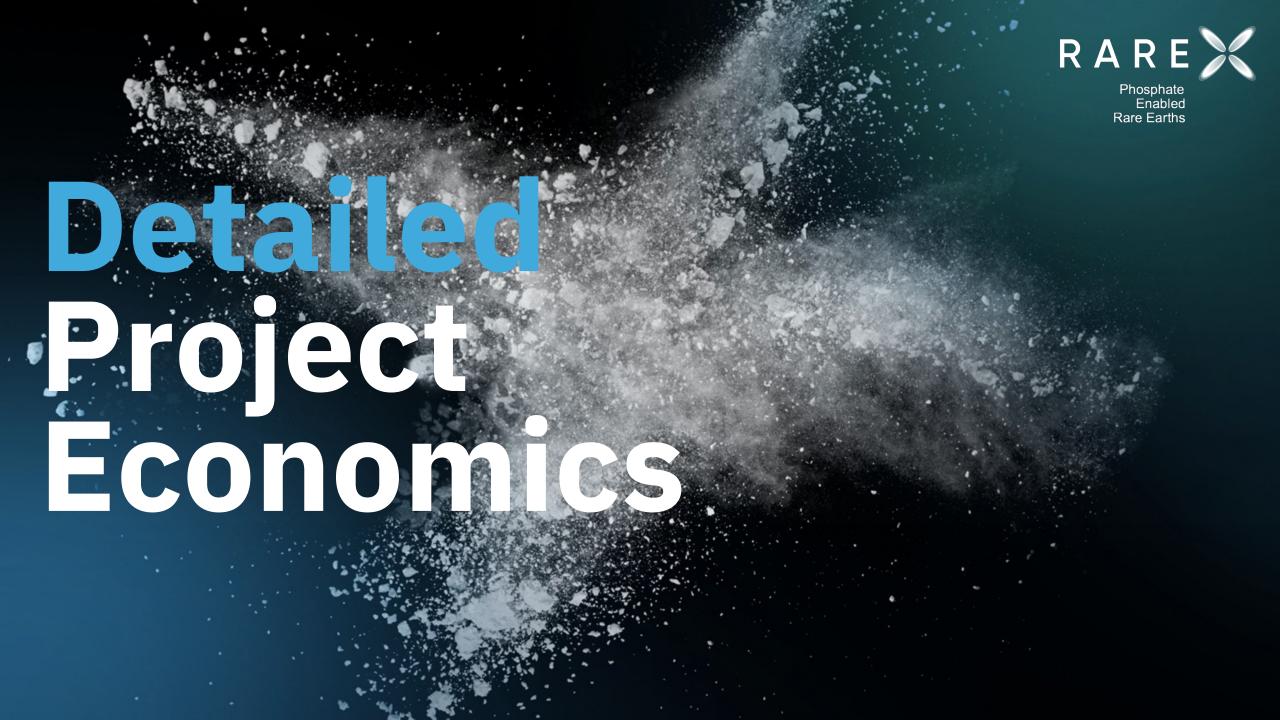


# FIGURES & Analysis

## **CONTENTS**

- **1. Detailed Project Economics**
- 2. Strategic Products Global Demand Double Exposure
- 3. Cummins Range Resource
- 4. RARE PLORATION
  - 1. Strategy
  - 2. Tenements
  - 3. Investments





# Key inputs and assumptions

| General Parameters and Assumptions |  |  |  |
|------------------------------------|--|--|--|
| Discount Rate                      | 8%   |  |  |
| Owners Costs                       | 8% of direct and indirect capital costs for each stage   |  |  |
| Sustaining Capital                 | 2% of deployed capital each operating year               |  |  |
| Product Price                      | Pricing as indicated in result tables below              |  |  |
| Product Payability                 | 90% for P205   |  |  |
| Product Payability                 | 20% for REE  |  |  |
| State Royalties                    | 7.5% for DSO; 5% for Concentrate                         |  |  |
| Native Title Royalties             | Based on draft Heritage Mining Agreement                 |  |  |
| Depreciation                       | Reducing balance method applied over 20yrs               |  |  |
| Mine Closure                       | 10% of all CAPEX applied after the last operating period |  |  |
| Contingency                        | 20% applied to direct and indirect capital costs         |  |  |





## Costs

| CAPEX                     | Stage 1 [A\$m] | Stage 2 [A\$m] | Stage 3 [A\$m] |
|---------------------------|----------------|----------------|----------------|
| Mine                      | 0.5            | 17             |                |
| Processing                | 0.25           | 164            | 63             |
| NPI                       | 10             | 4              | -              |
| New road                  | 15             |                |                |
| TSF                       |                | 12             |                |
| Port upgrades             | 9              |                |                |
| Owners Costs (incl. EPCM) | 3              | 56             |                |
| Subtotals                 | 37             | 253            | 63             |
| Contingency (20%)         | 7              | 51             | -              |
| Total                     | 45             | 304            | 63             |

| OPEX          | Stage 1<br>[A\$/t product] | Stage 2a<br>[A\$/t product] | Stage 2b<br>[A\$/t product] | Stage 3<br>[A\$/t product] |
|---------------|----------------------------|-----------------------------|-----------------------------|----------------------------|
| Mining        | 40                         | 18                          | 36                          | 57                         |
| Beneficiation | 13                         | 115                         | 167                         | 201                        |
| Haulage       | 54                         | 54                          | 54                          | 54                         |
| Transhipping  | 16                         | 16                          | 16                          | 16                         |
| Total         | 123                        | 203                         | 273                         | 328                        |

| Product Pricing             | Low-Case<br>[A\$/t] | Mid-Case<br>[A\$/t] | High-Case<br>[A\$/t] |
|-----------------------------|---------------------|---------------------|----------------------|
| Stage 1 - DSO Rock Phos     | 203                 | 254                 | 304                  |
| Stage 2a – High Phos-RE Con | 515                 | 584                 | 652                  |
| Stage 2b – Mid Phos-RE Con  | 480                 | 545                 | 611                  |
| Stage 3 - RE-Phos Con       | 404                 | 468                 | 532                  |

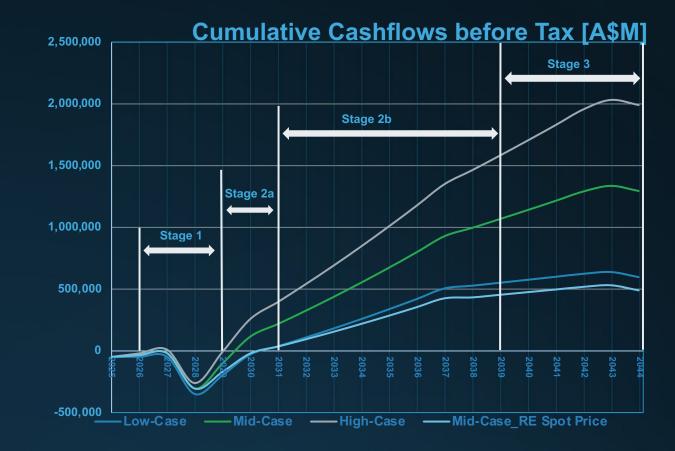
## **Outcomes**



| Product Pricing             | Low-Case<br>[A\$/t] | Mid-Case<br>[A\$/t] | High-Case<br>[A\$/t] |
|-----------------------------|---------------------|---------------------|----------------------|
| Stage 1 - DSO Rock Phos     | 203                 | 254                 | 304                  |
| Stage 2a – High Phos-RE Con | 515                 | 584                 | 652                  |
| Stage 2b – Mid Phos-RE Con  | 480                 | 545                 | 611                  |
| Stage 3 - RE-Phos Con       | 404                 | 468                 | 532                  |

| <b>Economic Performance</b>          | Low-Case | Mid-Case | High-Case |
|--------------------------------------|----------|----------|-----------|
| NPV8 (pre-tax), [A\$m]               | 227      | 549      | 872       |
| NPV8 (post-tax), [A\$m]              | 101      | 333      | 562       |
| IRR (pre-tax), [%]                   | 23%      | 39%      | 54%       |
| IRR (post-tax), [%]                  | 15%      | 27%      | 38%       |
| Stage 1 Average EBITDA,<br>[A\$m/a]  | 12       | 23       | 33        |
| Stage 2a Average EBITDA,<br>[A\$m/a] | 173      | 216      | 259       |
| Stage 2b Average EBITDA,<br>[A\$m/a] | 69       | 97       | 125       |
| Stage 3 Average EBITDA,<br>[A\$m/a]  | 8        | 35       | 61        |
| Average EBITDA LOM,<br>[A\$m/a]      | 54       | 81       | 107       |

| Tax and Royalties                        | Low-Case<br>[A\$m] | Mid-Case<br>[A\$m] | High-Case<br>[A\$m] |
|--|--------------------|--------------------|---------------------|
| Government tax (30%)                     | 212                | 406                | 607                 |
| Government royalty<br>(7.5% DSO, 5% Con) | 178                | 205                | 231                 |
| Native title contributions               | 74                 | 84                 | 94                  |

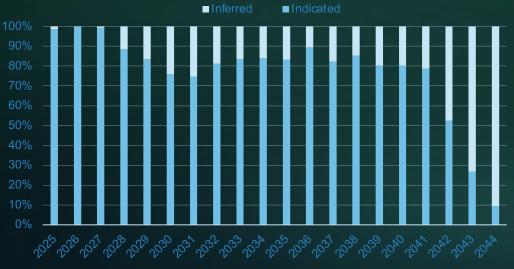


## Key economic graphs

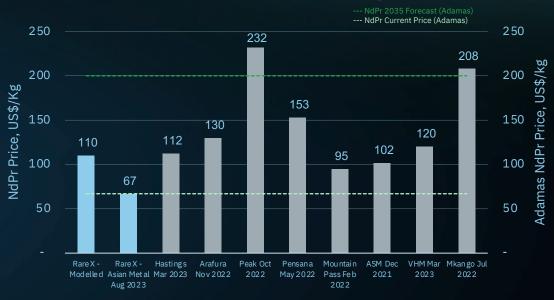
#### **Phosphate Price Analysis**



#### **Resource Classification**



#### **NdPr Oxide Price Comparison**





# Strates Products Global Demand Double Exposure

# The EV Transition Translating into an Emerging Deficit of NdPr Supply

#### **Drivers of EV demand**

- Government commitments by 2050
- 2 Consumer trends technology adopters, conscientious buyers
- Improving affordability government incentives, fuel price, mass production

# **US\$1** trillion

in investments spent

to transition towards EVs



## **Global Passenger Car Outlook - Bloomberg NEF** Hybrid **Fuel Cell** Battery electric Lynas annual output in 2021: 5,462 NdPr oxide Million 100 2015 2020 2025 2030 2035 2040



RAR

Sources
https://bnef.turtl.co/story/evo-2021/page/4/1?teaser=yes
Lynas annual report

# **Growing Phosphate Fertiliser Demand**

**Augmented with LFP Battery Expansion** 

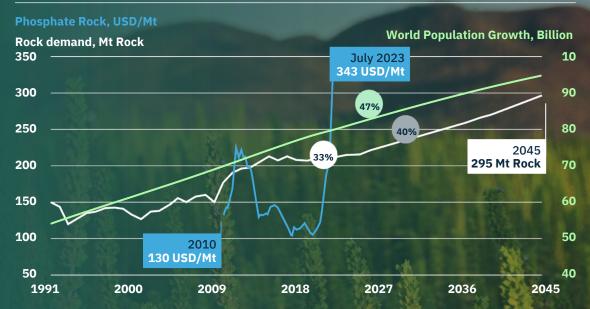




#### High Value LFP Battery & Phosphate Market

percentage of global market share of LFP batteries in 2021

projected ARK forecast for 2026 projected UBS forecast for 2030



#### Sources

Rock demand: CRU
Phosphate Rock: Fertilizer Week; Fertilizer International; World Bank.
Market share and forecast information: ARK & UBS
World population; World Bank.

# NdPr Enabling Decarbonisation of our Society

NdFeB permanent magnet motors are crucial in reducing greenhouse gas emissions as they are at the heart of so many electric mobility solutions. Green, clean electric mobility solutions require ethical, sustainable, transparently produced NdPr.

Each direct drive permanent magnet wind turbine requires

~200 kg
NdPr oxide
per megawatt

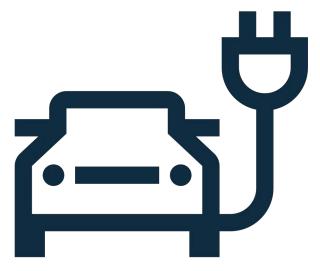


# NdPr Enabling

# **Decarbonisation of our Society**



Phosphate Enabled Rare Earths



Each electric vehicle contains





## Global EV Mega Trend

## **Continues to Accelerate**

The global automotive industry surpassed in 2022

# 1 trillion USD

in investments

to transition towards EVs

"Global carmakers now target to spend USD 515b\* for EVs & batteries. Including Tier 1 suppliers, investments should have surpassed USD 1 trillion."



<sup>\*</sup> https://www.reuters.com/business/autostransportation/exclusive-global-carmakers-now-target-515billion-evs-batteries-2021-11-10/

# **Supported By Global Legislation To**

## **Meet Net Zero Targets By 2050**

More and more countries have a clear roadmap to phase out internal combustion engine (ICE) vehicles.

More than 30 countries have clear electrification targets or ICE bans for cars.







Enabled Rare Earths

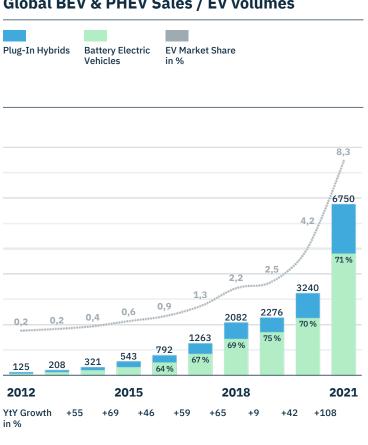
Source https://cleantechnica.com/2021/01/02/31-countries-states-and-cities-have-ice-bans-in-place/

by 2050

# **Translating into** an Emerging Deficit of NdPr Supply



#### **Global BEV & PHEV Sales / EV volumes**



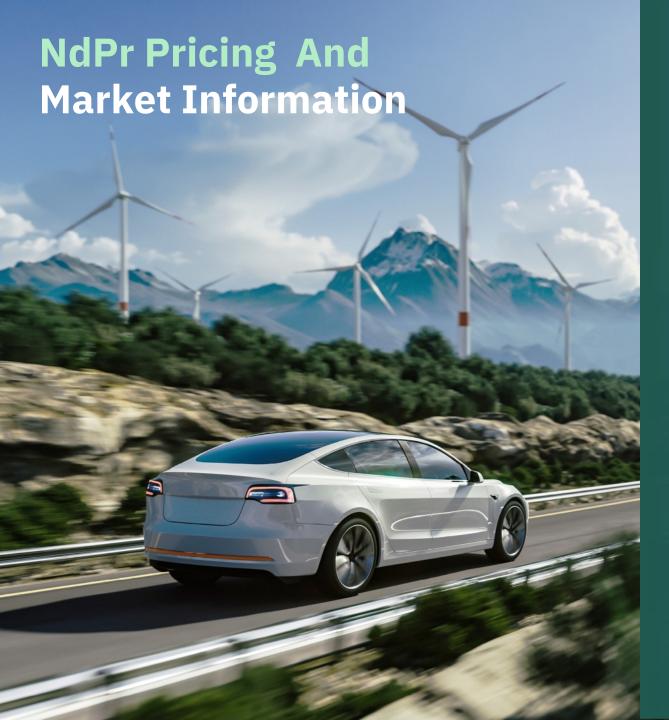
https://www.ev-volumes.com/country/total-world-plug-in-vehicle-volumes/

"With every incremental, additional sale of 5.5 million EVs the world needs another **Rare Earth producer** equivalent to the annual output of Lynas.\* By 2030 the world needs ~9, by 2040 ~15 additional producers."

**Jeremy Robinson** Chairman RareX

#### WW passenger card outlook / BNEF Internal Hybrid Fuel Cell Plug-in Battery electric combustion hvbrid Lynas annual output in 2021: 5,462 NdPr oxide Million 100 2015 2020 2025 2030 2035 2040

https://bnef.turtl.co/story/evo-2021/page/4/1?teaser=yes





The Market

Overall market sentiment is positive, due to significant progress in the E-mobility industry and rising EV sales volumes. The price has been declining since March 2022, impacted by global economic sentiment and geopolitical risk. We predict that when global economic sentiment improves, the Rare Earth price will recover. The majority of industry experts agree that shortage is looming.

Phosphate Enabled Rare Earths

Cummins Range Basket Price Distribution



Rare Earth Material Pricing from Asian Metals (USD per kg)





# Cummins Range JORC 2012 Mineral Resource

# **Cummins Range Deposit**

# Remote but Well Connected





Enabled Rare Earths

**Deposit Location Overview** 

130km SW of Halls Creek

access via Tanami Road

**Deposit at surface** ease of exploration

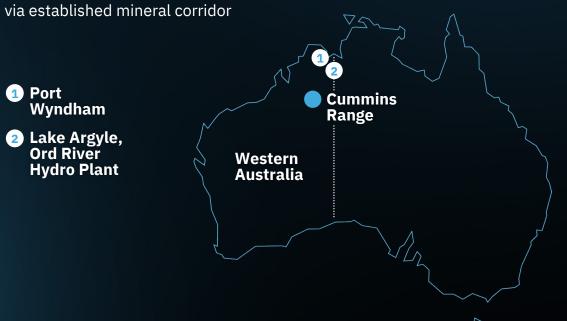
**Jaru Traditional Owners** consulted and supportive

**Part of the Great Sandy Desert** on unused pastoral lease

**Connected to Wyndham Port** 

1 Port **Wyndham** 

2 Lake Argyle, Ord River **Hydro Plant** 



## 2023 JORC Resource

519.3Mt:

4.6% P<sub>2</sub>O<sub>5</sub>; 0.32% TREO

1.6<sub>Mt TREO</sub>

**24**<sub>Mt P<sub>2</sub>O<sub>5</sub> contained</sub>

#### **Basis of Resource**

Estimated by industry experts at CSA Global

Phosphate CoG used to capture the extensive Phosphate mineralisation and low to highgrade rare-earths

c. 70Mt of Indicated resource located within the regolith, top 100m

#### **Highlights**

- ✓ Large igneous, low deleterious, Phosphate deposit discovered from surface
- ✓ High grade Rare Earth core still remains: concentrated around the Dykes: +50Mt at >1% TREO
- ✓ Underlying fresh rock resource with higher-grade Rare Earths and favourable mineralogy



Phosphate Enabled Rare Earths

#### **Global Resource (JORC 2012)**

| 2.5% P <sub>2</sub> O <sub>5</sub> Grade Cut | Tonnes<br>Mt | TREO ppm | P <sub>2</sub> O <sub>5</sub> % | NdPr<br>ppm | Nb <sub>2</sub> O <sub>5</sub> | HREO<br>ppm |
|--|--------------|----------|---------------------------------|-------------|--------------------------------|-------------|
| Indicated                                    | 66.6         | 5,010    | 6.8                             | 1,100       | 830                            | 290         |
| Inferred                                     | 452.7        | 2,900    | 4.2                             | 630         | 550                            | 170         |
| Total  | 519.3        | 3,170    | 4.6                             | 700         | 580                            | 190         |

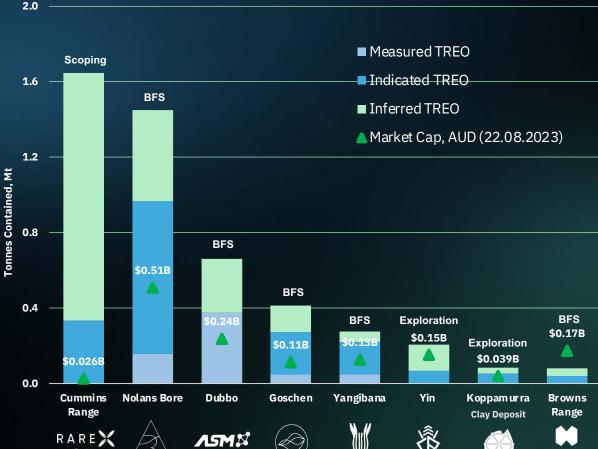
"this new resource reframes the project as one of Australia's most significant rare earth projects"

# Resource Comparison Highlights Cummins Range





#### **Australian Undeveloped Rare Earth Deposits**



Courses

See slide: List Of Sources For Grade And Resource Graphs

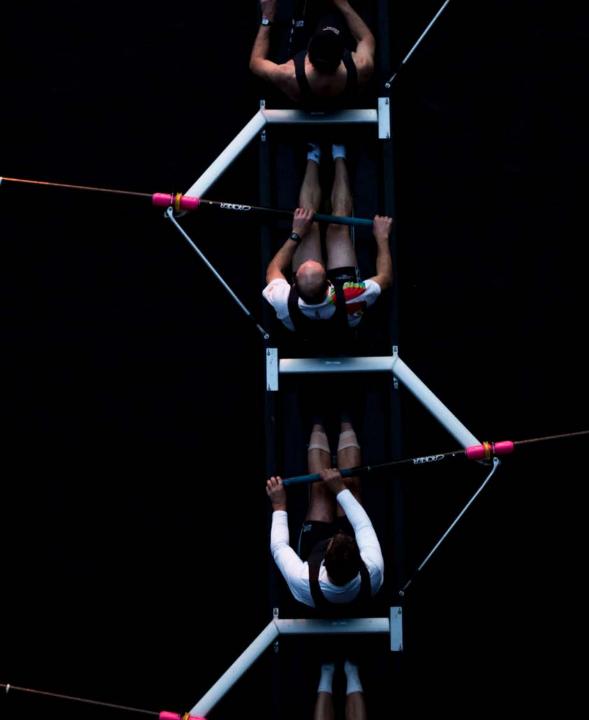


# RARESPLORATION



# RareX tenements and prospectivity

| Tenement ID | Name          | Jurisdiction   | Locality      | Prospectivity             |
|-------------|---------------|--|---------------|---------------------------|
| E80/5092    | Cummins Range | WA   | Kimberley     | Rare Earths and Phosphate |
| M80/0648    | Cummins Range | WA   | Kimberley     | Rare Earths and Phosphate |
| E80/5372    | Cummins Range | WA   | Kimberley     | Rare Earths and Phosphate |
| E80/5888    | Cummins Range | WA   | Kimberley     | Rare Earths and Phosphate |
| E80/5943    | Maude Creek   | WA   | Kimberley     | Heavy Rare Earths         |
| E80/5430    | Mt Mansbridge | WA   | Mt Mansbridge | Heavy Rare Earths         |
| E80/5942    | Mt Mansbridge | WA   | Mt Mansbridge | Heavy Rare Earths         |
| E39/2213    | Red Dragon    | WA   | Red Dragon    | Rare Earths               |
| E38/3455    | Weld North    | WA   | Laverton      | Rare Earths               |
| E38/3530    | Weld North    | WA   | Laverton      | Rare Earths               |
| E38/3531    | Weld North    | WA   | Laverton      | Rare Earths               |
|             |               | THE RESERVE OF THE PARTY OF THE |               |                           |



# RARE PLORATION Strategy

#### **Maintain good investments**

#### Kincora - Cu-Au

Lead explorer in Macquarie Arc is Australia's foremost copper porphyry district and truly world-class



#### Cosmos - Li

Emerging lead explorer in the corvette east district of Ontario Canada, proximate to Patriot Battery Minerals COSMOS

#### **CREC** - Rare Earth trading

developing a vertically integrated rare earth industry by connecting exploration to mining to refining to customer



#### **Target generation**

- Test targets at **Cummins Range** to augment with project development plans
- Target generation across existing portfolio to rule in-rule out tenements
- Maintain budget allocation for target testing

#### **Curate portfolio**

- Rationalise existing assets ensuring appropriate synergies and prospectivity
- **Grow in our area of technical expertise** Carbonatites, Rare Earths, Tantalum, Niobium, phosphate
- Expand in the region we're familiar with Shire of Halls Creek and the Shire of Wyndham East Kimberley

# **Kincora Copper Copper-Gold**



# Significant shareholding in copper explorer

Post KCC<sup>1</sup> shareholder approval

- √ 45 million shares
- ✓ Approximately 18% ownership
- √ 1% NSR on 5 projects

#### **RareX board position**

Chairman of RareX, **Jeremy Robinson, to become Non- Executive Director** of KCC

#### **Kincora Copper**

Canadian listed, Australian traded

- ✓ Ticker (ASX & TSV:KCC)
- ✓ Australian shares trade as CDIs

#### 1 Note:

Until KCC shareholder approval, RareX maintain a 35% free carry Trundle, Fairholme, Jemalong, Cundumbul and Condobolin exploration licences in NSW

#### Sources

RareX ASX Announcement: 31 July 2023 KCC ASX Announcement: 31 July 2023 https://kincoracopper.com/



#### **Kincora Copper**

Leading leading explorer in the Macquarie Arc

- √ World class Cu-Au province
- ✓ Surrounded by majors and Tier 1 discoveries
- ✓ District scale portfolio

#### The Macquarie Arc

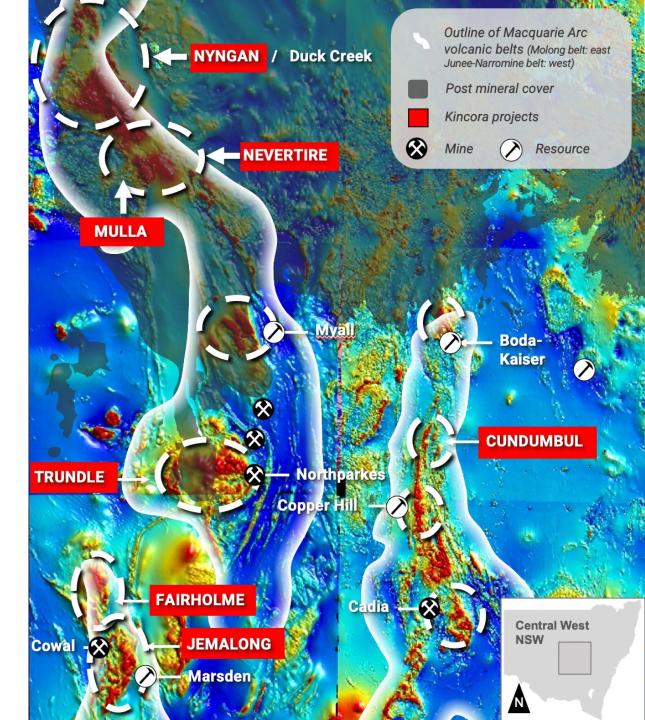
Australia's foremost copper porphyry district

- √ +160Moz AuEq equivalent endowment
- ✓ Increasing corporate activity

#### **Value-add activities**

Finding deposits, developing assets

- ✓ High impact drilling on-going
- ✓ Seeking strategic JV partners
- ✓ Mongolian asset divestment offers unique upside





## **Cosmos Exploration**

## **Lithium & Rare Earth upside**



## COSMOS

#### **Investment**

- $\checkmark$  10 million shares (c. 18%)
- √ 25% free carry to BFS on Orange East, NSW project.
- ✓ ASX:C1X

#### **RareX board position**

Chairman of RareX, **Jeremy Robinson, is Executive** Chairman of C1X

#### **Rare Earth discovery**

West Australia

- ✓ Potential carbonatite discovered
- ✓ High TREO
- ✓ Exploration pending

# **Emerging lead Lithium explorer**

Ontario, Canada

- ✓ Corvette Far East & Lasalle
- ✓ Near Patriot Battery Metals
- ✓ Aggressive exploration commenced

#### Ni-Cu-PGE upside

West Australia

- ✓ Multiple assets
- ✓ Along trend from Chalice, Julimar

#### **Copper-Gold upside**

New South Wales

- ✓ Orange East
- ✓ Orogenic Gold, Porphyry Copper, VHMS

Sources: https://www.cosmosx.com.au/

# **Canadian Rare Earth Company** Rare earth trading





#### **Investment**

- √ 25 million shares
- √ Canadian based
- ✓ LL.V

#### **Senior executive**

Tracy A. Moore, CEO Peter Shearing, COO

#### **CREC** strategy

**Large and Robust Rare Earth and Critical** Minerals Resource Base building and expanding on existing resource base to feed commercial sales and deliver feedstock to own operations.

Canada Rare Earth

**CREC Proprietary Refineries** establish CREC as an industrial rare earth supplier of refined rare earth products by leveraging our technical capabilities and relationships to establish multiple rare earth processing and refining facilities supplied with raw material from our resource base.

**Global Sales and Trading Platform** driving revenues and profits by delivering maximum value from rare earth and critical mineral products with long term strong and flexible customer relationships.

http://www.canadarareearth.com





# **List Of Sources For Grade And Resource Graphs**

https://www2.asx.com.au/markets/company/has

Calculation

Calculation

0.00

0.00

0.16

https://www2.asx.com.au/markets/company/DRE

Calculation

Calculation

Calculation

Measured TREO Contained, Mt

**Indicated TREO Contained, Mt** 

Inferred TREO Contained, Mt

(01.05.2023)

Market Capitalisation, AUD Billion

0.05

0.17

| Resource   | RareX    | Source of data  | Arafura     | Source of data  | ASM                       | Source of data   | VHM                  | Source of data   |
|--|----------|---|-------------|---|---------------------------|--|----------------------|--|
| Measured Resource, Mt                              | 0        | https://wcsecure.weblink.com.au/pdf/REE/0266088<br>6.pdf          | 5           | https://wcsecure.weblink.com.au/pdf/ARU/026519<br>44.pdf              | 43                        | https://asm-au.com/dubbo-project/resources-and-<br>reserves/   | 30.7                 | https://wcsecure.weblink.com.au/pdf/VHM/02648<br>05.pdf  |
| Indicated Resource, Mt                             | 67       | https://wcsecure.weblink.com.au/pdf/REE/0266088<br>6.pdf          |             | https://wcsecure.weblink.com.au/pdf/ARU/026519<br>44.pdf              | 0                         | https://asm-au.com/dubbo-project/resources-and-<br>reserves/   | 310                  | https://wcsecure.weblink.com.au/pdf/VHM/02648<br>05.pdf  |
| Inferred Resource, Mt                              | 453      | https://wcsecure.weblink.com.au/pdf/REE/0266088<br>6.pdf          |             | https://wcsecure.weblink.com.au/pdf/ARU/026519<br>44.pdf              | 32                        | https://asm-au.com/dubbo-project/resources-and-<br>reserves/   | 288                  | https://wcsecure.weblink.com.au/pdf/VHM/02648<br>05.pdf  |
| Measured TREO Grade, %                             | 0.00%    | https://wcsecure.weblink.com.au/pdf/REE/0266088<br>6.pdf          | 3.20%       | https://wcsecure.weblink.com.au/pdf/ARU/026519<br>44.pdf              | 0.88%                     | https://asm-au.com/dubbo-project/resources-and-<br>reserves/   | 0.16%                | https://wcsecure.weblink.com.au/pdf/VHM/02648<br>05.pdf  |
| Indicated TREO Grade, %                            | 0.50%    | https://wcsecure.weblink.com.au/pdf/REE/0266088<br>6.pdf          | 2.70%       | https://wcsecure.weblink.com.au/pdf/ARU/026519<br>44.pdf              | 0.00%                     | https://asm-au.com/dubbo-project/resources-and-<br>reserves/   | 0.07%                | https://wcsecure.weblink.com.au/pdf/VHM/02648<br>05.pdf  |
| Inferred TREO Grade, %                             | 0.29%    | https://wcsecure.weblink.com.au/pdf/REE/0266088<br>6.pdf          | 2.30%       | https://wcsecure.weblink.com.au/pdf/ARU/026519<br>44.pdf              | 0.88%                     | https://asm-au.com/dubbo-project/resources-and-<br>reserves/   | 0.05%                | https://wcsecure.weblink.com.au/pdf/VHM/02648<br>05.pdf  |
| Measured TREO Contained, Mt                        | 0.00     | Calculation   | 0.16        | Calculation   | 0.38                      | Calculation  | 0.05                 | Calculation  |
| Indicated TREO Contained, Mt                       | 0.33     | Calculation   | 0.81        | Calculation   | 0.00                      | Calculation  | 0.22                 | Calculation  |
| Inferred TREO Contained, Mt                        | 1.31     | Calculation   | 0.48        | Calculation   | 0.28                      | Calculation  | 0.14                 | Calculation  |
| Market Capitalisation, AUD Billion<br>(01.05.2023) | 0.034    | https://www2.asx.com.au/markets/company/ree                       | 0.87        | https://www2.asx.com.au/markets/company/aru                           | 0.17                      | https://www2.asx.com.au/markets/company/asm  | 0.18                 | https://www2.asx.com.au/markets/company/vhm              |
| Resource   | Hastings | Source of data  | Dreadnaught | Source of data  | Australian<br>Rare Earths | Source of data   | Northern<br>Minerals | Source of data   |
| Measured Resource, Mt                              | 4.97     | https://www.investi.com.au/api/announcements/has/1e680c3a-273.pdf | 0           | https://www.investi.com.au/api/announcements/dr<br>e/2c555682-089.pdf | 1                         | https://ar3.com.au/3-4-23-koppamurra-mineral-<br>resource-up-25-indicated-resource-up-40-drilling-<br>points-to-a-rare-earth-mineral-province/ | 0.14                 | https://wcsecure.weblink.com.au/pdf/NTU/02649.<br>50.pdf |
| indicated Resource, Mt                             | 20       | https://www.investi.com.au/api/announcements/has/1e680c3a-273.pdf | 6           | https://www.investi.com.au/api/announcements/dr<br>e/2c555682-089.pdf | 63                        | https://ar3.com.au/3-4-23-koppamurra-mineral-<br>resource-up-25-indicated-resource-up-40-drilling-<br>points-to-a-rare-earth-mineral-province/ | 5                    | https://wcsecure.weblink.com.au/pdf/NTU/02649<br>50.pdf  |
| inferred Resource, Mt                              | 5        | https://www.investi.com.au/api/announcements/has/1e680c3a-273.pdf | 15          | https://www.investi.com.au/api/announcements/dr<br>e/2c555682-089.pdf | 38                        | https://ar3.com.au/3-4-23-koppamurra-mineral-<br>resource-up-25-indicated-resource-up-40-drilling-<br>points-to-a-rare-earth-mineral-province/ | 6                    | https://wcsecure.weblink.com.au/pdf/NTU/02649.50.pdf     |
| Measured TREO Grade, %                             | 0.96%    | https://www.investi.com.au/api/announcements/has/1e680c3a-273.pdf | 0.00%       | https://www.investi.com.au/api/announcements/dr<br>e/2c555682-089.pdf | 0.09%                     | https://ar3.com.au/3-4-23-koppamurra-mineral-<br>resource-up-25-indicated-resource-up-40-drilling-<br>points-to-a-rare-earth-mineral-province/ | 0.70%                | https://wcsecure.weblink.com.au/pdf/NTU/02649<br>50.pdf  |
|  |          | https://www.investi.com.au/api/announcements/ha                   |             | https://www.investi.com.au/api/announcements/dr                       |                           | https://ar3.com.au/3-4-23-koppamurra-mineral-  | 0.500/               | https://wcsecure.weblink.com.au/pdf/NTU/02649            |
| Indicated TREO Grade, %                            | 0.88%    | s/1e680c3a-273.pdf  | 1.23%       | e/2c555682-089.pdf  | 0.08%                     | resource-up-25-indicated-resource-up-40-drilling-<br>points-to-a-rare-earth-mineral-province/  | 0.78%                | 50.pdf   |

https://www2.asx.com.au/markets/company/ar3

points-to-a-rare-earth-mineral-province/

Calculation

Calculation

Calculation

0.00

0.05

0.03

0.052

0.00

0.04

0.04

0.20

Calculation

Calculation

https://www2.asx.com.au/markets/company/NTU