

Phosphate Enabled Rare Earths



James Durrant
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ASX: REE OTCQB: REEF
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Disclaimer & Competent Persons' Statements



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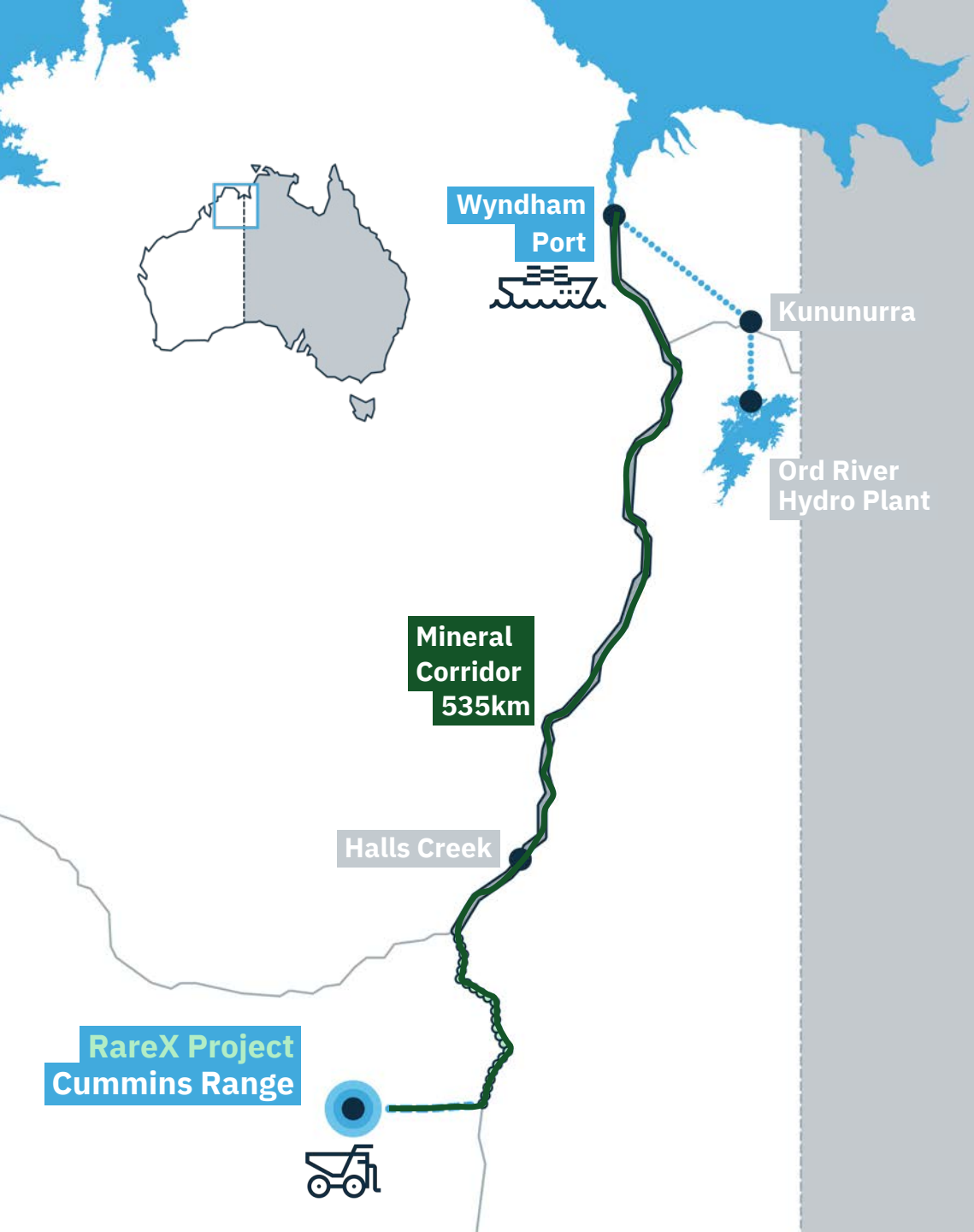
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Competent Person’s Statement – Metallurgy: The information in this presentation relating to metallurgy was first reported in accordance with Listing Rule 5.7. REE confirms that it is not aware of any new information or data that materially affects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



DSO Phosphate Enabled Rare Earths



James Durrant
CEO

1.5 years with RareX 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 lead studies for juniors in Africa transitioning fertiliser and bauxite projects from exploration to FID.

RareX and the Cummins Range Project

A **Direct Shipping Ore (DSO)** Phosphate enabled Rare Earths Critical Minerals Project – updated studies imminent.

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

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

Expedited DSO phase represents Stage 1 of a 3-staged pathway to Rare Earths:

- Stage 1:** DSO Phosphate
- Stage 2:** Processed Phosphate
- Stage 3:** Processed Rare Earths

57-71

RE

Rare Earths

15

P

Phosphorus

RareX Value Proposition

A DSO Phosphate Catalysed Rare Earth Project



Cummins Range can be fast tracked to operations, ultimately giving investors access to 2 global mega trends with 2 critical product categories

1

Massive deposit

400Mt of Phosphate hosted Rare Earths

17_{Mt P₂O₅}

1.3_{Mt TREO}

2

Fast-track to monetisation

A positive evolution of the Project

DSO Phos Con

RE Con and separation

3

Team adjusted to suit

Bulk and fertiliser operational team augmented with RE experts

Bulk Ops Fertilisers

Rare Earths

4

Existing local infrastructure

Bulk ready with collaborative industries primed for regional growth

Road - mineral corridor

Port - mineral export facility

Market - local market on the doorstep

5

Two critical products

Two critical products
Two strategic markets
Two global mega trends

Phosphate

Food security
Constrained supply

Rare Earths

Electric revolution
Concentrated supply

Corporate Snapshot

Presents a Compelling Time to Invest

Capital Structure

ASX Code	REE
OTCQB	REEF
Share Price (12.04.2023)	A\$0.062
Shares on Issue	579m
Market Capitalisation	A\$35.32m
Cash & Investments (Dec Qtr)	A\$6.275m
Enterprise Value	A\$29.045m

Board and Management

Chairman	Jeremy Robinson
CEO	James Durrant

Major Assets

Cummins Range Project	100%
NSW Cu-Au JV with Kincora Copper	35% Free Carried
Cosmos Exploration Limited	25% of Issued Capital
Canada Rare Earths Corp	12% of Issued Capital
Various Rare Earth exploration projects	100%

Note:
Cash & Investments does not include AU\$ 1.92m R&D rebate. ASX Announcement 18 January 2023



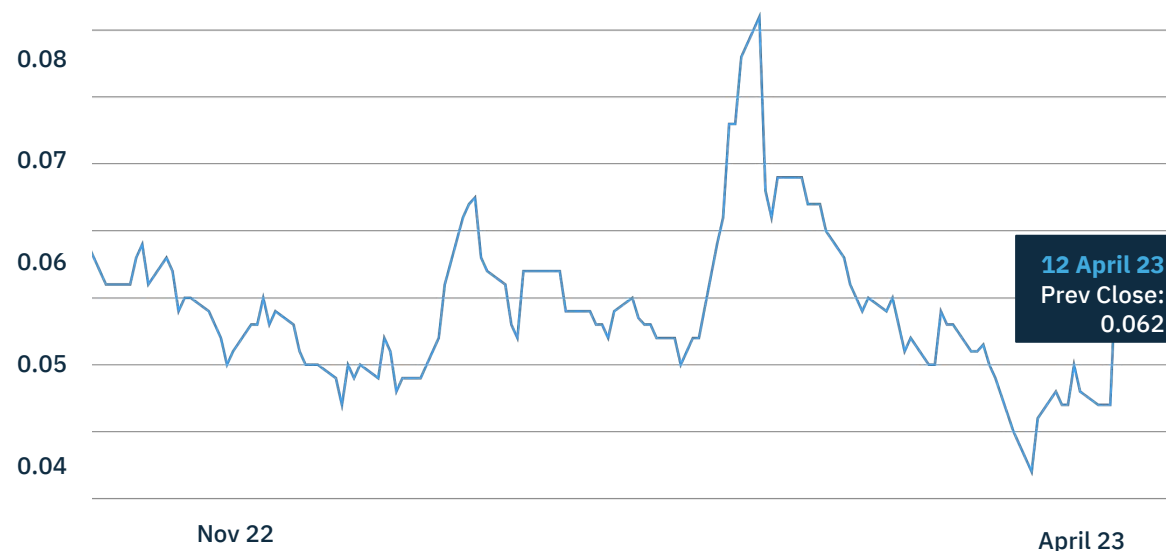
Phosphate
Enabled
Rare Earths

Shareholders

Top 40 Shareholders	~39 %
Number of Shareholders	~5,370
Major Shareholders	Simon Lee AO (6.3%) Jeremy Robinson (4.0%)

Share Price Information

ASX: REE



Mineral Resources

RARE 

Phosphate
Enabled
Rare Earths

15
P
Phosphorus

57-71
RE
Rare Earths



Cummins Range Deposit

Remote but Well Connected



RARE 

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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
via established mineral corridor

- 1 Port Wyndham
- 2 Lake Argyle, Ord River Hydro Plant



2023 JORC Resource

Part 1 of 2...

1.3Mt TREO
contained

17Mt P₂O₅
contained

Basis of Resource

Estimated by industry experts at CSA Global

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

44Mt 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
- ✓ Underlying fresh rock resource with higher-grade Rare Earths and favourable mineralogy

“this new resource reframes the project”



Phosphate
Enabled
Rare Earths

Rare Dyke Resource (JORC 2012)

2.5% P ₂ O ₅ Grade Cut	Tonnes Mt	TREO ppm	P ₂ O ₅ %	NdPr %	Nb ₂ O ₅ ppm	HREO ppm
Indicated	44.3	5,800	6.3	1,210	1,020	290
Inferred	352.9	2,960	3.9	630	570	165
Total	397.2	3,270	4.2	700	620	180

Global Resource (Rare Dyke + Phos Dyke)

2.5% P ₂ O ₅ Grade Cut	Tonnes Mt	TREO ppm	P ₂ O ₅ %	NdPr ppm	Nb ₂ O ₅ ppm	HREO ppm
Indicated						
Inferred						
Total						

**Expected
April 2023**

Pathway to Monetisation



Fast Track to Operations with Phosphates De-risking Roadmap to Rare Earths

3 Project Stages

Stage 1: DSO

Organic Rock Phosphate
High bioavailability
Resource from surface

- ## Strategic Advantages
- ✓ Existing infrastructure bulk ready with road and port
 - ✓ Local product placement opportunities
 - ✓ Rare Earth overburden is monetised

Stage 2: Phos

Phosphate Concentrate
Low deleterious elements
Significant volumes

- ✓ Clean igneous Phosphate; low in potentially toxic elements
- ✓ Simple beneficiation to high grades
- ✓ Beneficiation plant likely suitable for Stage 3

Stage 3: RE

RE and Phosphate Concentrate
Beneficiation plant upgrade
Value chain growth

- ✓ RE-Phos con with payability of RE credits
- ✓ Suitable for sale to existing refineries; or
- ✓ Feed to RareX own refinery

“simpler, faster, staged”



Stage 1: DSO

Premium Direct Application Fertiliser

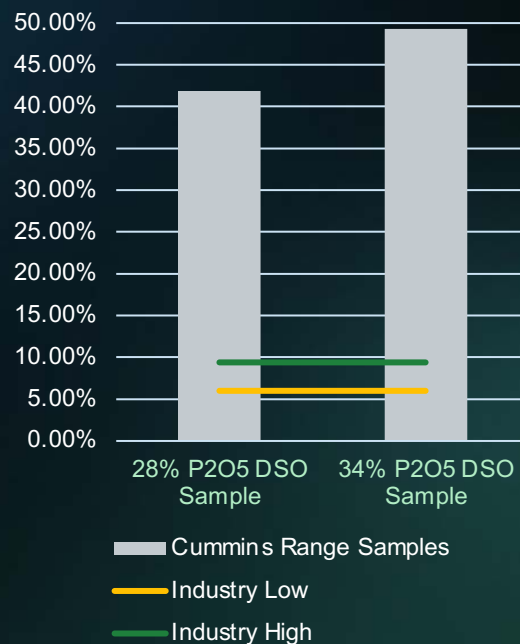
Favorable Metallurgy

- ✓ **5x** industry standard reactivity for “high” bioavailable rock Phosphate
- ✓ Low deleterious elements
< 60 mg Cd / kg P; < 0.02% Cl;
< 4% F
- ✓ Near surface deposit

Next steps

- Broader scale bioavailability testwork
- Detailed product definition
- Market engagement

Cummins Range Phosphorus Bioavailability Test



“the DSO has potential for Organic certification”



Stage 2: Phos

Low Deleterious Phos Con

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

Metallurgical Highlights

- ✓ **Positive beneficiation** performance on Phos optimised floats
- ✓ **35% P₂O₅ Phosphorus concentrate** from 10% feed
- ✓ **Significant Phosphate upgrade** across blended and individual domain samples

Better than Industry Limits for Deleterious Elements

- ✓ **Igneous rocks**
- ✓ **Cleaner resource**
- ✓ **Apatite dominated**

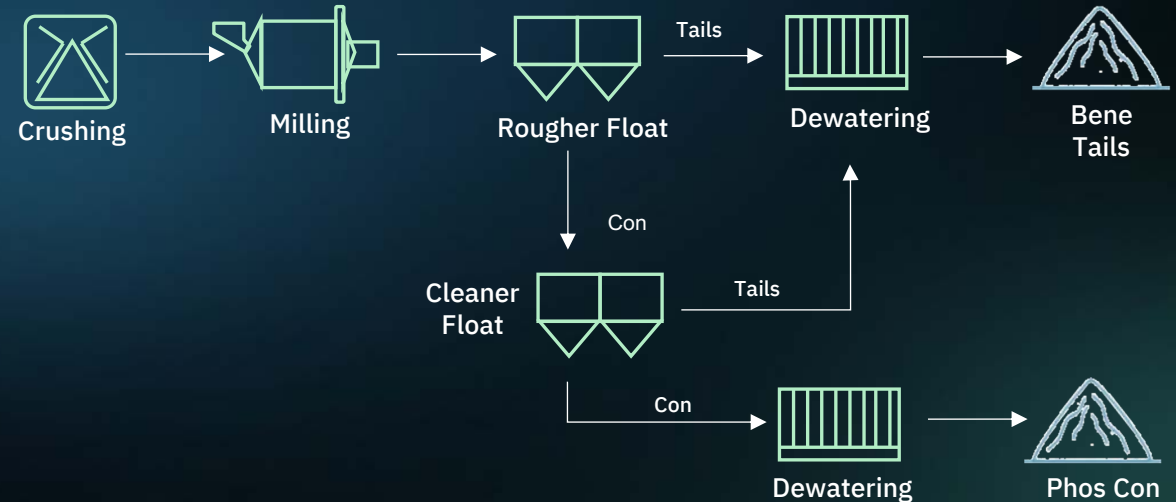
Upcoming

Flowsheet optimisation including:

- Mineralogy study
- Gangue rejection for premium grade product
- Flowsheet simplification
- Reagent optimisation

Variability program to confirm consistent met performance

Detailed **product specification** analysis and publication



“classical flotation beneficiation delivers high grade, low contaminate concentrate”

Stage 3: Rare Earths

RE-Phos Con and Derivatives

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

Regolith:

Encouraging results from Stage 2 flowsheets and more optimisation to come:

- High deportment of RE into monazite
- Potential for RE-Phos concentrate at significant grades
- Tests de-prioritised to focus on DSO

Minimal monazite and apatite association: supports monazite and apatite separation via

- Subsequent flotation
- Magnetic separation
- Chemical separation

Transition to Fresh Mineralogy revealed:

- Higher TREO grade compared to regolith
- >90% RE spread across monazite, bastnasite & parasite
- Coarser RE particles
- RE minerals also not associated with apatite

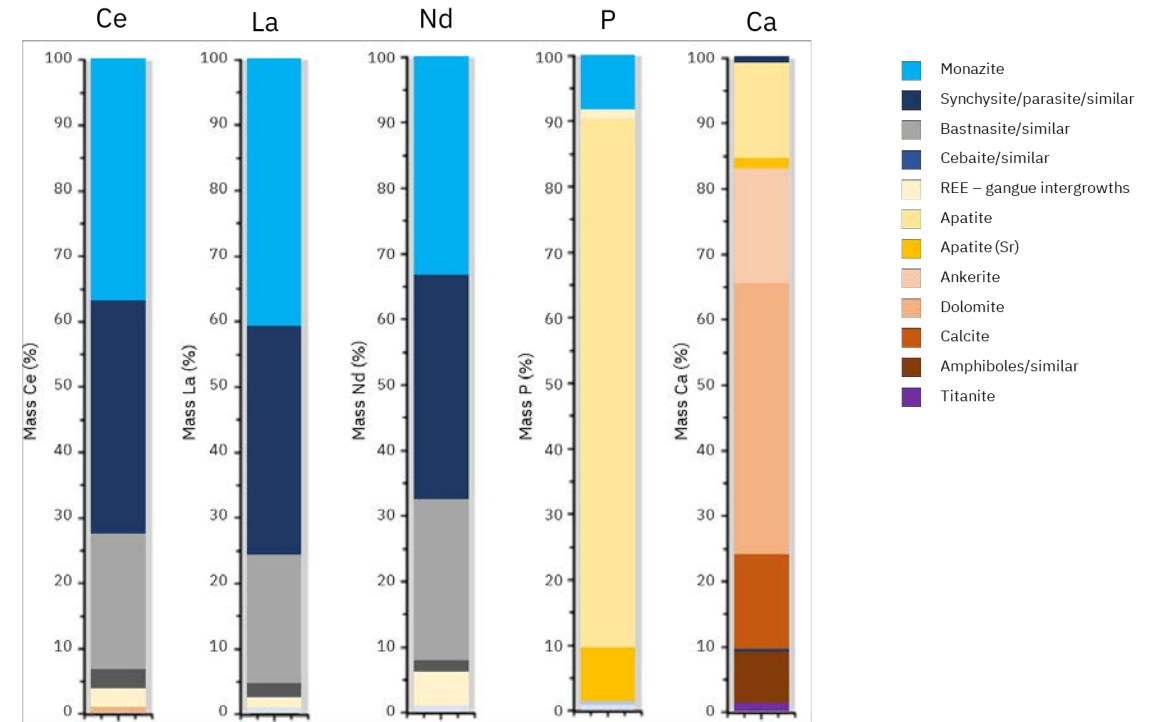
Hypothesis:

- Potential to implement ore sorting
- High RE & Phos recovery possible
- Novel upgrades to Stage 2 float circuit being considered

Sources:

RareX ASX Announcement: 11 October 2022
 RareX ASX Announcement: 23 November 2022
 RareX ASX Announcement: 13 April 2023

Rare Earth Mineral Department Fresh Rock



“R&D underway to understand bene plant and hydromet implications”

Market Segmentation



3 Product Types



1. DSO

Local and National

- Growing market on the **project doorstep**
- **MOU with OrdCo** and market strategy underway
- Potential for **Organic product certification**

2. Phos con

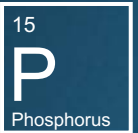
+South East Asia

- **Existing acid plant operators**
- Supplies the **synthetic fertiliser and LFP markets**
- **Engaging** in target product placement support

3. RE-P concentrate

+Saudi Arabia

- **Large acid industry** and Phosphate consumption
- **Agreement with UK** on critical minerals adding to CPTPP, AUKUS.
- **Saudi 2030 Vision** – diversify from oil, integrate globally



Monetising in a Sustainable Manner

ESG Framework

- **WEF consistent** designed by Top5 advisor
- **Aligned to stakeholder's** 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”

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

2022

Team Adjusted to suit

RARE 

Phosphate
Enabled
Rare Earths





“RareX has the potential to become a near term producer of Phosphate fertilizer products on a pathway to Rare Earths.

“I joined to help RareX define its product roadmap and to place products into the fertilizer industry.

“By getting this right at the beginning of the project, I can foresee the journey to rare earths becoming lower risk, lower capital and more sustainable.”

**Danny Goeman
Non-Executive Director**

An Evolved Board of Company-Building Directors



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)

John Young
Non-Executive Director
Geology, Development,
Growth

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 Lawyers covering corporate and finance law, corporate governance, risk management and compliance

Involved in a broad range of cross-border 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

Team Continuity Maintained

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 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 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



Supported by Preeminent Team of Partners with Mining DNA and Execution Capability



Existing Local Infrastructure



Infrastructure in Place Ready for Bulk Operations and Future Processing

Fundamentally Good Infrastructure

1

A road network becoming sealed from mine to port

2

An established port rising in stature

3

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 and a market on the doorstep is a real luxury”



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

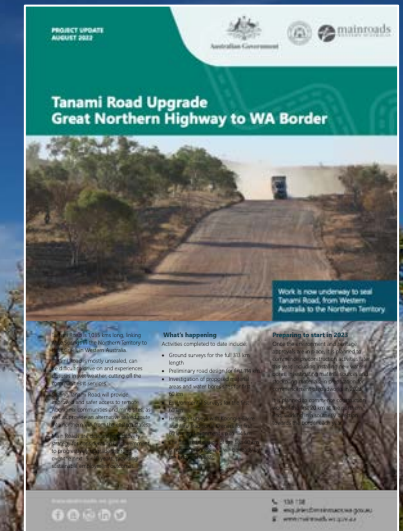
Tanami Road 95km of existing gravel highway

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

“the sealing of the Tanami Road helps, but doesn’t enable our Project”



Port Wyndham

1 Cummins Range

3 Lake Argyle, Ord River Hydro Plant

Port Wyndham

Western Australia



Bulk Ready



Phosphate
Enabled
Rare Earths

Good facilities

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

Vacant land primed for industrial development

Mineral loading infrastructure already in place – owned by others

Transshipment operations conducted regularly

Deep water offshore anchorage

Strategic Upgrades

KPA applied to Commonwealth Government for **POFE**

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

Tactical Integration

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

Securing requisite industrial land for RareX infrastructure

Completion of studies with Horizon Power for 8MW for future processing

RareX Port Development

In basic alignment to the 3 Stages of Project development:

1. Bulk handling infrastructure
2. Mineral separation
3. Mineral processing – RE and P

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



"Growing together since 1963"

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

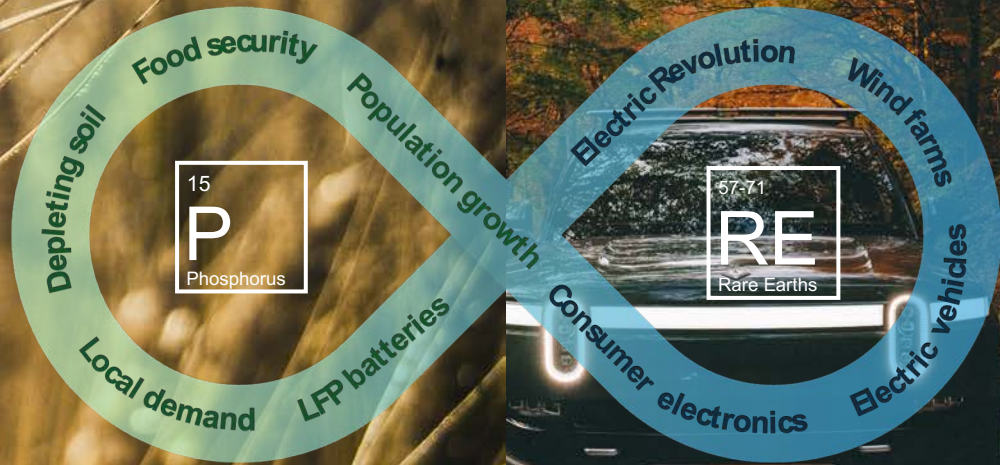


Strategic Products

Global Demand

Double Exposure

2 Strategic Markets



2 Global Mega Trends



Food Security

- **Population growth**
Another 1.7B people by 2050 to a total of 9.7B
- **Depleting soils**
Intensive farming and inefficient applications
- **Local demand**
Kununurra agricultural sector pastoral cattle licks
- **LFP Batteries**
Doubled market penetration last year

Strategic Drivers

Constrained supply - Russia
Export loss resulted in a global supply shortfall

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

Sources

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

The EV Transition Translating into an Emerging Deficit of NdPr Supply

Drivers of EV demand:

Government commitments by 2050

Consumer trends
technology adopters, conscientious buyers

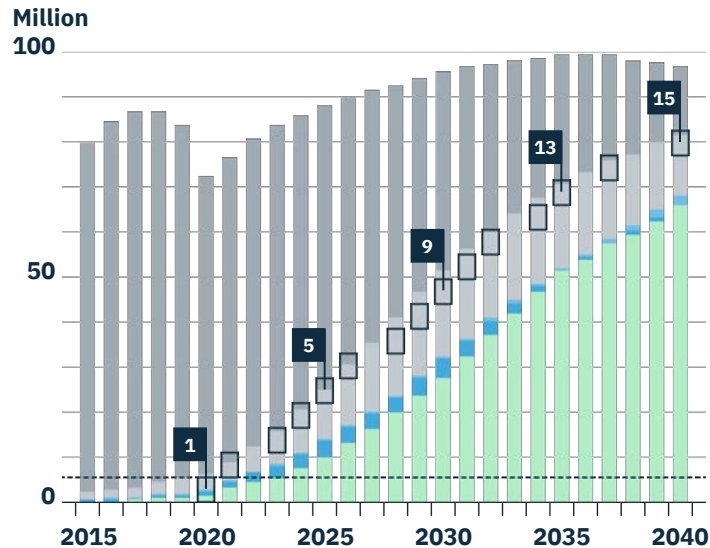
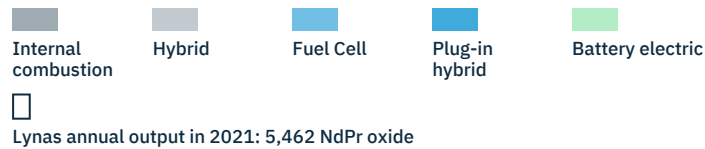
Improving affordability
government incentives, fuel price, mass production

US\$1 trillion

in investments spent to transition towards EVs



Global Passenger Car Outlook - Bloomberg NEF



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

“15x the production of Lynas required by 2040 to meet EV demand for NdPr magnets”

Growing Phosphate Fertiliser Demand

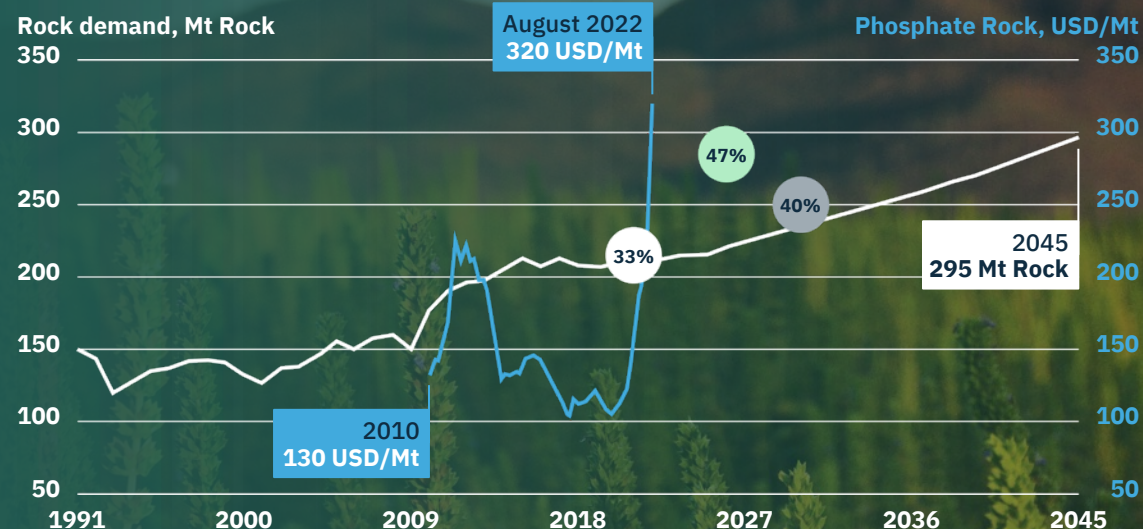
Augmented with LFP Battery Expansion



Phosphate
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Rare Earths

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: Ariane Phosphates corporate presentation, June 2022
Market share and forecast information: ARK & UBS

What's Next?

The Future is Bright... Fast Track to DSO Operations Catalysing a Large Critical Minerals Project

RARE 

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2023-24 →

2025 →

2026+ →

Stage 1 – DSO

- Confirm the DSO resource (Part 2)
- Confirm the business case
- Close infrastructure gaps
- Develop the DSO marketing strategy
- Complete approvals

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



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Board of Directors

Non-Executive Chairman
Non-Executive Director
Non-Executive Director
Non-Executive Director
Non-Executive Director

Jeremy Robinson
John Young
Danny Goeman
Shaun Hardcastle
Cameron Henry

Company Secretary
Oonagh Malone

Chief Executive Officer
James Durrant

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ASX: REE OTCQB: REEF



Thank you

Facts, Figures & Analysis

RareX Value Proposition

A DSO Phosphate Catalysed Rare Earth Project

Cummins Range can be fast tracked to operations, ultimately giving investors access to 2 global mega trends with 2 critical products

1

Massive deposit

- ✓ 1.3Mt of contained RE, 280kt of NdPr
- ✓ 17 Mt of igneous Phos, ultra-low contaminants
- ✓ Surface deposit with DSO potential overburden

2

Fast-track to monetisation

- ✓ 3 phased process from rock Phosphate, to mineral con Phosphate to Rare Earths – starting with Bulk DSO
- ✓ Traditional Owner negotiations underway with environmental submission in 1H2024
- ✓ Met work supporting high beneficiation, high bioavailability and high RE upgrades

3

Team adjusted to suit

- ✓ James Durrant, ex BHP & DNK now as CEO (ex COO)
- ✓ Danny Goeman, ex marketing FMG, DNK and RIO joins Board with Jeremy Robinson, corporate strategist, now as Chairman
- ✓ Management team augmented with Kay Hoffman, ex MinRes and BHP, with Guy Moulang continuing as Exploration Manager

4

Existing local infrastructure

- ✓ Sealed and major roads from mine road to port with Tanami upgrade
- ✓ Strategic and underutilised port, powered by hydro, on pathway to POFE with space for industrial infrastructure
- ✓ MOU with OrdCo and Agrimin. to develop local phosphate placement products and to share supply chain and transshipping infrastructure

5

Two critical products

- ✓ Rare Earths feed the global electric revolution, particularly in the generation and use of clean energy
- ✓ Phosphates feed an ever growing global population where depleting soils need to deliver higher productivity
- ✓ Both Rare Earths and Phosphates are in sharp focus for local production and independent, strategic supply chains

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

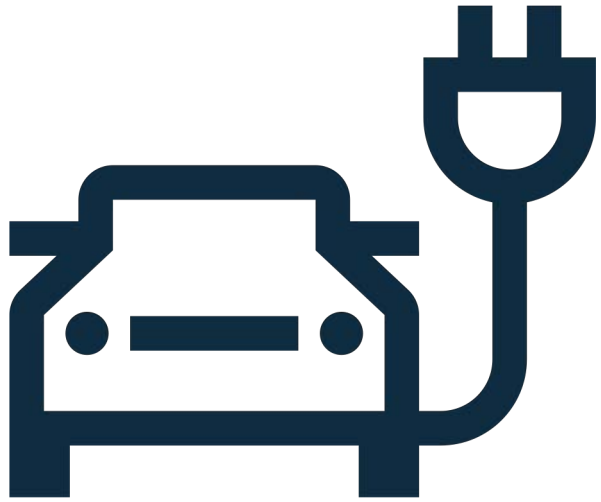
~ **200** kg

NdPr oxide
per megawatt

RARE 
Phosphate
Enabled
Rare Earths



NdPr Enabling Decarbonisation of our Society



Each electric vehicle
contains

~ **1** kg
of NdPr oxide



900%

of all automotive applications,
including hydrogen vehicles, have selected a
Rare Earth NdFeb permanent magnet
electric motor for their default driveline solution

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.”

* <https://www.reuters.com/business/autos-transportation/exclusive-global-carmakers-now-target-515-billion-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.



net
zero



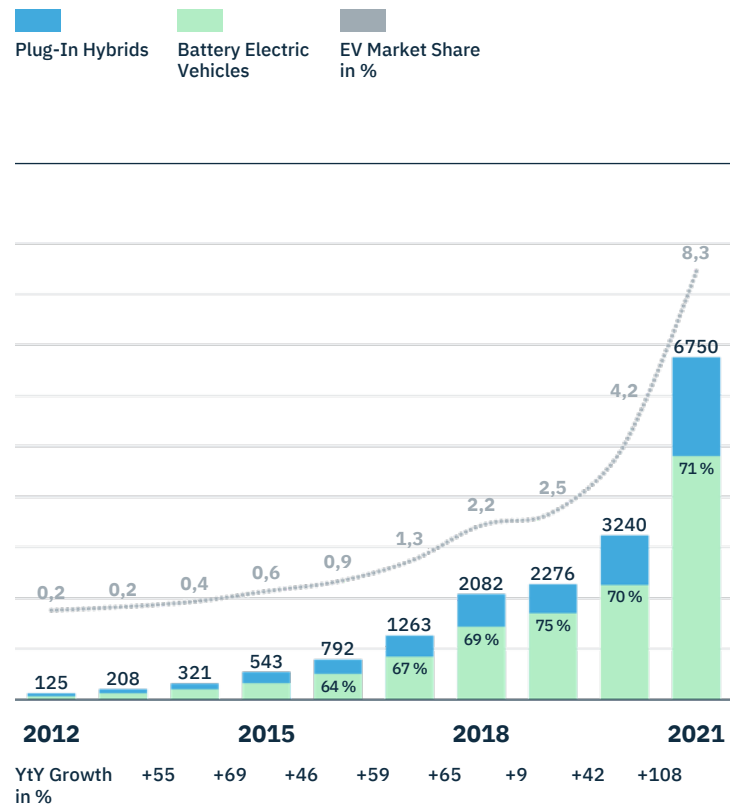
Source
<https://cleantechnica.com/2021/01/02/31-countries-states-and-cities-have-ice-bans-in-place/>

by 2050



Translating into an Emerging Deficit of NdPr Supply

Global BEV & PHEV Sales / EV volumes

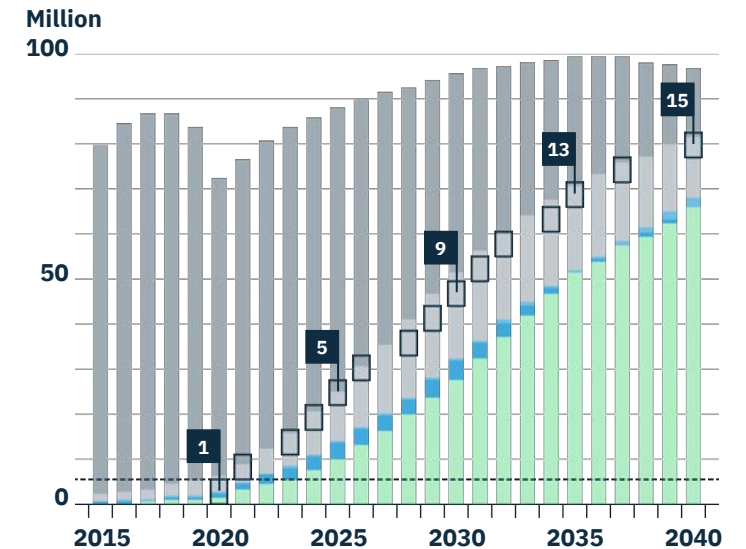
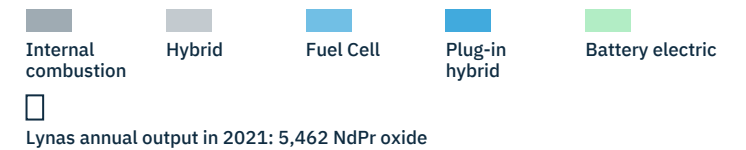


Source <https://www.ev-volumes.com/country/total-world-plug-in-vehicle-volumes/>

“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 car outlook / BNEF



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

NdPr Pricing And Market Information



Phosphate
Enabled
Rare Earths

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 the volatility of the NdPr oxide price will continue, and that when global economic sentiment improves, the Rare Earth price will recover, since majority of industry experts agree that shortage is looming.

Cummins Range basket price distribution

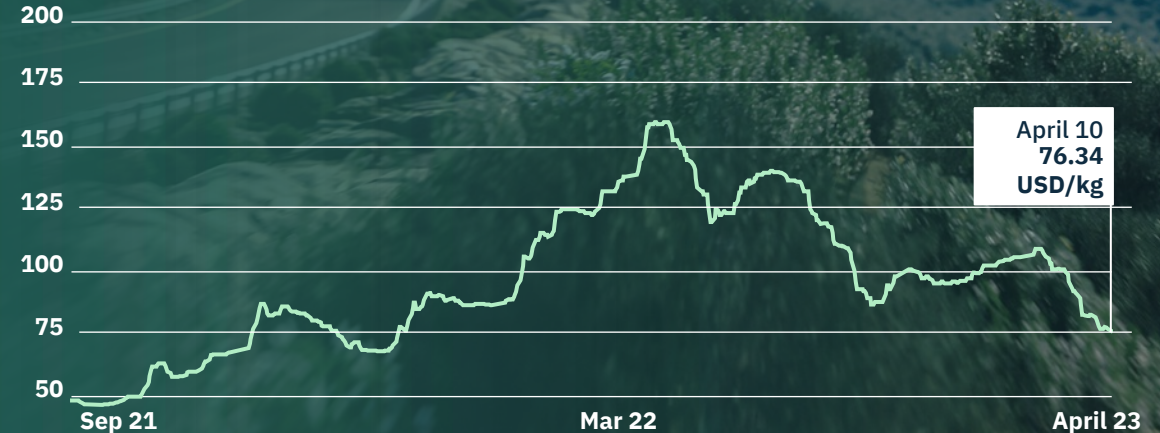
SEG 2 %
CeLa 3 %
Tb 9 %
Dy 11 %



NdPr 75 %

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

Price (USD/kg)



April 10
76.34
USD/kg