

Decision to use SX  
as the optimal  
separation route  
for Phalaborwa

25 November 2025



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## ABOUT RAINBOW

### UNLOCKING A LOW-COST AND RESPONSIBLE SOURCE OF RARE EARTHS



#### A UNIQUE OPPORTUNITY IN THE RARE EARTHS SPACE

- Pioneering the recovery of rare earth elements (REE) from phosphogypsum
- Developed unique IP using proven technology
- At the forefront of developing a secure source of light and heavy REE ex-China
- Excludes costs and risks associated with traditional hard rock mining
- Diversified portfolio with two major opportunities:
  - Phalaborwa in South Africa: a Tier 1 rare earth project
  - Uberaba in Brazil: longer life and near-term project

#### High quality stakeholders



US\$50 project funding commitment



12% shareholder



0.85% royalty stream

#### FTSE LSE

Index

**644m**

Shares in issue

#### RBW LN

Ticker

**£128.9m**

Market Cap

#### One year share price performance



## DECISION TO USE SOLVENT EXTRACTION SIGNIFICANTLY DE-RISKS PHALABORWA

SX OFFERS A RELIABLE, TECHNICALLY PROVEN, AND BANKABLE SEPARATION SOLUTION

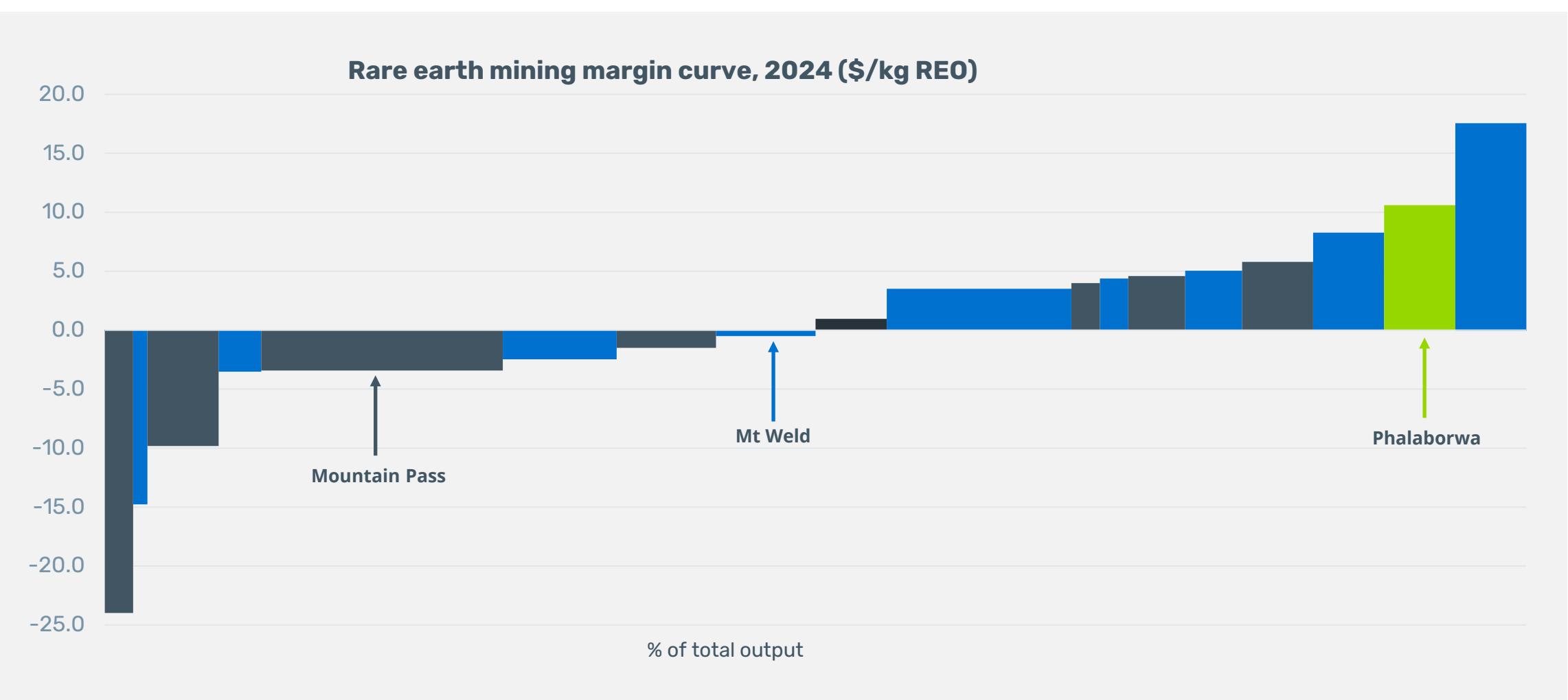


### SEPARATION ROUTE TO DELIVER +99.5% PURITY PRODUCTS

- Whilst continuous ion chromatography (CIC) remains a compelling method for REE separation, Rainbow has determined that SX represents a faster de-risking and commercially proven path to delivering Rainbow's proposed products
- SX is the gold standard for REE separation technology, delivering oxides at +99.5% purity throughout the global industry
- Major success in primary flowsheet efficiency via Rainbow IP enables simpler and more cost-effective SX circuits than are the industry norm
- Phalaborwa anticipated to retain its position at the bottom of the industry cost curve

**Separated NdPr Oxide  
+99.5% purity**

**SEG+ mixed rare earth carbonate  
+99.5% purity**



Rare earths

+ Add to myFT

## Western companies warn of China rare-earth supply chain chaos

Executives predict Beijing's tighter controls will lead to production delays and higher prices

Opinion Rare earths

## China has laid a rare earths trap for the west

The American military and Europe's green transition both rely on critical minerals from Beijing

Rare earths

+ Add to myFT

## China cracks down on foreign companies stockpiling rare earths

Beijing determined to retain leverage over supply by preventing buyers from building large inventories

### China's actions expose REE supply chain vulnerabilities

- April 2025: China announced export restrictions on 7 medium and heavy REE and the magnets that contain them
- Severe disruption to global supply chains, with foreign companies having to seek lengthy export approvals and prove REE will not be used for military purposes, plus crackdown on stockpiling
- October 2025: China proposes further tightening of controls, adding 5 additional REE and foreign companies to require approval for magnets that contain even trace amounts of Chinese REE

### Western nations are acting now to create independent supply chains

- The West has woken up to the fact that REE are vital to both economic resilience and national security
- Western and aligned nations are investing in new capacity across the full supply chain, from production to magnet manufacturing
- Landmark deal in the U.S.: public-private partnership between the DOD (now DOW) and MP Materials to help build domestic supply chain, incl. a floor price of US\$110/kg NdPr (vs. spot price of US\$63/kg at time)

# “THE VITAMINS OF MODERN INDUSTRY”

## SUPPLY DISRUPTIONS HAVE HIGHLIGHTED THE CRITICALITY OF REE



A group of 17 elements

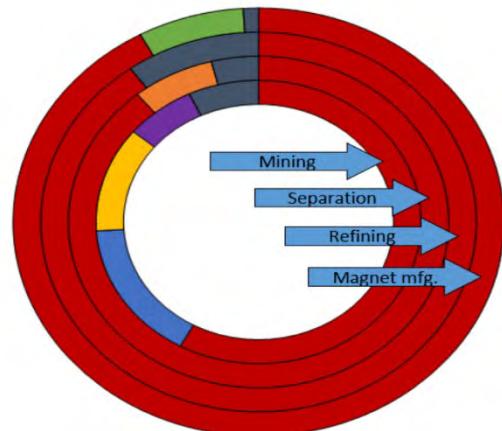
Light rare earth elements (LREE)



Heavy rare earth elements (HREE)



Concentration of supply chain for sintered NdFeB magnets



Source: U.S. Department of Energy

- REE may not be a significant part of a product by weight, value, or volume (and therefore cost), yet they are essential for the device to function
- Major disruption to industry in 2025, incl. automotive and e-mobility, defence, drones, robotics and more: traditional products impacted as well as newer technologies

**MONEYWATCH**

## Ford CEO says rare earths shortage forced it to shut factory

By Megan Cerullo  
Edited By Anne Marie D. Lee  
Updated on: June 13, 2025 / 4:17 PM EDT / CBS News

**f X F**

### "Hand-to-mouth"

Farley said the slowing flow of the critical minerals into the U.S. has presented a challenge for Ford.

"It's day to day," he told Bloomberg TV Friday. "We have had to shut down factories. It's hand-to-mouth right now."

## GLOBAL DEMAND IS RAPIDLY RISING

ROBOTICS AND ADVANCED AIR MOBILITY ARE THE NEW FRONTIER FOR DEMAND



INDUSTRIAL  
ROBOTS



HUMANOID  
ROBOTS



COMMERCIAL  
DRONES



EVTOL



### Robotics

- The robotics revolution is accelerating, with 10 billion robots predicted by 2040 (Elon Musk). REPM are essential for enabling human-like movement and precision in humanoid robots, with magnet intensity ranging from 5-15kg

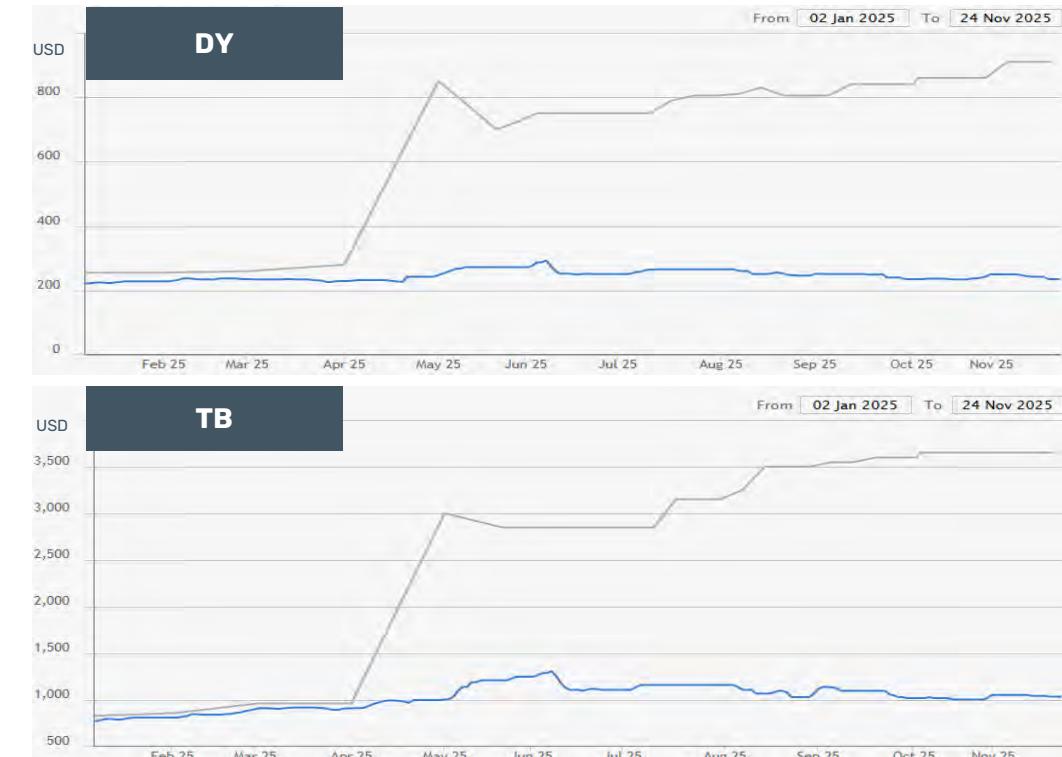
### Advanced Air Mobility

- eVTOLs (electric vertical take-off and landing) aircraft require higher magnet intensity to meet the power needs of their motors, demanding more REEs than EVs, especially with payloads over 100kg

## SUPPLY ISSUES FORCE PRICE BIFURCATION

RESTRICTED REE ARE TRADING AT MUCH HIGHER LEVELS IN EUROPE VS CHINA

- As advocated by Rainbow:
  - Industry acceptance of an NdPr floor price above current pricing to incentivise new ex-China sources of supply
  - US, Australia and EU to develop strategic mineral stockpiles



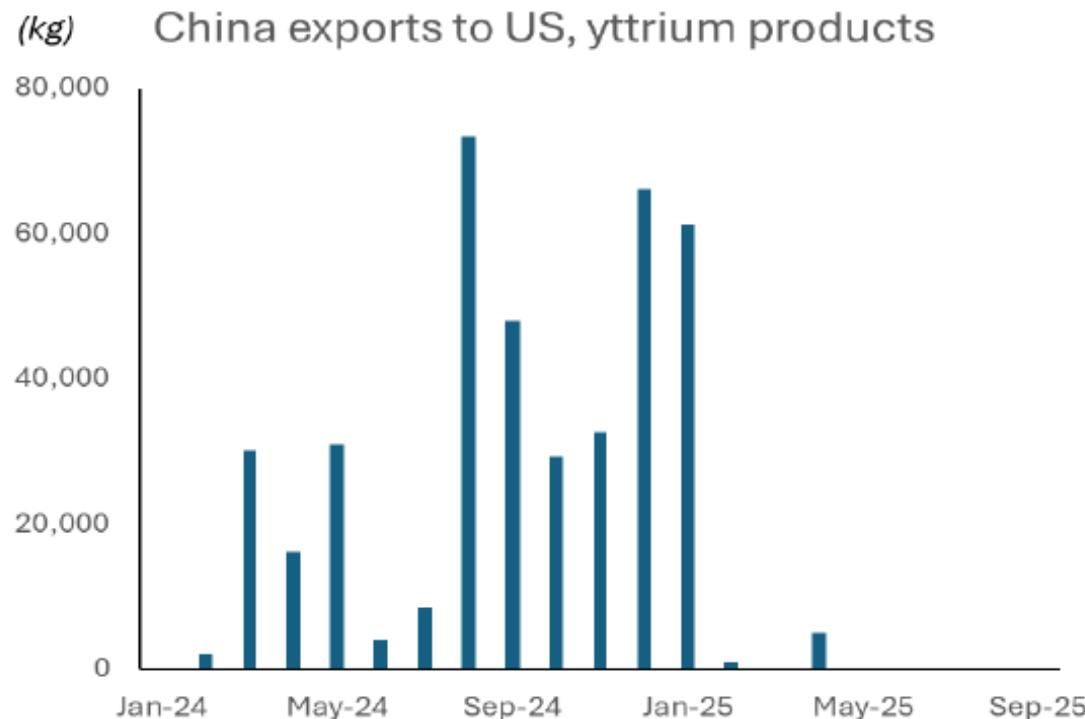
Source: Argus Media

 Pricing of oxide min 99.99% fob China  Pricing of oxide min 99.99% fob Europe

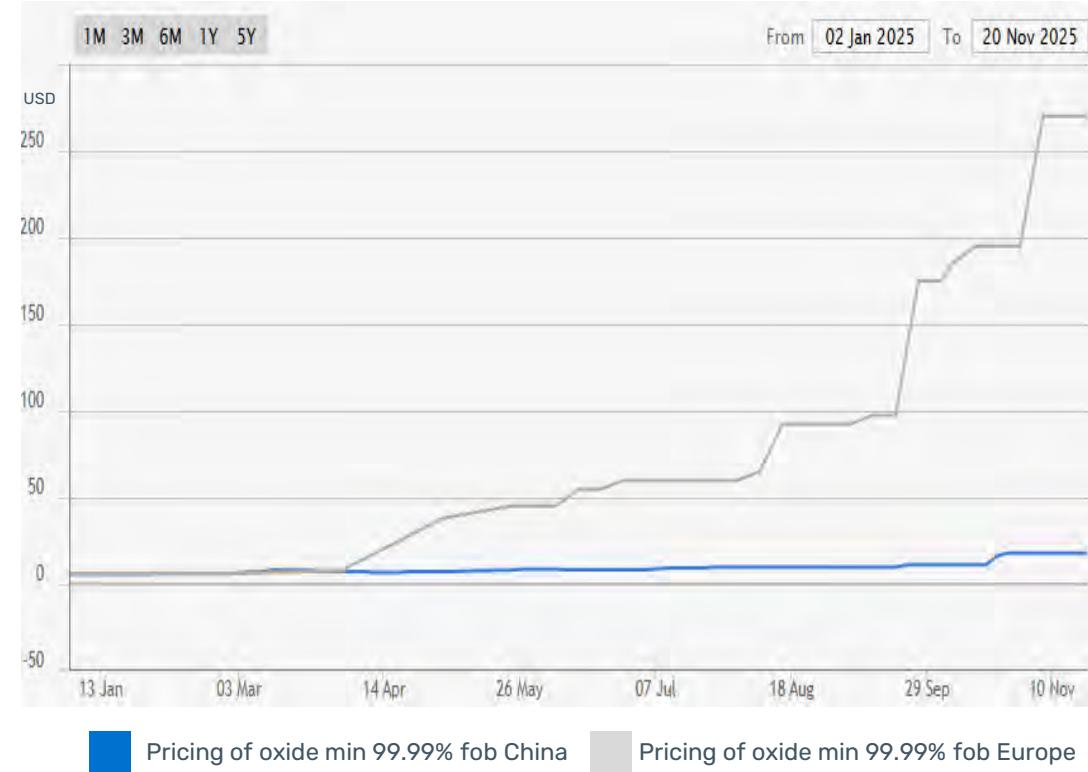
# YTTRIUM HAS EMERGED AS MOST HIGHLY SOUGHT-AFTER RESTRICTED REE EXTENSIVELY USED IN HIGH-TECH CIVILIAN AND DEFENCE TECHNOLOGIES



## EXPORTS CRASHED TO A HALT AFTER THE APRIL EXPORT CONTROLS



## PRICE SURGE HAS A MATERIAL POSITIVE IMPACT ON PHALABORWA EBITDA



Source: Argus Media

### Major breakthrough in confirming economic recovery of REE from phosphogypsum

- Rainbow has succeeded where previous attempts over last ca. 40 years have failed
- Phalaborwa fundamentally de-risked via finalisation of process to deliver separated NdPr and a SEG+ heavy REE product via SX
- Project confirmed as a strategic and near-term source of both light and heavy REE

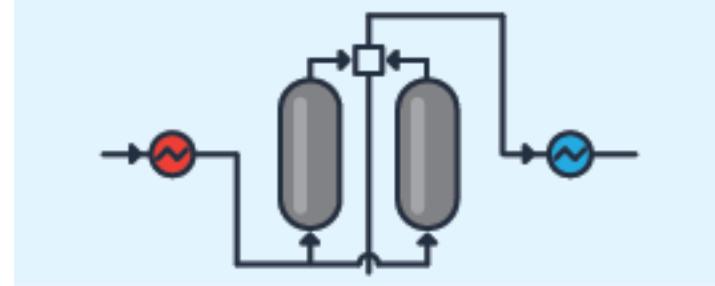
### Progress achieved in-house

- Project progress delivered using in-house team and equipment, having established Joburg laboratory in record time in Q1 2025
- Work delivered faster and at a lower cost than using external facilities

### Stand-out economics

- Rainbow's innovative processing technology is rewriting the economics of REE production by eliminating the costs and risks associated with traditional mining
- Interim economic study and subsequent test work have confirmed Phalaborwa's position **right at the bottom of the industry cost curve**

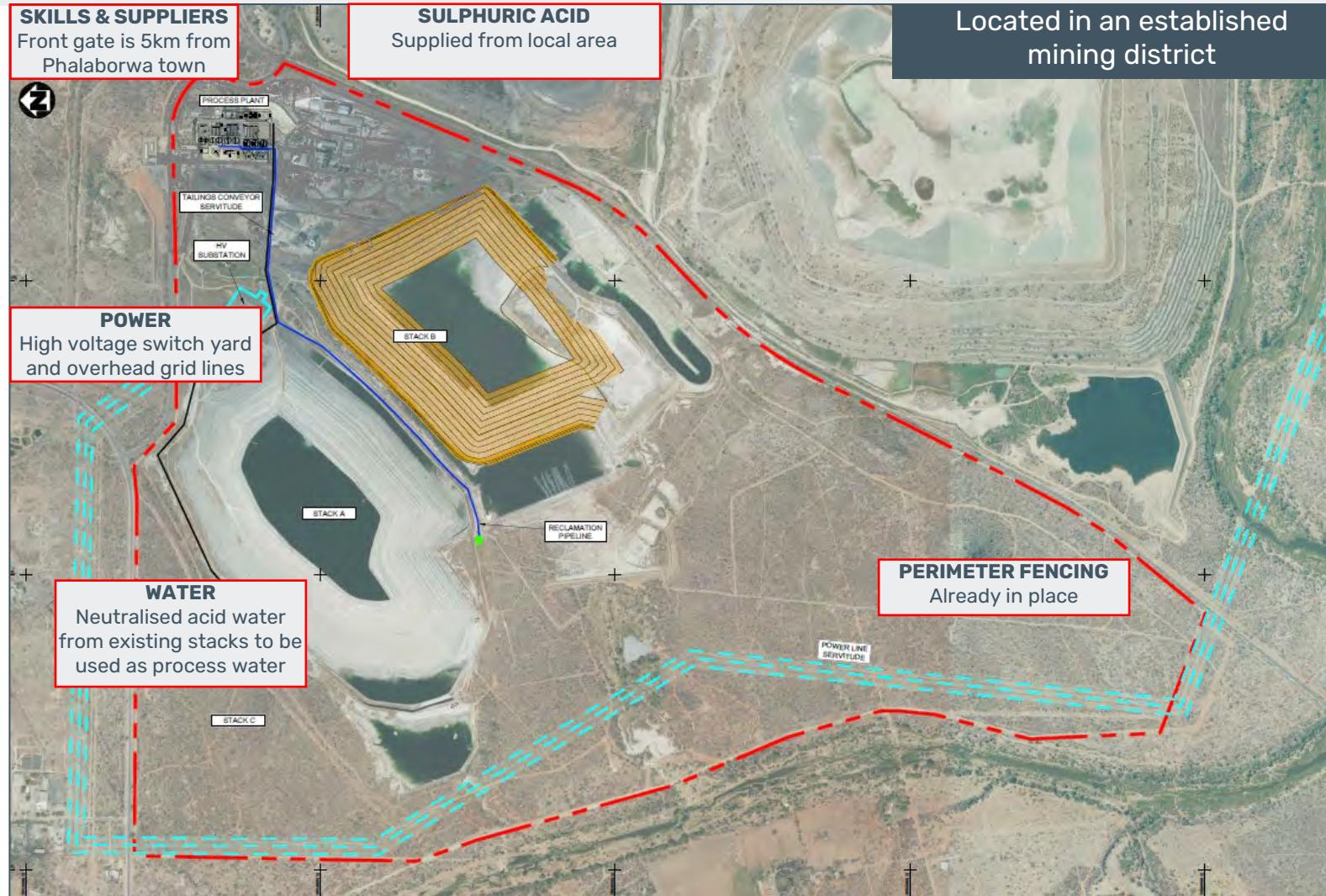
### RAINBOW'S UNIQUE IP TO RECOVER REE FROM PHOSPHOGYPSUM



Rainbow has developed an innovative flowsheet using proven processes to recover critical REE from phosphogypsum that is the by-product of phosphoric acid production. The process has a low capital and operating cost intensity due to the chemically cracked nature of the phosphogypsum feed stock.

The process delivers separated NdPr rare earth oxides and a SEG+ product

# PHALABORWA: A TIER 1 REE PROJECT UTILISING A BROWNFIELDS SITE



- 35 Mt Resource at 0.44% TREO comprises two stacks of phosphogypsum containing economic quantities of all 4 magnet REE: Nd, Pr, Dy and Tb, as well as other heavies such as Y
- Strategic project backed by US Government with DFC proposed investment of US\$50 million and ca. 12% shareholding of TechMet



# PHALABORWA ECONOMICS BASED ON BENCHMARK FLOOR PRICING FOR NDPR

## A TIER 1 RARE EARTH PROJECT POSITIONED IN THE LOWEST COST QUARTILE



**35.0 Mt**

Total Resource<sup>1,2</sup>

**US\$326.1m**

Capital Expenditure

**US\$611m**

Post-tax NPV<sub>10</sub>

**c.1,850tpa Nd/Pr**

Separated oxide @ +99.5% purity

**c.140tpa Y**

Within a SEG+ product

**38%**

Post-tax IRR

**US\$12.91**

Operating cost per kg TREO

**US\$181m**

EBITDA (operating margin of 70%)

**c.80tpa Dy and Tb**

Within a SEG+ product

**16 years**

Project Life

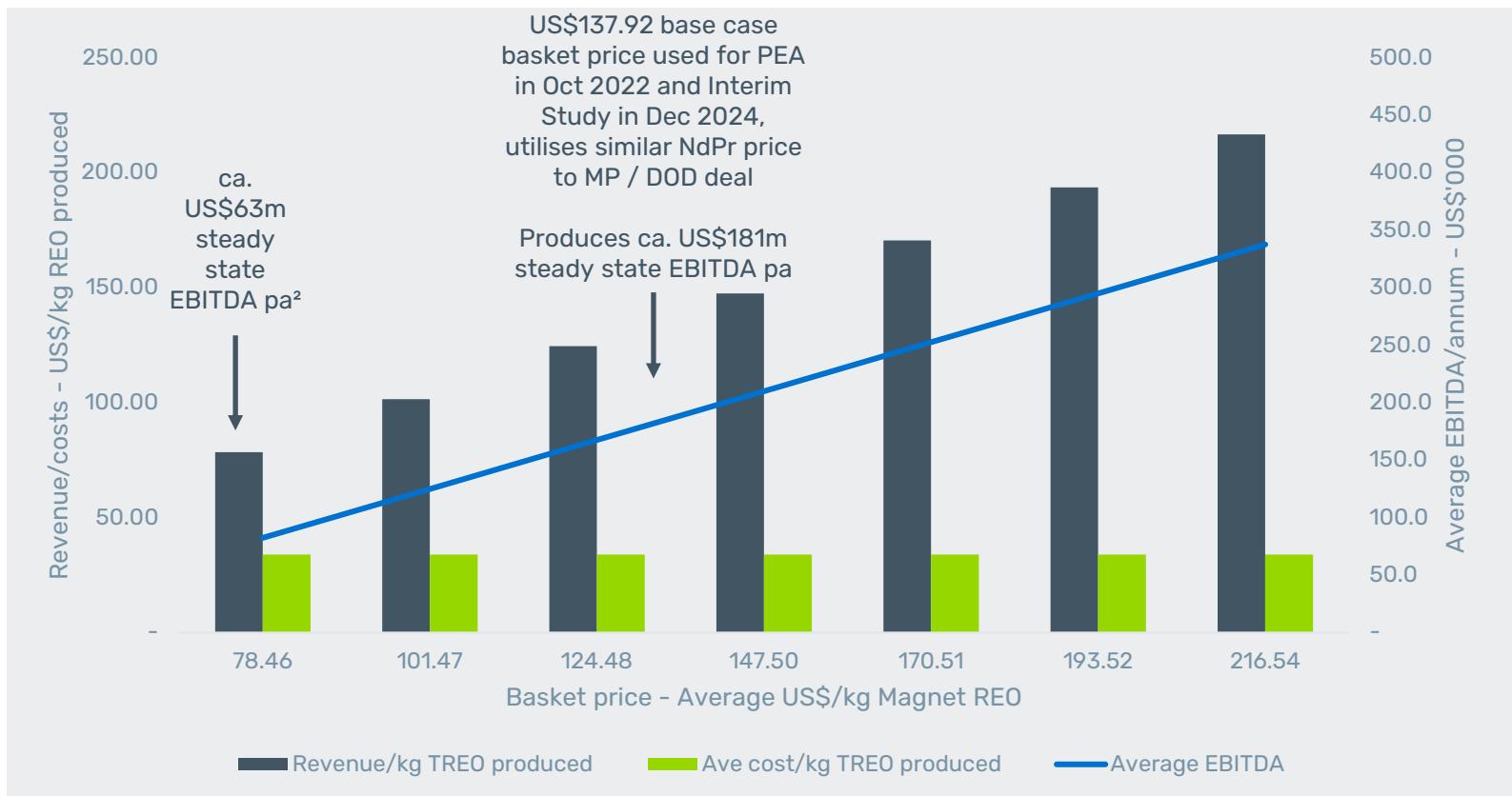
35Mt of phosphogypsum sitting at surface in a chemically cracked form



# PHALABORWA ECONOMICS

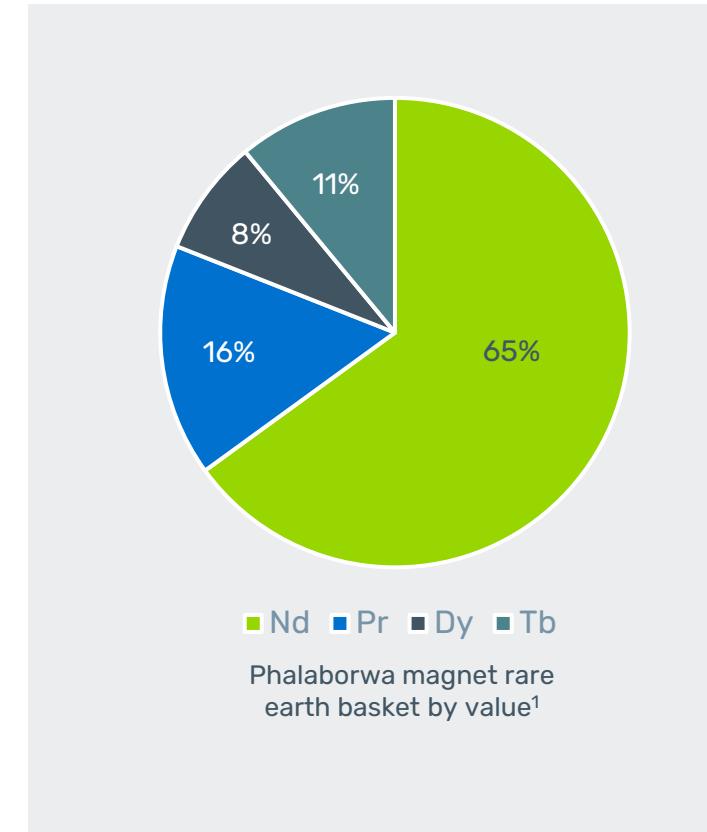
## GOOD RETURNS ACROSS THE PRICING CYCLE

### EBITDA SENSITIVITY TO PRICING<sup>1</sup>



1. Based on project economics set out in the December 2024 Interim Report
2. Lowest basket price of US\$78.46 based on separated oxide prices of US\$60/kg Nd/Pr, US\$300/kg Dy and US\$1,000 Tb

### PHALABORWA MAGNET REE BASKET



1. Using PEA / Interim Report base case pricing

## TEST WORK ACHIEVEMENTS IN 2025

FLOW SHEET ROUTE FINALISED TO DELIVER HIGH PURITY SEPARATED PRODUCTS VIA SX



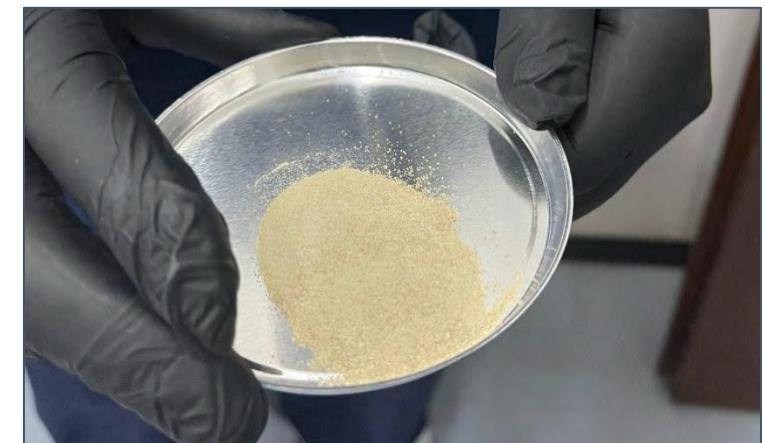
### TEST WORK

#### Maximising REE recovery and impurity rejection via CIX

- Rainbow's purification process combines CIX and precipitation steps - a novel combination in REE recovery
- Successful incorporation of a cerium depletion step reduced Ce content by ca. 65%, key to reducing metal content for SX separation
- Extensive large-scale locked cycle tests deliver high-grade mixed rare earth feed stream to the SX separation circuit that exceeds the specification requirements for successful production of high-purity final products

#### Low-cost and highly efficient process

- Massive volumetric concentration (+30x reduction) in PLS flow from 340m<sup>3</sup>/hour to 4 - 5m<sup>3</sup>/hour feeding final separation circuit
- Major positive impact on size, energy and reagents to be used for the SX separation circuit



## **SX CHOSEN AS THE OPTIMAL SEPARATION ROUTE**

SUCCESS IN PRIMARY FLOWSHEET EFFICIENCY MAKES SX VIABLE ECONOMIC OPTION



### **PROCESS TO INCORPORATE SX INTO DFS**

- Australia's ANSTO has produced a pre-feasibility-level SX process report confirming Phalaborwa will only require two small SX circuits
- The SX circuits will have a total of ca. 75 mixer settlers (traditional SX plants often hold 1,500 mixer settlers or more)
- Confirms that Phalaborwa will maintain a low capital intensity and operating cost (opex)
- Large-scale pilot plant in Joburg will generate sufficient purified, high-grade, mixed REE feedstock for SX pilot trials at ANSTO in H1 2026
- ANSTO's continuous SX two-stage pilot plant will produce Phalaborwa's final proposed products that can be employed for marketing and off-take purposes

### **Definitive Feasibility Study**

Once trade-off studies, project design and separation route are finalised, results will be incorporated into the DFS, which will be completed in 2026

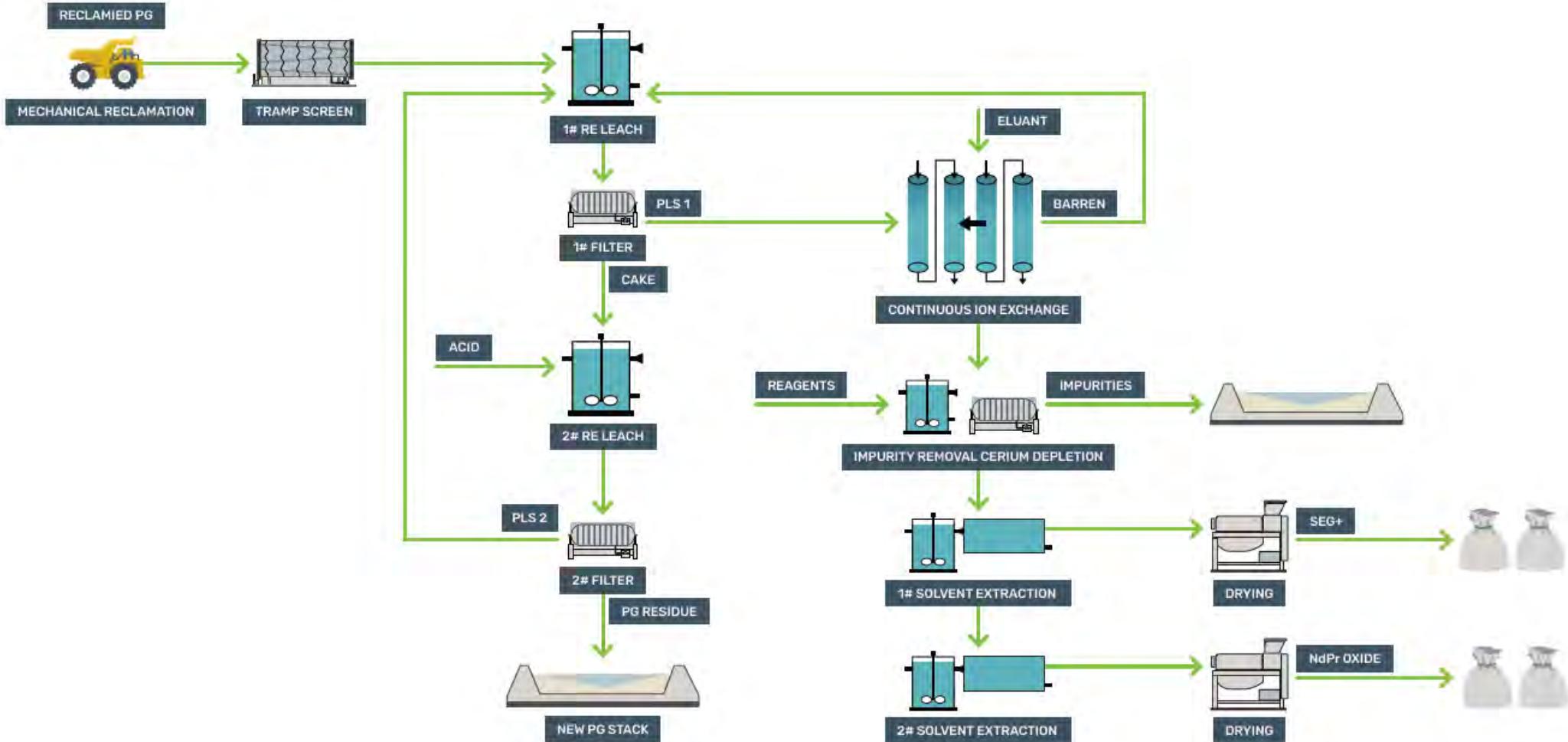
Whilst this is later than originally planned, delay is allowing the results of the trade-off studies to deliver the most economically attractive project, enhancing shareholder value over the long term

## PILOT PLANT CURRENTLY COMMISSIONING AT MINTEK



# PHALABORWA INDICATIVE FLOWSHEET

## A LOW COST AND EFFICIENT METHOD TO RECOVER REE



## OPTIMISATION

### Strengthening economics via trade-off studies and piloting work

- The additional time required for the project test work has allowed for the pursuit of multiple optimisation initiatives
- The trade-off studies primarily focus on the primary flowsheet (processing up to final separation), which represents 85-90% of the cost base
- These studies are progressing positively and are expected to deliver savings in power, reagent, labour and capital costs
- Trade-off studies and optimisation work expected to enhance the economics of what is already considered to be one of the highest margin REE projects in development today
- The large-scale pilot plant underway at Mintek will validate the updated primary flowsheet parameters, as well as incorporating and demonstrating the expected capital and operating cost savings from the ongoing trade-off studies



One trade-off study compares hydraulic versus mechanical reclamation of the phosphogypsum



# PHALABORWA RESOURCE UPDATED TO INCLUDE YTTRIUM

## FURTHER ENHANCES VALUE OF SEG+ MIXED MEDIUM AND HEAVY REE PRODUCT



### RESOURCE

#### Phalaborwa to supply all the economically important medium and heavy REE

- Updated Mineral Resource Estimate<sup>1</sup> includes yttrium (Y), one of the HREE subject to Chinese export controls since April 2025
- Phalaborwa confirmed as a strategic and near-term source of all the economically important medium and heavy REE, being Dy, Tb, Sm, Eu, Gd and Y
- USGS 2025 List of Critical Minerals: critical minerals deemed to be at highest risk of supply chain disruption include: Dy, Tb, Sm, Gd and Y
- **Full value of Phalaborwa's SEG+ product is currently ca. US\$160 million pa** (at mid-market European prices assuming 70% payability) vs revenue of ca. US\$80 million pa in the December 2024 Interim Economic Report for separated Dy and Tb (at 100% payability)
- Uberaba in Brazil is also expected to produce positive amounts of these SEG+ REE

1. Resource summary included on slide 30

### EXPECTED ANNUAL PRODUCTION OF REE (TONNES PER ANNUM)

samarium (Sm <sub>2</sub> O <sub>3</sub> )	244
europium (Eu <sub>2</sub> O <sub>3</sub> )	50
gadolinium (Gd <sub>2</sub> O <sub>3</sub> )	180
terbium (Tb <sub>4</sub> O <sub>7</sub> )	20
dysprosium (Dy <sub>2</sub> O <sub>3</sub> )	60
yttrium (Y <sub>2</sub> O <sub>3</sub> )	140

## PATHWAY TO PRODUCTION

SHORT TIMEFRAME TO OPERATIONS ONCE TEST WORK FINALISED



Pathway to Production

### NEXT STEPS SUPPORTED BY SUCCESSFUL OPTIMISATION OF FLOWSHEET

- Most important objective is to deliver the optimal economic flowsheet to ensure the long-term project success
- Environmental and Social Impact Assessment for the DFS and permitting is well advanced
- Upon completion of the DFS, finalisation of the permitting will run in parallel with the project finance process
- Construction is expected to start in 2027, with first production from 2028
- Huge increase in incoming offtake enquiries demonstrate the desirability of Phalaborwa's proposed light and heavy REE

## RAINBOW'S IP OPENS UP A LARGER ADDRESSABLE MARKET UBERABA PROJECT IN BRAZIL – MOU WITH MOSAIC



### ECONOMIC ASSESSMENT (EA) UNDERWAY: OPPORTUNITY TO REPLICATE PHALABORWA AT A LARGER SCALE

- Uberaba phosphate slurry feed is sourced from a hard rock carbonatite similar to the Foskor carbonatite mine that fed Sasol's phosphoric acid plant at Phalaborwa
- Assay work returned an average grade of 0.58% TREO (ca. 32% higher than Phalaborwa) for Uberaba phosphogypsum, with NdPr being 24.5% of the basket
- Uberaba represents a significantly larger economic opportunity than Phalaborwa over the long-term given the sheer scale of the planned and potential opportunities due to the long-term nature of the underlying phosphate deposit
- EA considers a highly conservative project life of 15 years, but expected to be much longer
- Modest EA cost of US\$230k to be shared 50:50 Rainbow:Mosaic



## WHAT MAKES RAINBOW DIFFERENT? A UNIQUE OPPORTUNITY IN THE REE SPACE



- Rainbow's IP unlocks a global opportunity for the low-cost and responsible supply of critical REE from phosphogypsum
- Phalaborwa is a Tier 1, strategic source of both light and heavy REE, hence major backing by the US DFC, TechMet and Ecora
- All the learnings from Phalaborwa can be applied to Uberaba: two opportunities for near-term supply of light and heavy REE
- Team has world-class REE expertise and a track record of execution and delivery



**George Bennett**  
**CEO**

Established MDM Engineering Ltd; delivered multiple processing plants and feasibility studies under his tenure



**Pete Gardner**  
**CFO**

Chartered Accountant with +15 years in the mining sector across development and producing assets



**Dave Dodd**  
**Technical Director**

Co-founder of MDM Ferroman; responsible for large number of processing plants, feasibility studies and mine developments



**Chris Le Roux**  
**Lead Process Engineer**

Extensive experience in mineral processing and recovery working for major mining houses and engineering design firms



**Roux Wildenboer**  
**Senior Metallurgist**

Extensive experience in processing and project development in REE, and across major and minor metals in Africa and Europe



**Tamsyn De Jager**  
**Manager of Studies**

Study Manager on many studies from concept phase to project execution, with a high study-to-project implementation conversion rate

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RAINBOW RARE EARTHS

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APPENDIX



## KEY SHAREHOLDER INFORMATION



### BOARD SHAREHOLDINGS AND MAJOR SHAREHOLDERS (>3%)

Shareholder	Holding
Adonis Pouroulis	13.9%
TechMet	11.7%
George Bennett	6.3%
Caden Holdings Limited	5.7%
Shawn McCormick	1.5%
Alexander Lowrie	1.1%
Atul Bali	0.7%
Darryll Castle	0.1%
J Peter Pham	0.1%
<b>Total Board shareholding</b>	<b>23.7%</b>

### INFORMATION AS AT 24 NOVEMBER 2025

Ticker	Market	Market cap	Share price	Shares in issue	Brokers
RBW.L	LSE	US\$202.2m	19.5p	644m	BERENBERG / STIFEL

### SHARE PRICE (GBP) – ONE YEAR



# EXPERIENCE BOARD AND EXECUTIVE MANAGEMENT

## EXTENSIVE EXPERIENCE ACROSS MINING, AFRICA, CAPITAL MARKETS, INTL. AFFAIRS



### ADONIS POUROULIS

#### NON-EXECUTIVE CHAIRMAN

- Mining engineer: an entrepreneur whose expertise lies in the discovery, exploration and development of natural resources across Africa, as well as more recently becoming an active investor and developer of transitional energy projects
- Founder of Rainbow and Petra Diamonds (LSE:PDL); Founder and CEO of Chariot Transitional Energy (AIM:CHAR); Founder and advisor to Energy Revolution Ventures and Chairman of Prosemino, and Founder of Pella Resources Limited



### SHAWN MCCORMICK

#### INDEPENDENT NON-EXECUTIVE DIRECTOR

- International affairs specialist
- +30 years of political and extractive industries sector experience having served in The White House as Director for African Affairs on the National Security Council (Washington)
- Previously Political Affairs Director of BP (London) and VP of TNK-BP (Moscow)



### ALEXANDER LOWRIE

#### INDEPENDENT NON-EXECUTIVE DIRECTOR

- Experienced director, advisor, board observer and investor with 25 years' experience initially in financial markets and subsequently with a specific focus on the critical metals mining, battery recycling and technology sectors. Previous director roles at Deutsche Bank and RBS; Co-Founder of Telemark Capital LLP



### J PETER PHAM

#### INDEPENDENT NON-EXECUTIVE DIRECTOR

- Scholar and practitioner of International Affairs; +20 years of experience in Africa
- First-ever United States Special Envoy for the Sahel Region until 2021 with the personal rank of Ambassador; previously as US Special Envoy for Great Lakes Region
- Distinguished Fellow at the Atlantic Council
- Emeritus member of the Board of the Smithsonian National Museum of African Art; Chairman of High Power Exploration and NED of Africell Global Holdings



### ATUL BALI

#### INDEPENDENT NON-EXECUTIVE DIRECTOR

- Corporate CEO and board member with +25 years experience in tech, government contracting and regulated industries; Chartered Accountant
- Currently advisor to several high-growth technology companies, Chairman of the Football Pools and non-executive director of Everi Holdings Inc (NYSE:EVRI)
- Previously held divisional CEO or President positions with IGT (NYSE), Aristocrat (ASX), and Real Networks (NASDAQ), as well as a venture capital firm



### DARRYL CASTLE

#### NON-EXECUTIVE DIRECTOR

- COO for TechMet<sup>1</sup>
- Civil engineer; +30 years experience across company leadership, project/operational delivery and transformation, technical planning and implementation, fund management, business development and governance roles
- Extensive career as an exec in mining globally, incl. running operations across Africa

## EXECUTIVE MGMT TEAM



### GEORGE BENNETT

#### CEO

- +30 years experience in finance and management, including as partner in stockbroking/advisory firms in SA
- Former CEO of Shanta Gold Ltd, successfully listed on LSE in 2005; seed-funded and raised initial capital for OreCorp Ltd as NED, since listed on ASX and acquired by Perseus Mining
- CEO and Founder of MDM Engineering, listed on LSE in 2008; responsible for delivering multiple process plants and feasibility studies. Sold after 8 years to Foster Wheeler for US\$120 million



### PETE GARDNER

#### CHIEF FINANCIAL OFFICER

- Qualified Chartered Accountant; +15 years' experience in mining industry leading finance teams across Africa/developing nations
- Former CFO of Amara Mining plc (up to acquisition by Perseus Mining), Chaarat Gold, Piran Resources and Alexander Mining



### DAVE DODD

#### TECHNICAL DIRECTOR

- +45 years of extractive metallurgy experience covering research and development, technical sales and predominantly metallurgical project development and execution
- Technical Director and co-founder of MDM Engineering. Dave has designed and commissioned plants across Africa and the rest of the world, covering minerals from rare earths to gold, platinum, diamonds, copper, zinc, phosphate, cobalt and many others
- Chemical Engineer and Fellow of Southern Africa Institute of Mining & Metallurgy

## RAINBOW IS POSITIONED TO UNLOCK THIS CRITICAL SUPPLY BY EXTRACTING MAGNET REE FROM PHOSPHOGYSPUM

### PHOSPHATE IS MINED TO PRODUCE PHOSPHORIC ACID



A hard-rock phosphate deposit is mined and concentrated to produce a phosphate slurry feed

This is fed to a phosphoric acid plant which applies sulphuric acid and heat to produce phosphoric acid for fertiliser

Hardrock carbonatite phosphate sources contain rare earths which are concentrated and fed to the phosphoric acid plant

### PHOSPHOGYPSUM IS THE BY-PRODUCT

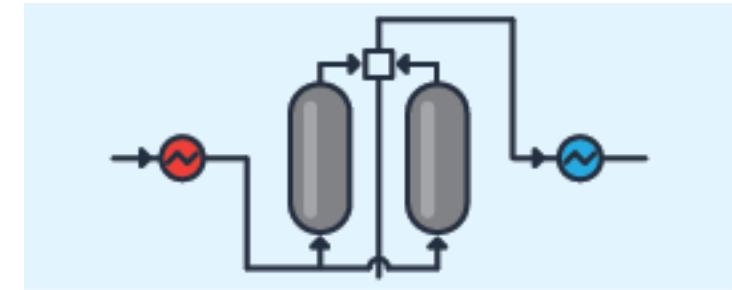


The waste product of phosphoric acid production is phosphogypsum

The rare earths concentrated in the phosphoric acid plant are left behind in this phosphogypsum waste residue

The phosphogypsum waste residue is a cracked chemical stockpile of rare earths which are amenable to direct leaching

### RAINBOW HAS DEVELOPED UNIQUE IP TO RECOVER THE REE



Rainbow has developed an innovative flowsheet using proven processes to recover REE critical to advanced technologies from the phosphogypsum residue

The process has a low capital and operating cost intensity due to the chemically cracked nature of the phosphogypsum feed stock

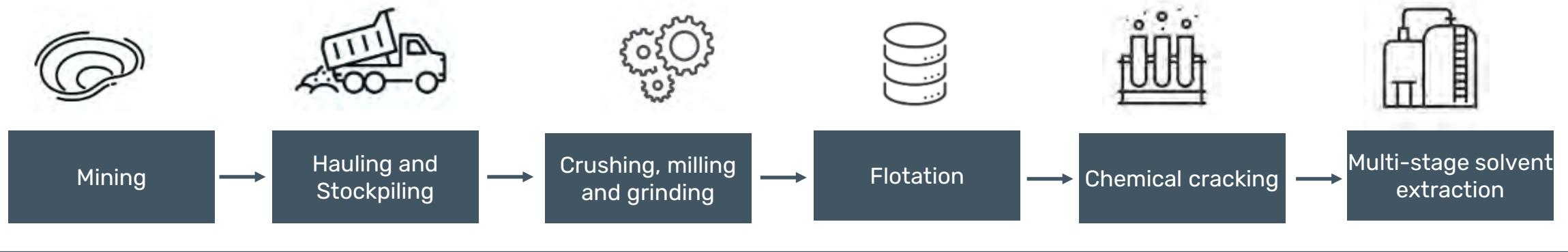
The process will deliver separated NdPr rare earth oxides and a SEG+ product

# ACCESSING GLOBAL REE RESOURCES ECONOMICALLY IS CHALLENGING

## SIGNIFICANT COST TO BRING TRADITIONAL PROJECTS ON STREAM



### Significant capital and operating costs required for typical REE mining projects



### Rainbow's streamlined and low-cost process



- Most traditional rare earth mining projects have multiple challenges to overcome:
  - low grades
  - complex mineralogy and low recovery rates
  - high levels of radioactivity
  - environmental complications, incl. around in-situ leaching for ionic clay projects
  - very high capital costs

# PHALABORWA ESG BENEFITS

## TRANSFORMING WASTE INTO CRITICAL INPUTS TO SOCIETY

### REHABILITATION

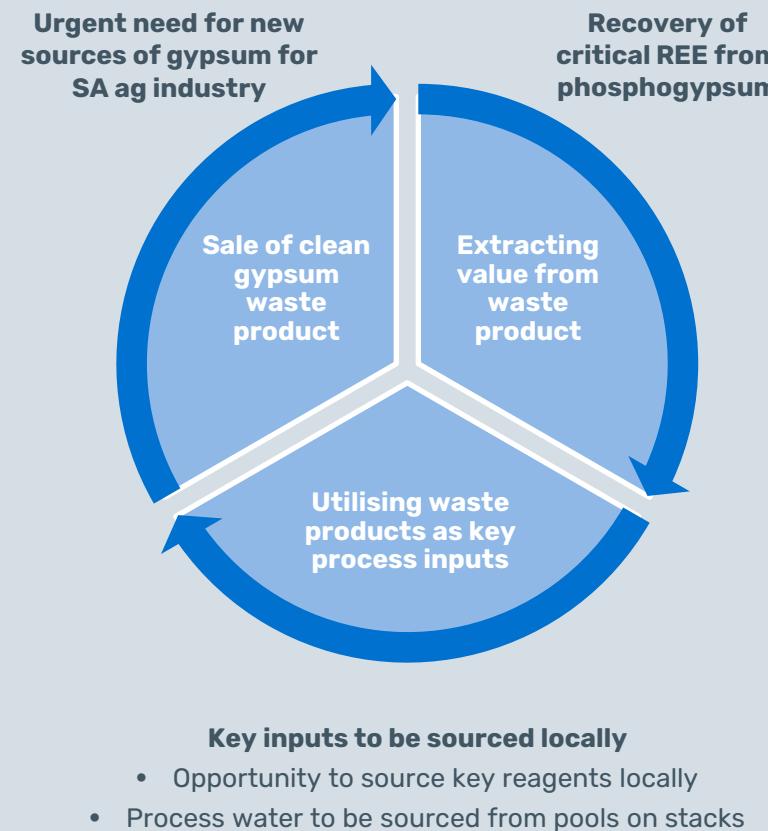
#### Legacy issues:

- Historic phosphoric acid production operations were not required to deposit gypsum waste on lined stacks
- Acid water has accumulated on the stacks

#### Rainbow process:

- Neutralise acid water and use it to fulfil the process water requirements in a closed loop
- Clean gypsum waste to be deposited on lined stacks in accordance with IFC standards / Equator Principles
- Clean gypsum can be used in the South African and neighbouring industrial and agricultural sectors
- Sell-down of clean gypsum to allow for total rehabilitation of site over time

### CIRCULAR ECONOMY



### SOCIAL VALUE

#### Socioeconomic benefits:

- Brownfields project will look to employ historic skilled local labour
- Aim to continually upskill the workforce via training opportunities
- Commitment to prioritise local supply chain
- Transparent payment of taxes

#### Environmental benefits:

- Clean-up of acid water to the benefit of local community and biodiversity
- Use of neutralised water in process will negate need to draw on external water sources in a water-stressed region

# MINERAL RESOURCE ESTIMATE (MRE)

## UPDATED TO INCLUDE YTTRIUM

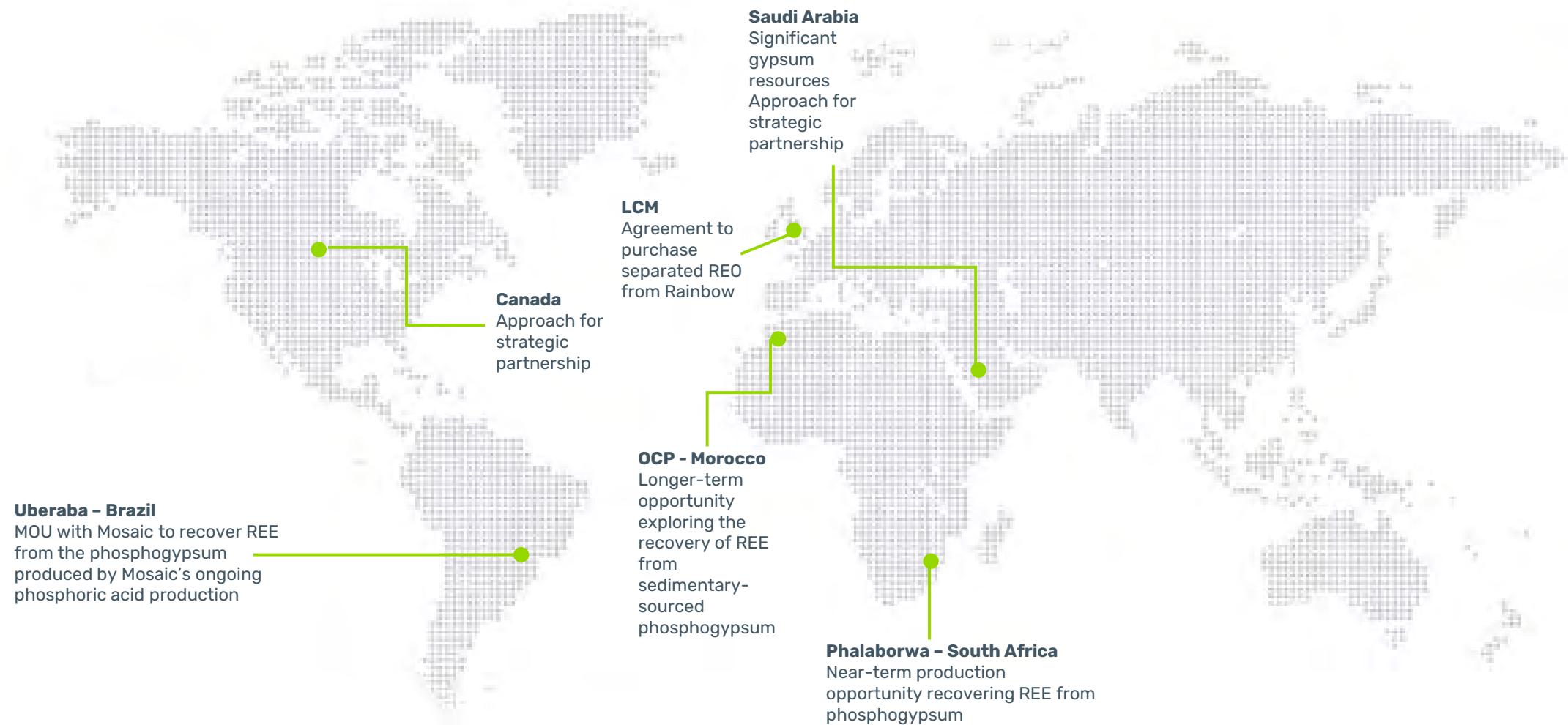


	Tonnes	TREO	Contribution of TREO by oxide										Grade	
			% %										ppm	
			Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>	Dy <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Sm <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Ce <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	Th	U
	Mt	%												
Stack A	16.0	0.45	0.106	0.026	0.0043	0.0014	0.018	0.004	0.013	0.078	0.188	0.010	47	1.8
Stack B	15.2	0.43	0.099	0.024	0.0042	0.0013	0.017	0.003	0.012	0.074	0.180	0.010	46	1.9
Stack B Rubble	3.8	0.41	0.096	0.023	0.0040	0.0013	0.016	0.003	0.012	0.071	0.173	0.009	41	2.0
<b>Total</b>	<b>35.0</b>	<b>0.44</b>	<b>0.102</b>	<b>0.025</b>	<b>0.0042</b>	<b>0.0014</b>	<b>0.017</b>	<b>0.003</b>	<b>0.013</b>	<b>0.075</b>	<b>0.183</b>	<b>0.010</b>	<b>46</b>	<b>1.8</b>

1. Resource figures are reported gross; Rainbow owns an 85% interest in the Phalaborwa project
2. The MRE is reported at a 0.2% TREO cut-off grade
3. No constraining shell is required as Stacks are above ground level
4. The MRE has been estimated by independent consultant and Competent Person Malcolm Titley of Maja Mining Limited
5. Mineral resources are not mineral reserves and do not have demonstrated economic viability
6. 'Total' rows do not always tally due to rounding inconsistencies

# RAINBOW'S IP OPENS UP A LARGER ADDRESSABLE MARKET

## GLOBAL OPPORTUNITIES TO RECOVER REE FROM PHOSPHOGYPSUM

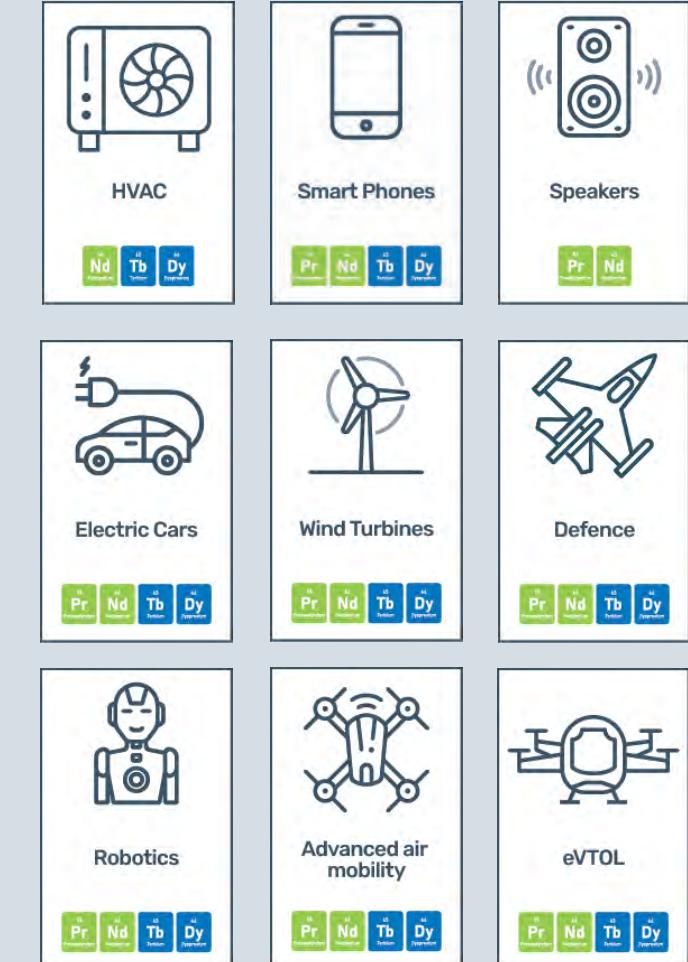


# GLOBAL DEMAND IS RAPIDLY RISING

## REPM ARE FUNDAMENTAL TO LIFE IN THE 21<sup>ST</sup> CENTURY



- REPM are essential for life in the 21st century, with fast growing uses
- REPM have many applications spanning household equipment, HVAC (heating, ventilation, air conditioning), elevators, personal electronics, medical equipment
- New fast growing sectors incl. EVs, wind turbines, defence, robotics
- REPM are the most efficient way to turn energy into motion or motion into energy – critical when there is a limited energy source
- REEs are the “vitamins of industry” – they are vital to functionality but make up only a tiny percentage of the cost in their end use
- Security of supply is key
  - US and others agreeing floor pricing well above Chinese price levels
  - If supply is turned off, large sections of industrial manufacturing come to a halt



# GLOBAL DEMAND IS RAPIDLY RISING

## REPM ARE DRIVING THE GREEN ENERGY TRANSITION



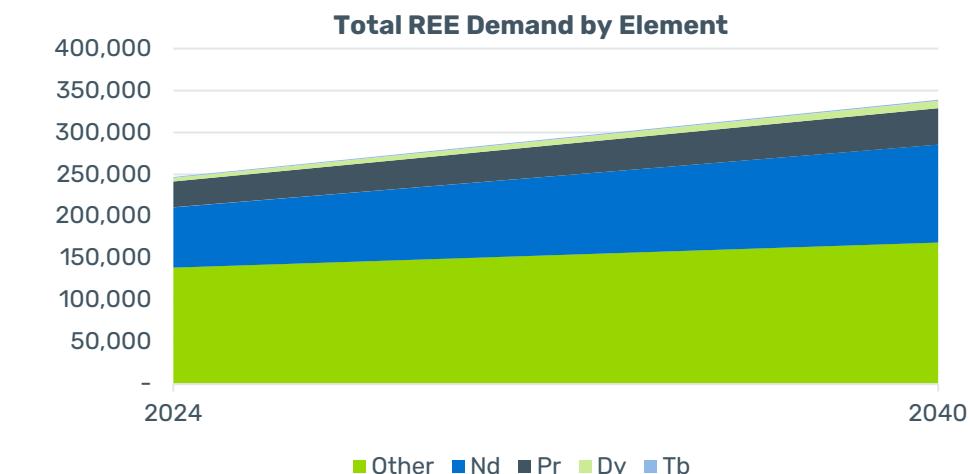
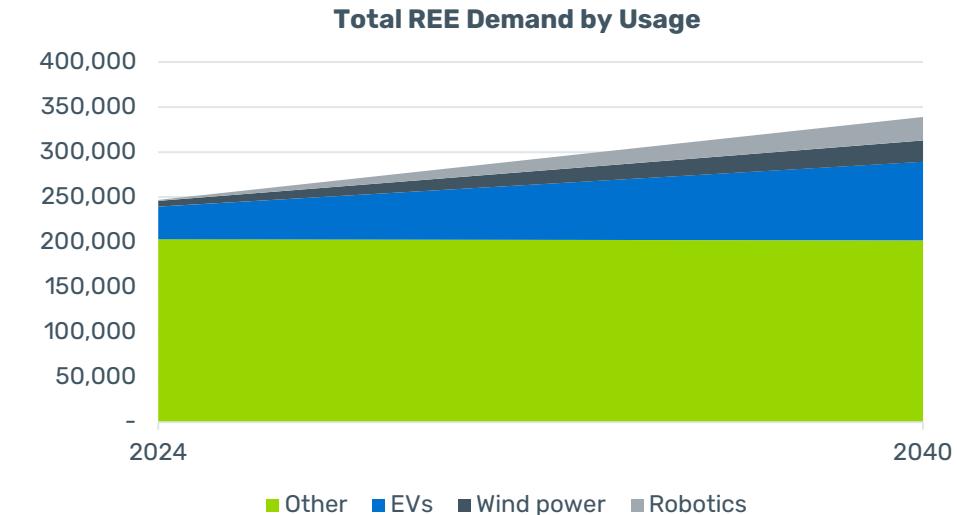
### Magnet REO are driving substantial demand growth for REE

#### Electric Vehicles (including PHEVs) use of REPM: +6% CAGR to 2040

- EVs and plug-in-hybrids (PHEVs) use 2 to 5kg of REPM
- Unlike for batteries, PHEVs still require similar amount of REPM to full EVs as the motors used are similar for all vehicle types
- EV sales have grown from 3m units in 2020 to +19m in 2024; sales will continue to rise, reaching ca. 50m by 2040 (EV penetration of 43%)

#### Wind Energy use of REPM: +8% CAGR to 2040

- The use of REPM direct-drive generators in offshore wind turbines offers efficiency benefits over traditional gearbox designs
- Offshore wind turbines using direct-drive systems require 0.5 - 0.6t of REPM per MW
- Global off-shore wind power installed capacity +112% from 36GW in 2020 to 95GW in 2024; further 900GW of capacity to be installed by 2040



# GLOBAL DEMAND IS RAPIDLY RISING

## REPM ARE ESSENTIAL TO NATIONAL SECURITY

### National Security

- U.S. Executive Order (April 2025) emphasises the importance of developing secure domestic REE supply chains for national security
- Reliable access to REE is crucial to maintain military superiority and technological edge in modern warfare

### Key Military Applications

- REE are critical for jet engines, missile guidance, radar systems, advanced optics, and secure communications equipment

### US Department of Defence

- Significant investment in a 'mine-to-magnet' supply chain to ensure secure access to REE for military technologies

### Geopolitical Tensions

- Ongoing conflicts, such as the war in Ukraine and tensions in the Middle East, highlight the importance of next-gen weapon systems, including drones that heavily rely on REE
- Major increase in EU defence budgets will lead to greater demand



F35 Fighter Jet  
**417kg of REE**



Arleigh Burke DDG-51  
**2,360kg of REE**



SSN-774 Virginia Class  
Submarine  
**4,170kg of REE**

THANK YOU

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