Brazilian Critical Minerals

**Investor Presentation**

*5 December 2024*

# ISR **Rare Earths**

## *A Green, Low Cost Production Model*

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**Competent person statement**

The information in this report that relates to exploration results is based on information compiled by Mr. Antonio de Castro, BSc (Hons), MAusIMM, CREA, who acts as BCM´s Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda. Mr. de Castro has sufficient experience which is relevant to the type of deposit under consideration and to the reporting of exploration results and analytical and metallurgical test work to qualify as a competent person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Castro consents to the report being issued in the form and context in which it appears.

The information in this report that relates to exploration results released by the Company to the ASX on 2 April, 22 April, 3 May and 7 May 2024 is based on information compiled by Mr. Antonio de Castro, BSc (Hons), MAusIMM, CREA, who acts as BCM´s Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda. Mr. de Castro has sufficient experience which is relevant to the type of deposit under consideration and to the reporting of exploration results and analytical and metallurgical test work to qualify as a competent person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Castro consents to the report being issued in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of mineral resource estimate, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Refer to ASX announcement dated 22 April 2024.

**Exploration results and mineral resources**

The information in this Presentation that relates to Exploration Results and Mineral Resources is based upon and fairly represents information previously released to the ASX on 22 May 2023, 6 June 2023, 17 July 2023, 31 July 2023, 13 September 2023, 3 October 2023, 19 October 2023, 7 December 2023, 29 January 2024, 6 February 2024, 22 February 2024, 13 March 2024, 3 April 2024, 22 April 2024, 3 May 2024, 20 May 2024, 8 July 2024, 2 August 2024 and 6 August 2024.

This presentation has been approved for release by the Board of Directors.

# 2024 – a lot with a little

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**1.02Bt** MRE (April)

Field Permeability Testing

**Magnets**

Non-bindingMoU signed with producer (September)

Scoping Study

Focus on low cost ISR mining

**68%**

NdPr Recoveries (March)

ANSTO Metallurgical Testing

Infill MRE Drilling

**$2.5m**

Placement raising (May/October)

**55%**

High value MREC confirmed (November)

Environmental Baseline Assessment

# Brazilian REE Landscape


## EMA Rare Earths – >1Bt MRE
## Apuí Rare Earths

30 km south from Apuí

1. www.asx.com.au 28.11.24

# Rare Earth Clay Deposits

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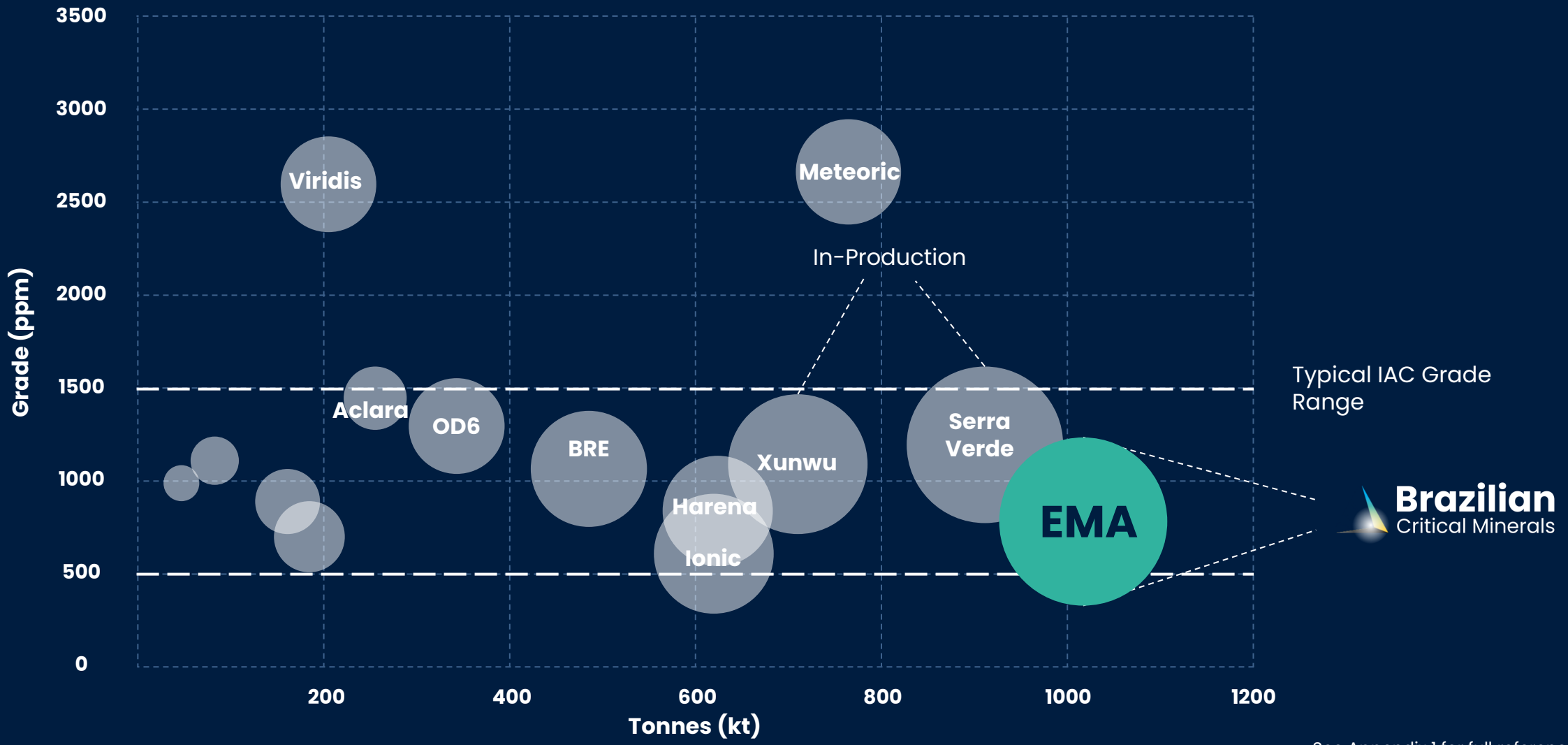


See Appendix 1 for full reference list

# Large Resource Base

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## Ema REE Project 2024
## Mineral Resource Estimate

**977**
TREO ppm

**331M**
Tonnes Mt

**31%**
MREO:TREO

**300**
NdPr + DyTb ppm

**Ema REE Project 2024 Mineral Resource Estimate – by cut-off grade**

| JORC Category | cut-off ppm TREO | Tonnes Mt | TREO ppm | NdPr ppm | DyTb ppm | MREO ppm | MREO:TREO % |
|---|---|---|---|---|---|---|---|
| Inferred | 0 | 1,340 | 694 | 163 | 15 | 178 | 26 |
| **Inferred** | **500** | **1,017** | **793** | **199** | **17** | **216** | **27** |
| **Inferred** | **900** | **331** | **977** | **278** | **22** | **300** | **31** |

# World's first fully green REE project

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## Large Resource Base

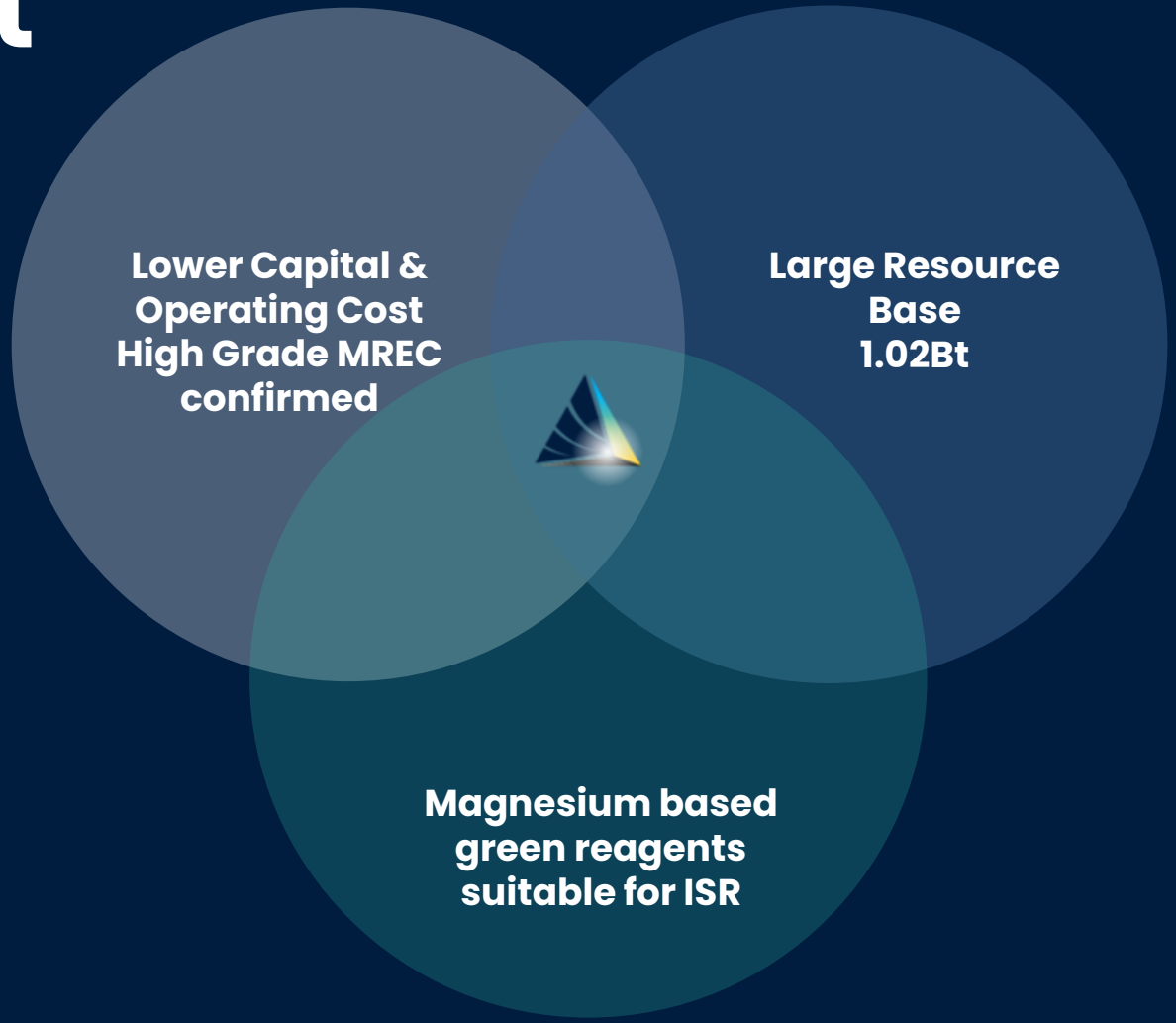
1.02 Billion tonnes, material close to surface, suitable for ISR mining.

## Lower Capital

ISR offers a lower capital expenditure to first cash flow, eliminates all mining costs, has 60% fewer processing steps involved to final product.

## Lower Impact Mining

No mining No blasting No waste rock, No noise, No dust and No large tailings dams or large open pits.



# In-situ recovery mining The most cost effective, environmentally friendly method available

**RIGHT**
**Geology**
Weathering less than 20m deep

**RIGHT**
**Style of Mineralisation**
Ore grades directly above bedrock

**RIGHT**
**Confining Layer**
Non-fractured bedrock at shallow depths

**RIGHT**
**Chemistry**
High recoveries and Ionic leaching

**RIGHT**
**Reagents**
Reagents with no detrimental effects on the environment

**RIGHT**
**Product**
MREC with 99% purity

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**In-situ recovery is a well understood rare earth mining method**
**~ 30% of current world production use in situ-leach recovery**

**NO**
Land Clearing

**NO**
Open Pit Mining

**NO**
Dirty Mining Equipment

**NO**
Noisy Dusty Tuck Haulage

**NO**
Large Processing Facility

**NO**
Need for Reclamation

# In-Situ (REE) Recovery
# ~30% of the world's production

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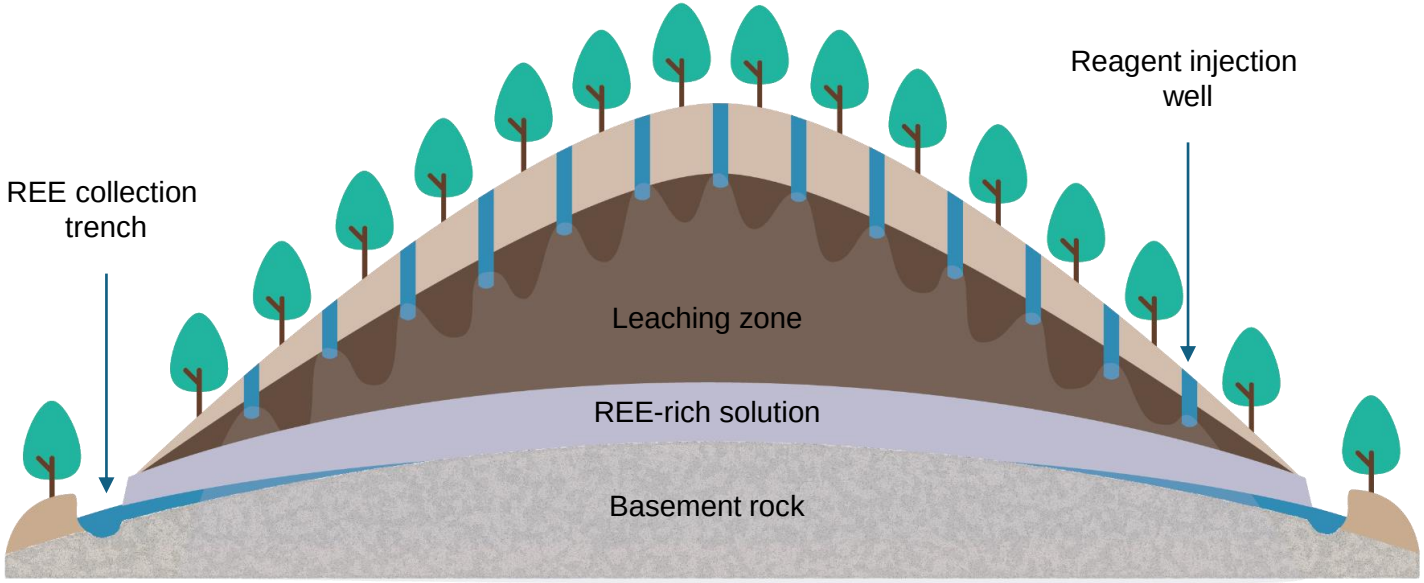


- **Low Capex, Low Opex**
- **Proven decades old technology**
- **Only green reagents utilised**
- **Using gravity as our natural pumping system**
- **Readily leachable solution laden with rare earths**
- **ISR accelerates natural processes in the ground**

# Substantially Reduced Flow Sheet

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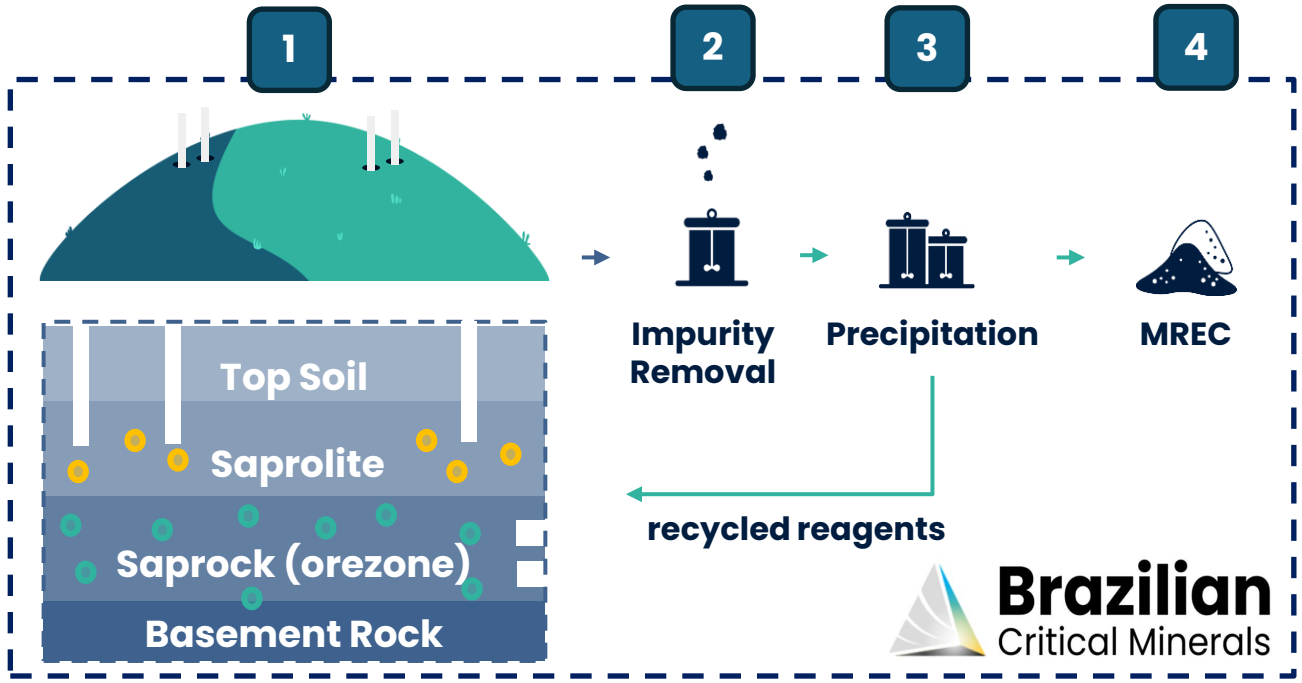


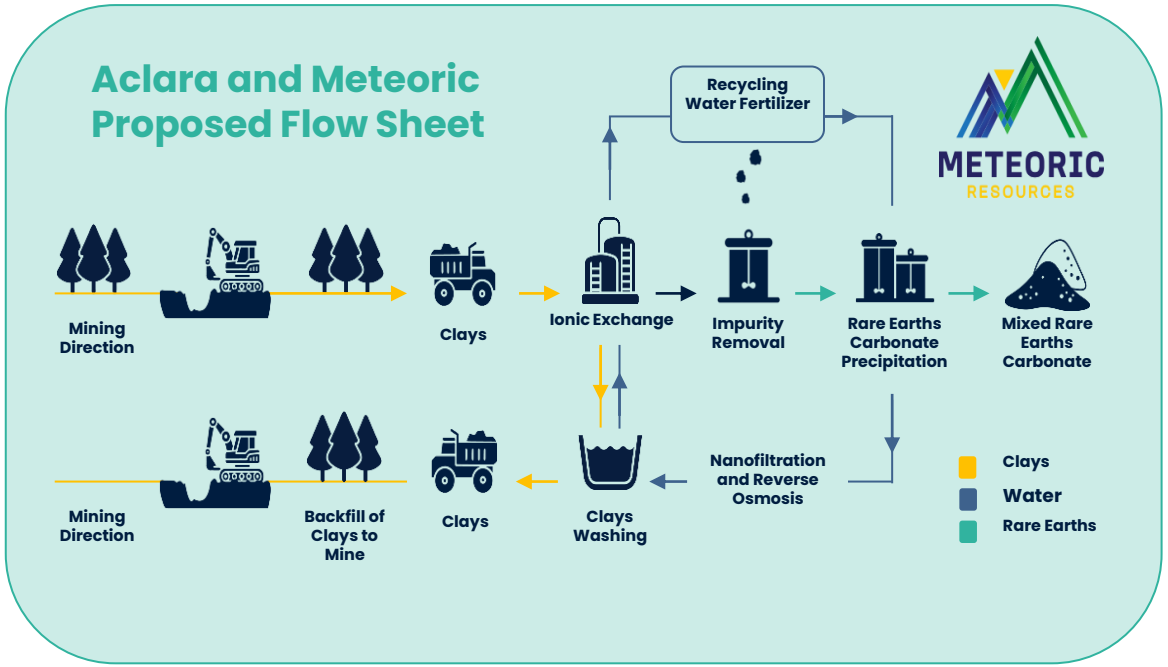


**Insitu leach**
**4 Step process flow sheet**
**Opportunities to substantially reduce CAPEX and OPEX**

**Tank (VAT) leach**
**10 Step process flow sheet**

# Commercial ISR Projects Malaysia

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## ISR construction and setup

- I – inground leaching
- S - simple (tanks and pipes)
- R - rapid leaching kinetics enhance the viability
- Cost effective
- Quick establishment
- Low opex

ISR Mining Rare Earths in Malaysia

https://mcreresources.com/

reagent storage

2 Impurity removal

3 Precipitation of REE's

4 Production of MREC

# Superior Basket Price

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| FINAL MREC | | BCM | | VMM[1] | | MEI[1] | |
|---|---|---|---|---|---|---|---|
| | Head Grade (ppm) | 965 | | 4,472 | | 4,439 | |
| | Agent | Magnesium Sulfate | | Ammonium Sulfate | | Ammonium Sulfate | |
| | Time | 30 Minutes | | 30 Minutes | | 30 Minutes | |
| | pH | 4.5 | | 4.5 | | 4.5 | |
| | Molar | 0.3 | | 0.3 | | 0.5 | |
| **Oxide** | **Price (01.11.24) USD/kg** | **%** | **Basket $** | **%** | **Basket $** | **%** | **Basket $** |
| La2O3 | $ 0.56 | 34.7 | $ 0.19 | 44.5 | $ 0.25 | 57.6 | $ 0.32 |
| CeO2 | $ 1.01 | 8.9 | $ 0.09 | 2.4 | $ 0.02 | 1.4 | $ 0.01 |
| **Pr6O11** | **$ 60.45** | **7.1** | **$ 4.31** | **8.3** | **$ 5.04** | **8.6** | **$ 5.17** |
| **Nd2O3** | **$ 60.45** | **29.1** | **$ 17.61** | **29.2** | **$ 17.62** | **22.0** | **$ 13.30** |
| Sm2O3 | $ 2.10 | 4.6 | $ 0.10 | 3.2 | $ 0.07 | 2.4 | $ 0.05 |
| Eu2O3 | $ 27.35 | 0.5 | $ 0.15 | 0.8 | $ 0.23 | 0.6 | $ 0.16 |
| Gd2O3 | $ 24.68 | 2.9 | $ 0.71 | 2.1 | $ 0.52 | 1.5 | $ 0.37 |
| **Tb4O7** | **$ 839.95** | **0.3** | **$ 2.28** | **0.3** | **$ 2.18** | **0.2** | **$ 1.68** |
| **Dy2O3** | **$ 247.42** | **1.4** | **$ 3.39** | **1.2** | **$ 2.92** | **0.8** | **$ 1.98** |
| Ho2O3 | $ 72.54 | 0.2 | $ 0.18 | 0.2 | $ 0.15 | 0.1 | $ 0.07 |
| Er2O3 | $ 42.60 | 0.7 | $ 0.30 | 0.5 | $ 0.20 | 0.3 | $ 0.13 |
| Tm2O3 | $ 113.31 | 0.1 | $ 0.11 | 0.1 | $ 0.06 | 0.0 | $ 0.01 |
| Yb2O3 | $ 14.06 | 0.6 | $ 0.08 | 0.3 | $ 0.04 | 0.1 | $ 0.01 |
| Lu2O3 | $ 759.12 | 0.1 | $ 0.64 | 0.0 | $ 0.30 | 0.0 | $ 0.08 |
| Y2O3 | $ 5.90 | 8.7 | $ 0.51 | 6.9 | $ 0.41 | 4.5 | $ 0.27 |
| **Basket Price (TREO)** | | **$ 30.66** | | $ 30.01 | | $ 23.61 | |
| **Basket Price (NdPrDyTb)** | | **$ 27.59** | | $ 27.76 | | $ 22.12 | |
| MREO % | | 37.9 | | 38.9 | | 31.6 | |
| TREO % | | 100.0 | | 100.0 | | 100.0 | |

**90%**

**Magnet value in Basket**

**38%**

**MREO:TREO – leading composition for Ionic Clay**

**$30.66**

**Value of Basket – highest for Ionic clay**

1 Viridis Mining and Minerals (ASX:VMM) ASX Announcement "Colossus Maiden Mixed Rare Earth Carbonate (MREC) Product 24.09.24

# Leach Recoveries to Date

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REE Mining | **REE Leaching** | Impurity Removal | REE Precipitation | MREC Production

| Test | Reagent | Target pH | Temp °C | Leach Duration | MREE (%) | Leaching Type |
|---|---|---|---|---|---|---|
| 1 | 0.5 $(NH_4)_2SO_4$ | 4.5 | ambient | 2 hrs | 68 | VAT (tank) leaching |
| 2 | 0.5M $MgSO_4$ | 4.5 | ambient | 18 days | 63 | Heap Leaching |
| 3 | $MgSO_4$ | **Field pumping trials to commence in Q4 2024** | | | | In-Situ Leaching |

- In-situ leaching trials to commence in the coming months
- Leaching with Magnesium Sulfate is the most environmentally friendly reagent as it contains no nitrogen

1. (ASX:BCM) World Leading Recoveries Confirmed at Ema Project 07.05.24

2. (ASX: BCM) Excellent Heap Leach Recoveries Ema Project 06.08.24

# Very Low Impurities in Final Product (MREC)

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REE Mining | REE Leaching | **Impurity Removal** | REE Precipitation | MREC Production

| | Uranium (U) | Thorium (Th) | Aluminium (Al) | Iron (Fe) | Calcium (Ca) | Silica (Si) |
|---|---|---|---|---|---|---|
| **% in MREC** | 0.01 | <0.001 | 0.52 | <0.06 | 0.05 | <0.2 |

- ~2.0% Impurities in final MREC
- 98% purity of MREC
- Residence time of only 30 minutes once desired pH was achieved
- Results achieved using Magnesium Sulfate – no harmful ammonia required

1. (ASX: BCM) Ema Project Achieves Low Impurities 02.08.24

# REE Precipitatoin

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REE Mining | REE Leaching | Impurity Removal | REE Precipitation | MREC Production

| | MREO:TREO | TREO in MREC | Precipitation Recoveries | Basket Value | La & Ce content | DyTb |
|---|---|---|---|---|---|---|
| [1]MREC | 38% | 55.3% | 99% | US$30.66/kg | 43.6 | 1.7% |

- High content, 38%, of magnet elements (MREO) in MREC
- High content, 55.3%, of total rare earth oxides (TREO) in final MREC
- Extremely high recoveries of >99% through precipitation phase
- Class leading basket prices, $30.66, for a fully ionic clay deposit relative to peers
- Lower quantities, 43.6%, of less desirable elements Lanthinime (La) and Cerium (Ce) in MREC
- Mine to MREC utilising green magnesium based reagents

1. (ASX: BCM) 11.11.24 High-Value Mixed rare Earth Carbonate Produced for Ema

# Capex – Hard Rock vs Soft Rock


See Appendix 2. for full capital allocation listing details

USD : AUD 0.7

1. United States Nuclear Regulatory Commisions www.nrc.gov TradeTech – the nuclear review (October 2016)

# Opex – ISR Target Production

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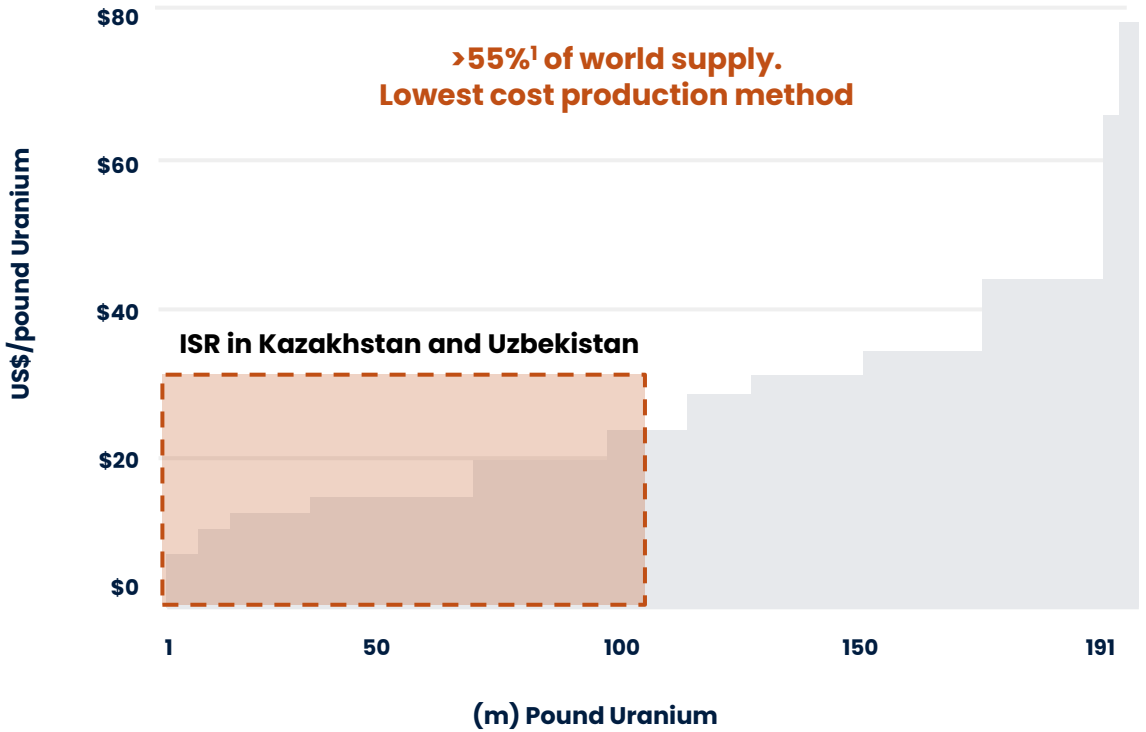
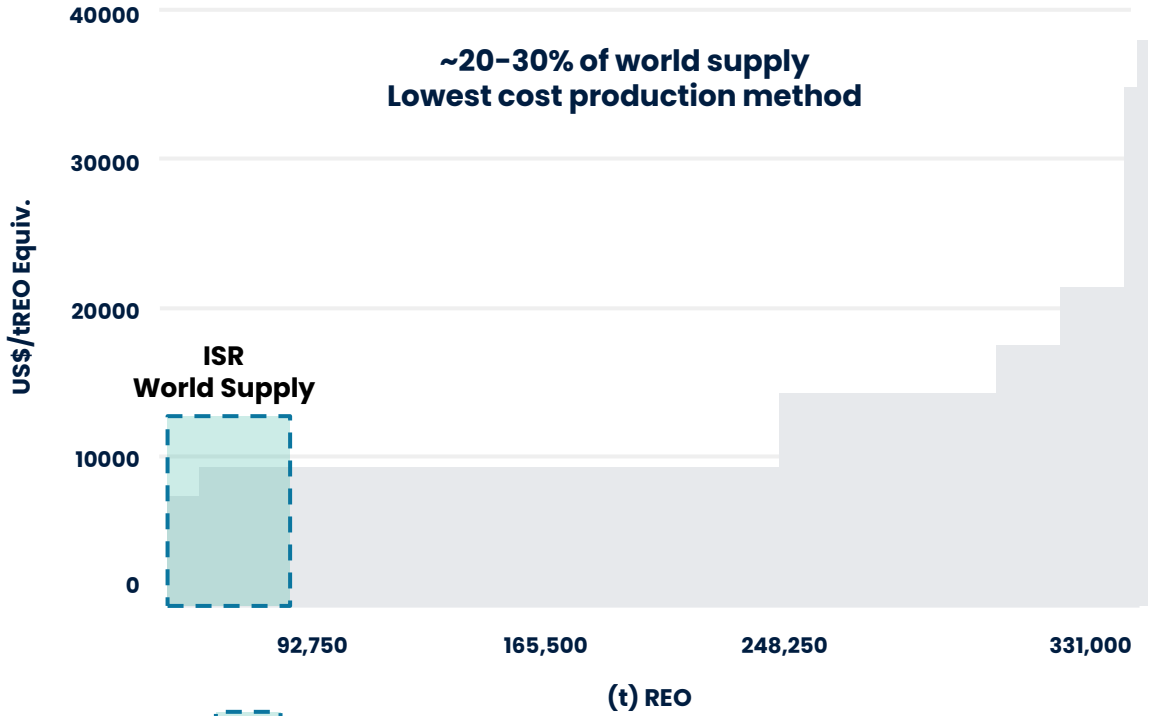
Low cost structure will underpin strong cashflow, and weather the storm of depressed rare earth prices

ISR in Uranium
dominates lowest cost production
producing >55%[1] of world supply




ISR Rare Earths
targeting lower end of cash cost curve.
currently produces ~20-30% of world supply

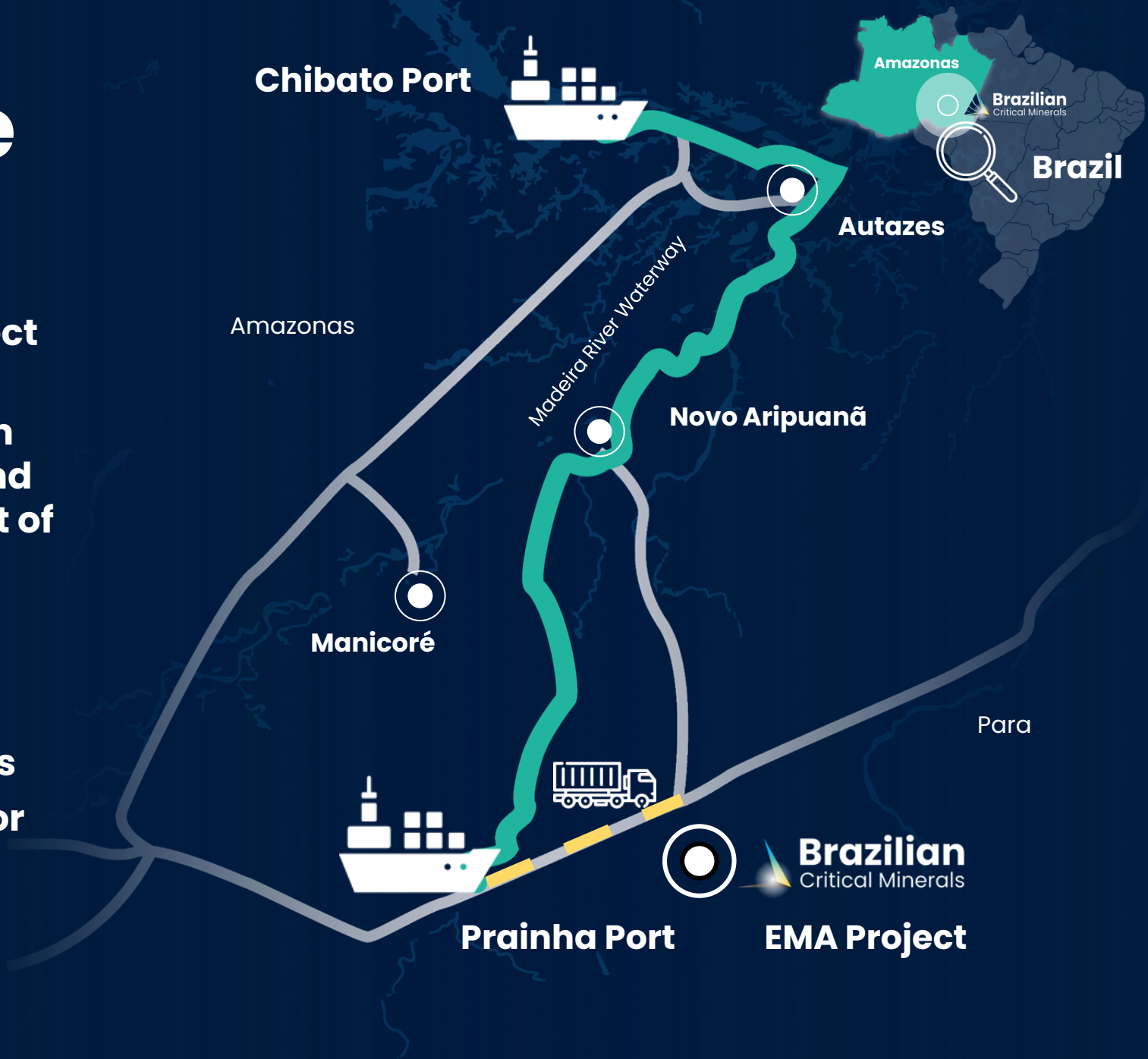



1 https://world-nuclear.org/information-library/nuclear-fuel-cycle/mining-of-uranium/in-situ-leach-mining-of-uranium

U.S. geological Survey, Mineral Commodity Summaries, January 2024
China's Ministry of Industry and Information TechnologyProject

# Logistics Route

- trucking 130kms from Ema project to Prainha
- 600t barges make regular return trips along the river Aripuana and Madeira from Prainha to the Port of Chibatão
- 770kms to Chibatão, one of the largest floating ports in Latin America
- Port docks Panama sized vessels
- Easy connections to US, Europe or Asia



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# The Value of In-Situ Recovery

- Ionic REE are highly leachable
- Rapid leaching kinetics enhance the viability of lower cost ISR mining

Lower capital and operating costs

## Cost efficiency

Minimal noise, dust, greenhouse gas impact

## Responsible mining


Minimal visual disturbance

## Minimal disruption

The most environmentally friendly way to mine

## Green mining

Safer for mine workers and surrounding communities

## Enhanced protection

No creation of open holes, waste dumps, leach pads or tailings

## Waste-free operations

# Work fronts

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## Rare Earths

- Large auger drilling program underway – mostly complete
- Increase MRE from Inferred to Indicated – estimate commenced
- Looking for 20 yr minelife as a minimum for scoping study
- MRE update – on track

## Rare Earths

- Environmental baseline study – ground work started
- ANSTO test work on impurity removal and final product precipitation - complete
- Scoping Study to define economics – Q4 completion
- In-Situ leach lab and field trials testwork – Stage 1 complete

# Tax Incentive - Sudam

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**A hub for industrial activity in Brazil. Established in 1967**

| Incentive | Description | Requirements |
|---|---|---|
| Investments in Amazon Development Superintendence (SUDAM) | Reduces corporate income tax by 55% for a 10 year period | Approval by SUDAM (responsible regulatory agency) |

**"Corporate Income tax reduction from 34% to 15.25%."**

"www.taxand.com"

# Corporate Overview

Brazilian Critical Minerals

**889M**
Shares on Issue

**8M**
Performance Rights

**1.1c**
Share Price (28/11/2024)

**10.7M**
Market Cap

**229M**
Options on issue

## Board of Directors

**Jeremy Robinson**

Non-Executive Chairman

**Andrew Reid**

Managing Director

**Ben Donovan**

Non-Executive Director

Brazilian
Critical Minerals

**Brazil**

Av. Jornalista Ricardo Marinho
360 Ed. Cosmopolitan Sala 113
CEP: 22631-350 Barra da Tijuca
– Rio de Janeiro – RJ – Brasil

**Australia**

Level 28, 140 St Georges Terrace,
Perth WA 6000

# Thank You.

Date retrieved 16 August 2024

# Appendix 1 – Mineral Resources

| Company | Tonnes (Mt) | Grade (ppm) | Measured: Indicated: Inferred ratio (Mt) | Reference |
|---|---|---|---|---|
| BCM | 1017 | 793 | 0 : 0 : 1017 | Brazilian Critical Minerals (ASX:BCM) Massive Maiden Mineral Resource for Ema Project 22.04.24 |
| Aclara | 258 | 1,452 | 0 : 0 : 258 | Aclara (TSX:ARA) Aclara announces 77% increase in inferred mineral resources at Carina Module In Goias, Brazil 09.08.24 |
| Australian Rare Earths | 186 | 712 | 0 : 0 : 186 | Australian Rare EARTHS (ASX:AR3) 84% Increase in Resource for Koppamurra REE Project 19.03.24 |
| Brazilian Rare Earths | 485 | 1071 | 0 : 0 : 485 | Brazilian Rare Earths (ASX:BRE) Prospectus - Part 1 19.12.23 |
| Ionic Rare Earths | 617 | 630 | 0 : 517 : 99 | Ionic Rare Earths (ASX:IXR) Major Increase to Globally Significant Rare Earth Resource 23.06.20 |
| Longnan | 48 | 1,000 | 0 : 0 : 48 | Research Reports |
| Meteoric | 740 | 2,572 | 11 : 297 : 431 | Meteoric Resources (ASX:MEI) Updated Figueira Mineral Resource Estimate 05.08.24 |
| OD6 Metals | 628 | 1,338 | 0 : 0 : 628 | OD6 (ASX:OD6) Mineral Resource Estimate Upgrade Investor Presentation 29.05.24 |
| Serra Verde | 911 | 1,200 | n/a | Research Reports |
| Harena Resources | 628 | 895 | 0 : 0 : 628 | https://harenaresources.com.au/ampasindava-rare-earths-project/ |
| VMM | 201 | 2,590 | 0 : 62 : 139 | Viridis Mining and Minerals (ASX:VMM) Globally Significant Colossus Rare Earth Ionic Adsorption Clay Project Maiden Mineral Resource Estimate 04.06.20 |
| West Cobar Metals | 83 | 1,117 | 0 : 39 : 151 | West Cobar Metals (ASX:WC1) Salazar Clay - REE Resource Quadruples 09.08.23 |
| Xinfeng | 162 | 900 | n/a | Research Reports |
| Xunwu | 710 | 1,100 | n/a | Research Reports |