ionic
rare earths

ASX: IXR | FSE: 6UH

Sustainably Sourcing Magnet and Heavy Rare Earths for the New Economy

IonicRE Investor Webinar

10 December 2024

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Competent Person Statement

Information in this report that relates to previously reported Exploration Targets and Exploration Results has been crossed-referenced in this report to the date that it was originally reported to ASX. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcements.

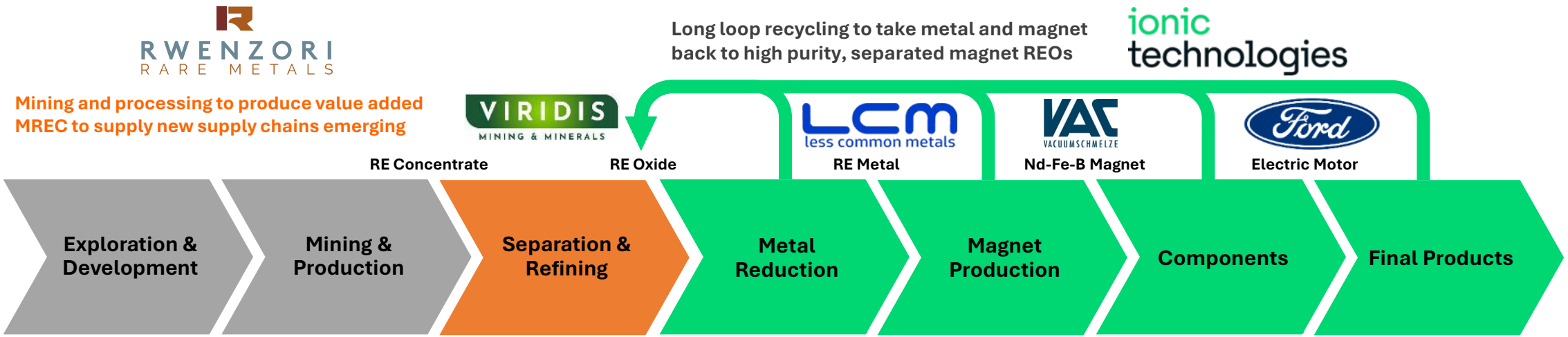
The information in this report that relates to Mineral Resources for the Makuutu Rare Earths deposit was first released to the ASX on 15 May 2024 and is available to view on www.asx.com.au. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcement, and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

The information in this report that relates to Ore Reserves for the Makuutu Rare Earths deposit was first released to the ASX on 20 March 2023 and is available to view on www.asx.com.au. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcement, and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

The information in this report that relates to Production Targets or forecast financial information derived from production the production target for the Makuutu Rare Earths deposit was first released to the ASX on 20 March 2023 and is available to view on www.asx.com.au. Ionic Rare Earths Limited confirms that all material assumptions and technical parameters underpinning the Production Targets or forecast financial estimates in the announcement continue to apply and have not materially changed.

REE Supply Chain and IonicRE Integration

IONICRE IS LEADING THE SECURE SUPPLY OF MAGNET RARE EARTHS, LEVERAGING OUR SUSTAINABLE TECHNOLOGY, PIONEERING MAGNET RECYCLING TO DRIVE THE NEXT GENERATION OF WIND TURBINES, ELECTRIC VEHICLES, DEFENCE, AND ADVANCED MANUFACTURING



Makuutu Rare Earths Project (60% IonicRE → 94% IonicRE in H2 2024)

- March 2023 FS[1] indicated low capital, modular development IAC enables IonicRE to bring on highly sought-after, value added MREC basket of magnet and heavy REEs
- Mining Licence LML00334 Awarded[2], Environmental Permits issued[3]
- Demonstration Plant has produced MREC – offtake negotiations underway
- Expandable asset through free cash flow and growing market demand

IonicRE/ VMM Refinery (50% IonicRE)

- 50/50 JV with Viridis Mining & Minerals Ltd (ASX: VMM) to develop refining and recycling footprint in Brazil[4]
- Leveraging Ionic Technologies IP to be an early mover and first step towards establishing greater presence in emerging Brazilian rare earth market
- Signed MOU[5] with CIT SENAI to accelerate NdFeB magnet capacity in Brazil via magnet recycling

Magnet Recycling (100% IonicRE)

- November 2024 FS[4] indicates low capex development to recycle spent magnets and swarf to produce separated and refined 99.9%+ REOs
- Demonstration Plant operating – Magnet REO production now (Nd, Pr, Dy and Tb)
- Addressing domestic supply chain / sovereign capability need with global opportunities, focus on EU and US
- First to revenue, supply independent of mine permitting, lower capital and technical, and supply chain risk
- Several JVs and partnerships on the table

1. ASX 20th March 2023. 2. ASX 18th January 2024. 3. 27th October 2023. 4. ASX 3rd April 2024. 5. ASX 6th November 2024. ASX 18TH November 2024.

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RWENZORI RARE METALS

Makuutu Rare Earths Project

- 60% owned by IonicRE
- Mining Licence awarded in January 2024[1]
- Updated Mineral Resource Estimate in May 2024[2]
- Updated Exploration Target in May 2024[2]
- Demonstration Plant has produced MREC to support offtake negotiations[3]

1. ASX 18th January 2024. 2. ASX 15th May 2024. 3. ASX 7th March 2024.

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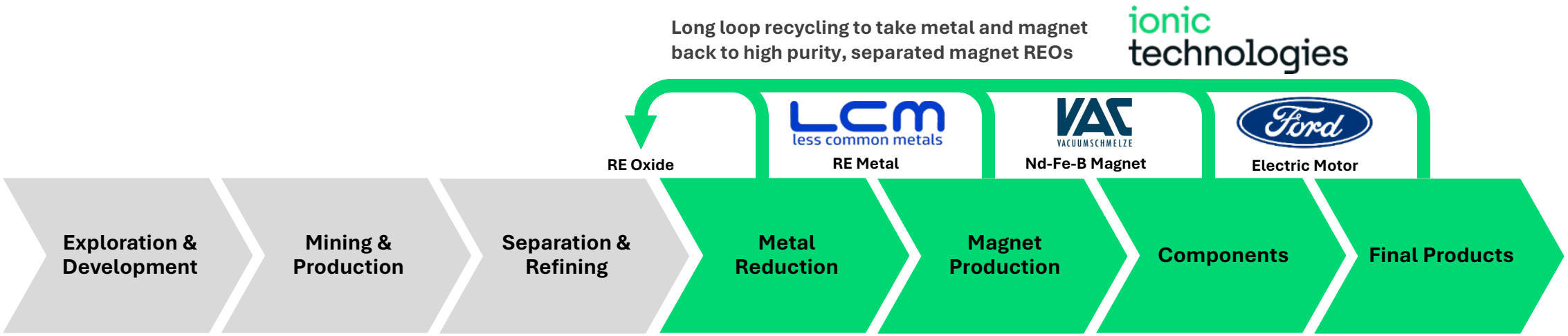
Leading Magnet Recycling and the Circular Economy of Rare Earths

Belfast now first producer of recycled magnet REOs in Western world

Recycling Supply Chain and IonicRE Integration an early leader

RECYCLING OFFERS A STEP CHANGE TO UNLOCK LOW CAPEX ALTERNATIVE SUPPLY CHAIN SOLUTIONS FOR IMMEDIATE MAGNET REO SOURCES TO CREATE INSULATED, SOVEREIGN CAPABILITY FOR WESTERN END USERS ACROSS DEFENCE, ENERGY TRANSITION AND ADVANCED MANUFACTURING



Ionic Technologies Belfast Magnet Recycling Feasibility Study[1] designed for 1,200 tpa end-of-life (EOL) NdFeB magnet and swarf feedstock, producing 400 tpa separated magnet REOs

- **$NPV_{7.5}$ (post-tax) = US$502 million**
- **IRR (post-tax) = 43.6%**
- **Net Revenue = US$2.12 billion**
- **EBITDA = US$1.78 billion**
- **CAPEX (Belfast) = US$108.7 million**
- **OPEX (Belfast) = US$27.68 / kg REO (ex-Magnet feedstock)**
- **Payback = 2.4 years**

1. ASX 18TH November 2024.

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ADVANCED PROPULSION CENTRE UK

GREAT
BRITAIN & NORTHERN IRELAND

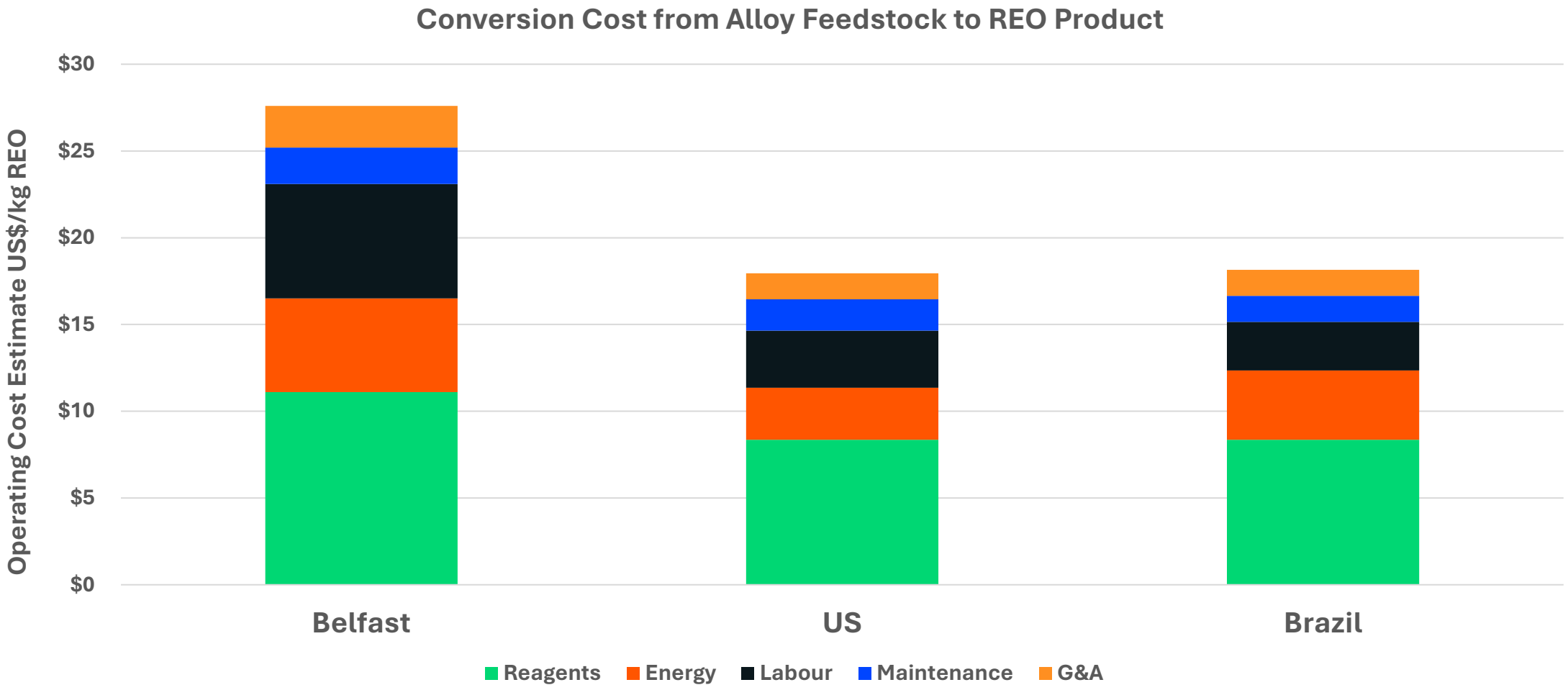
Source; https://www.apcuk.co.uk/

Financing Magnet Recycling in the UK

- Project development cost of £85 million for Belfast Plant and Technology facility, including £10 million site specific costs for Belfast Harbour
- Grant application submitted substantial capital cornerstone investment from UK Government via the Automotive Transformation Fund (ATF), administered by the Advanced Propulsion Centre (APC)
- The ATF is a funding program created to support the industrialisation and scale-up of a UK EV supply chain
- The ATF will deploy up to £850 million of investment, delivered in collaboration with the Department for Business and Trade (DBT) and Innovate UK, the fund provides support for large-scale, capital-focused projects in the EV technology areas
- Project debt, offtake and strategic investment also part of overall financing strategy

Global OPEX Potential

ESTIMATED OPERATING COST HAS POTENTIAL FOR FURTHER REDUCTIONS IN OTHER JURISDICTIONS



Note: All jurisdictional ranges are estimated based on preliminary data collected by the Company.

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Policy Supporting Domestic Capability & Recycling

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UK refreshed the Critical Minerals Strategy in 2023 highlighting the Circular Critical Materials Supply Chains as a key area of focus

EU's Critical Raw Material Act (CRMA) 2023, a €300 billion initiative aimed at countering the Chinese Belt and Road Initiative implemented into law earlier this year

- The Act identifies a list of strategic raw materials crucial to Europe's green and digital ambitions and for defence and space applications
- In late 2023, the co-legislators reached a political agreement on the EU CRMA and increased the recycling component from 15% to 25%

USA highlighted recycling as art of its America's Supply Chains Executive order in 2021 as part of Federal Plan to ensure secure and reliable supplies of critical minerals

EU CRMA 2023 Regulation sets clear benchmarks for domestic capacities along the **strategic raw material supply chain** and to diversify EU supply by 2030:

At least **10%** of the EU's annual consumption for extraction

At least **40%** of the EU's annual consumption for processing

At least **25%** of the EU's annual consumption from recycling

Not more than **65%** of the EU annual consumption at any stage of processing from a single third country

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Our Path to Commercialisation

Rapid acceleration of our technology ready to scale globally

Scale Up Factor

20x → 40x →

Lab scale

April 2022

Pilot scale

July 2022

Demonstration scale

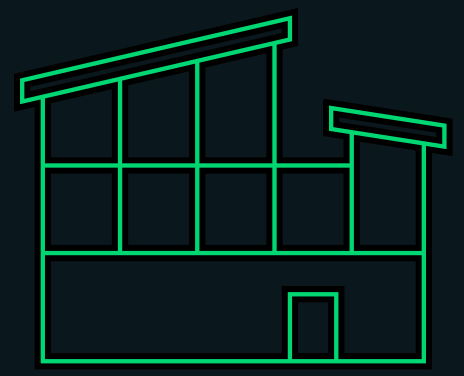
2023 / 2024

Demonstration Plant @ 24/7 plant operations

Full program for next 18 months

Examining de-bottlenecking to scale up capacity now

FS Completed



Commercial scale

Funding discussions underway

Planned Construction expected to be completed late 2026

FS to support scale out globally via JVs and commercial partnerships

Peer Comparison

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Peers offering medium or long loop recycling offering from metal alloy feedstock (EOL magnets or swarf) back to either a mixed REO product or individually separated magnet REOs

	Product	Location	Status	Demonstration Plant Feed Capacity (tpa)	Valuation
ionic technologies	Separated magnet REOs		Demonstration Plant, Feasibility Study Completed	30	A$34m[1] / US$22m (ASX: IXR)
Cyclic Materials™	Mixed magnet REOs		Demonstration Plant	100	Private Series B Funding raised US$53m (09/2024) Series A Funding raised US$27m (04/2023)
REEcycle	REOs (Formates)		Pilot Plant	N/A	Private US$25m
Re ELEMENT	Separated magnet REOs		Pilot Plant	N/A	US$95m[1] (NASDAQ: AREC)

1. 26TH November 2024.

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Viridion – Brazilian Joint Venture – Refining and Recycling

- IonicRE and Viridis Mining and Minerals Ltd (ASX: VMM) announced 50/50 JV[1]
- Viridion JV aims to construct a refinery and magnet recycling facility in Brazil utilising Ionic Technologies' separation technology
- Magnet Recycling likely the first step in developing a domestic integrated supply chain in Brazil → MOU signed[2] with CIT Senai, FIEMG to progress establishment of secure Brazilian Magnet supply chain

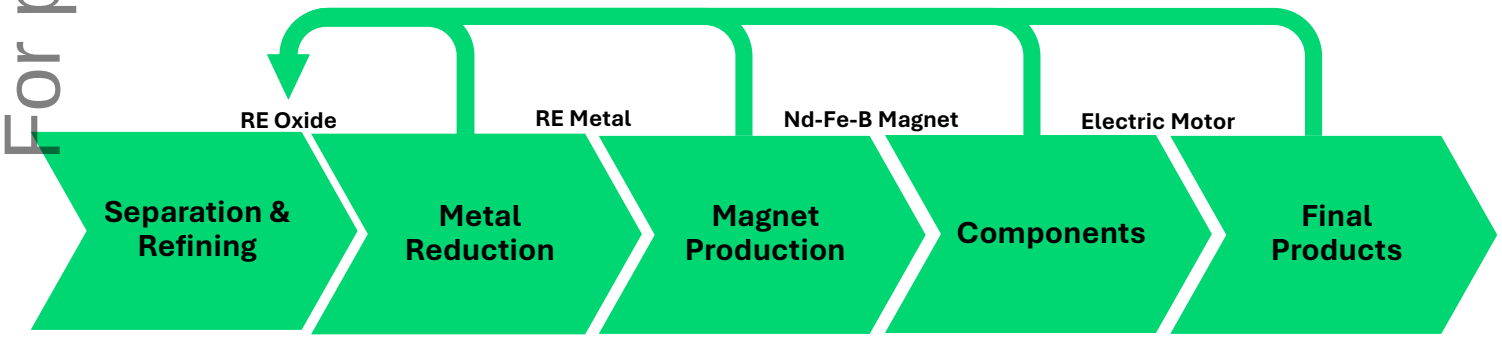
ionic rare earths 50%

VIRIDIS MINING & MINERALS 50%

JV Company

- **Magnet and Heavy Rare Earth Refinery**
- **Magnet Recycling Facility**
- **Further integration into Brazilian RE footprint**

Long loop recycling to take metal and magnet back to high purity, separated magnet REOs



1. ASX 3rd April 2024;
2. ASX 6th November 2024.

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