ionic
rare earths

ASX: IXR | FSE: 6UH

Sustainably Sourcing Magnet and Heavy Rare Earths for the New Economy

121 Mining Investment, Cape Town
5-6 February 2024

For personal use only

Cautionary Statement

For personal use only

IMPORTANT NOTICE AND DISCLAIMER

This presentation should be considered in its entirety. If you do not understand the material contained in this presentation, you should consult your professional advisors. The sole purpose of this presentation is to provide shareholders with an update on current activities of the Company and the current state of exploration at the Makuutu Rare Earths Project in the Uganda.

Any statements which may be considered forward looking statements relate only to the date of this presentation document. Such forward looking statements involve known and unknown risks, uncertainties and other important factors beyond the Company's control that could cause actual results, performance or achievements of the Company to be materially different from future results, performance, or achievements expressed or implied by such forward looking statements. As a result of these factors, the events described in the forward-looking statements in this document may not occur.

Notwithstanding the material in this presentation, shareholders should consider that any investment in the Company is highly speculative and should consult their professional advisers – whether scientific, business, financial or legal – before deciding whether to make any investment in the Company.

The Company may at its absolute discretion, but without being under any obligation to do so, update, amend or supplement this presentation or any other information to the recipient. No person has been authorised to give any information or make any representation other than contained in this document and if given or made, such information or representation must not be relied on as having been so authorised.

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 3 May 2022 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.

Securing Critical Elements for the New Economy

HARNESSING OUR TECHNOLOGY TO ACCELERATE MINING, REFINING AND RECYCLING OF MAGNET AND HEAVY RARE EARTHS CRITICAL FOR ENERGY TRANSITION, ADVANCED MANUFACTURING, AND DEFENCE

Mining Rare Earths

Refining Rare Earths

Recycling Rare Earths

For personal use only

For personal use only

Board and Leadership Team

Brett Lynch
Executive Chairman

A highly experienced international company director and executive with over 30 years experience, a strong background in mining and mining-related businesses across Australia, Asia and North America and a proven track record in advancing shareholder value.

Tim Harrison
Managing Director / CEO

A mining executive with over 20 years' experience and an extensive and successful track record specialising in the fields of both mineral processing and hydrometallurgy across multiple commodities across Australia, Africa and Asia.

Max McGarvie
Non-Executive Director

A distinguished and extensive career spanning 45 years in the mining sector covering broad range of senior roles ranging from Production Manager, Registered Mine Manager through to CEO across the globe in Australia, Africa and the Middle East.

Sufian Ahmad
Non-Executive Director

A highly experienced legal, business and marketing executive with over 10 years' experience in the resource sector in the provision of corporate advisory services. A founder of Sixty Two Capital, an advisory firm specialising in the growth and funding of emerging ASX companies.

Nitin Tyagi
Non-Executive Director

A highly experienced supply chain executive from the automotive and technology sectors with a career working for the world's biggest corporations such as Apple , CREE, Rivian Automotive Mr Tyagi is the co-inventor of 12 US patents and VP of supply chain at US-based battery company Our Next Energy (ONE).

Lynden Polonsky
Chief Development Officer

A mining executive with over 20 years' experience in the finance industry. He has experience with mine development financing, new business development and portfolio optimisation, merger, acquisition, divestment and capital markets advice across a range of industries and sectors including natural resources, infrastructure and renewable energy.

Tommie van der Walt
Chief Operating Officer

A mining executive with over 20 years and a proven track-record in mining project development and a deep understanding of project delivery in Africa. His key focus is to oversee all aspects of the Makuutu Rare Earths Project, which will include further growth strategies for the mine.

Mark Licciardo
Company Secretary

A corporate executive with 40 years experience working with Boards of ASX listed companies in the areas of corporate governance, accounting and finance and company secretarial practice and executive roles in banking and finance, funds management, investment and infrastructure development.

Corporate Snapshot

ASX: IXR | FSE: 6UH

Share Price	Market Capitalisation	Shares on Issue	Various Options	Cash Position	12-month Range (min – max)
A$0.02	A$86m	4,308,287,363	130,000,000	A$4.5m	A$0.016–A$0.038
31 January 2024	31 January 2024	31 January 2024	Exercisable at 3.15 to 6.4 cents	31 December 2023	

ASX Share Price Performance – 2 years

For personal use only

European Critical Raw Materials Act (CRMA) – "The Race is On!"

EUROPEAN COMMISSION'S CRITICAL RAW MATERIAL ACT TO UTILISE GLOBAL GATEWAY INSTRUMENT, A €300 BILLION INITIATIVE AIMED AT COUNTERING THE CHINESE BELT AND ROAD INITIATIVE

For personal use only

- The Act identifies a list of **strategic raw materials** crucial to Europe's green and digital ambitions and for defence and space applications – while being subject to potential supply risks in the future.
- The 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 Union's annual consumption of each strategic raw material at any relevant stage of processing from a single third country

- On Monday 13 November 2023, the co-legislators reached a political agreement on the EU CRMA and **increased the recycling component from 15% to 25%**

REE Supply Chain and IonicRE Integration

IONICRE ADDING PRIMARY AND SECONDARY SOURCED CAPACITY TO BECOME INTEGRATED IN FUTURE RARE EARTH SUPPLY CHAINS

For personal use only

RWENZORI RARE METALS

Mining and processing to produce value added MREC to supply new supply chains emerging

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

ionic technologies

RE Concentrate | RE Oxide | RE Metal | Nd-Fe-B Magnet | Electric Motor

Exploration & Development → Mining & Production → Separation & Refining → Metal Reduction → Magnet Production → Production Of Components → Final Products

Makuutu Rare Earths Project (60% IonicRE → 94% IonicRE in H1 2024)

- 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
- Demonstration Plant in construction now, expected first MREC product Q1 2024, with immediate demand for product
- Expandable asset through free cash flow and growing market demand

IonicRE Refinery

- Targeting separation of MREC from Makuutu to produce refined REOs
- Potential to receive MREC feed or HREO products from other producers
- Flowsheet trade-offs dependent upon selected locations – competitive landscape to host refinery to support advanced manufacturing industry

Magnet Recycling (100% IonicRE)

- Low capital development to recycle spent magnets and swarf to produce separated and refined 99.9%+ REOs
- Demonstration Plant operating 24/7 - Magnet REO production now (Nd, Pr, Dy and Tb)
- Addressing domestic supply chain / sovereign capability need with global opportunities
- Likely first to revenue, supply independent of permitting

The Makuutu Rare Earths Project (60% IonicRE)

RWENZORI RARE METALS

ESG CERTIFIED

Digbee ESG™

PRIMARY MAGNET AND HEAVY RARE EARTHS FOR THE NEW ECONOMY

For personal use only

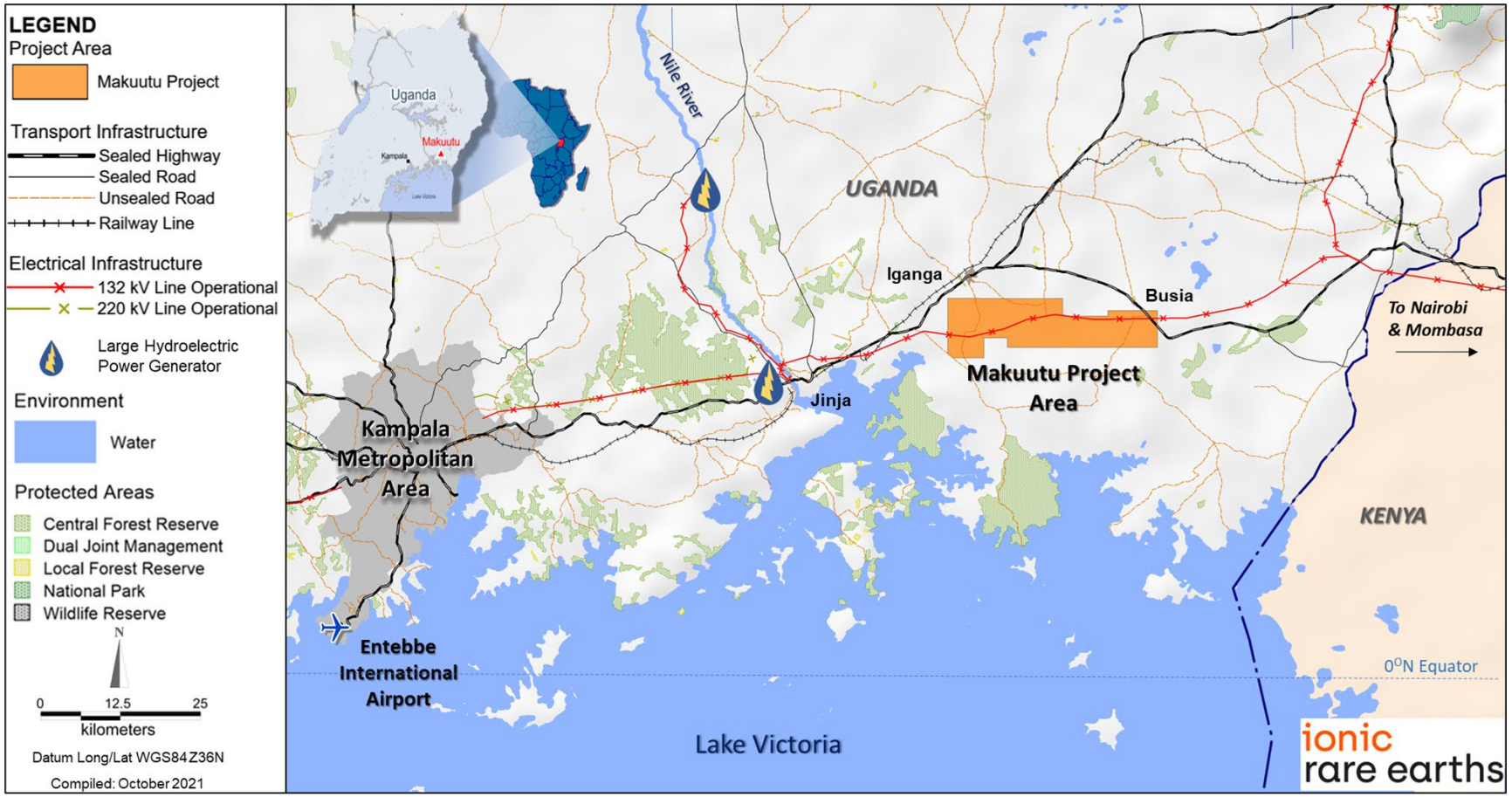
- Large scale Ionic Adsorption Clay (IAC) project with 71% magnet plus heavy REO basket
- IonicRE owns 60%of the asset through local Ugandan entity Rwenzori Rare Metals Ltd
- IonicRE agreed with partners to increase Project stake to 94% through script deal announced late 2023
- 300 km^2 of mineral tenements, covering IAC mineralisation trend 37km long
- Excellent infrastructure already installed
- Mineral Resource Estimate and stage 1 Ore Reserve Estimates completed
- Environmental Permits approved, ESG Certified by Digbee
- Stage 1 Feasibility Study Completed
- Mining Licence 00334 approved January 2024
- Demonstration Plant constructed and expected to start MREC production Q1 2024

Makuutu Stage 1 DFS

EXCELLENT LOCAL INFRASTRUCTURE SUPPORTS LOW CAPEX DEVELOPMENT

For personal use only

- Existing Infrastructure at Makuutu
- Highway and road access to site plus rail
- Nearby over 800MW of installed hydroelectric power capacity along the Nile River within 65 km of site
- 132 kV power transmission infrastructure running through tenements (less than 5km to process plant location)
- Cell phone communications available across site
- Water available

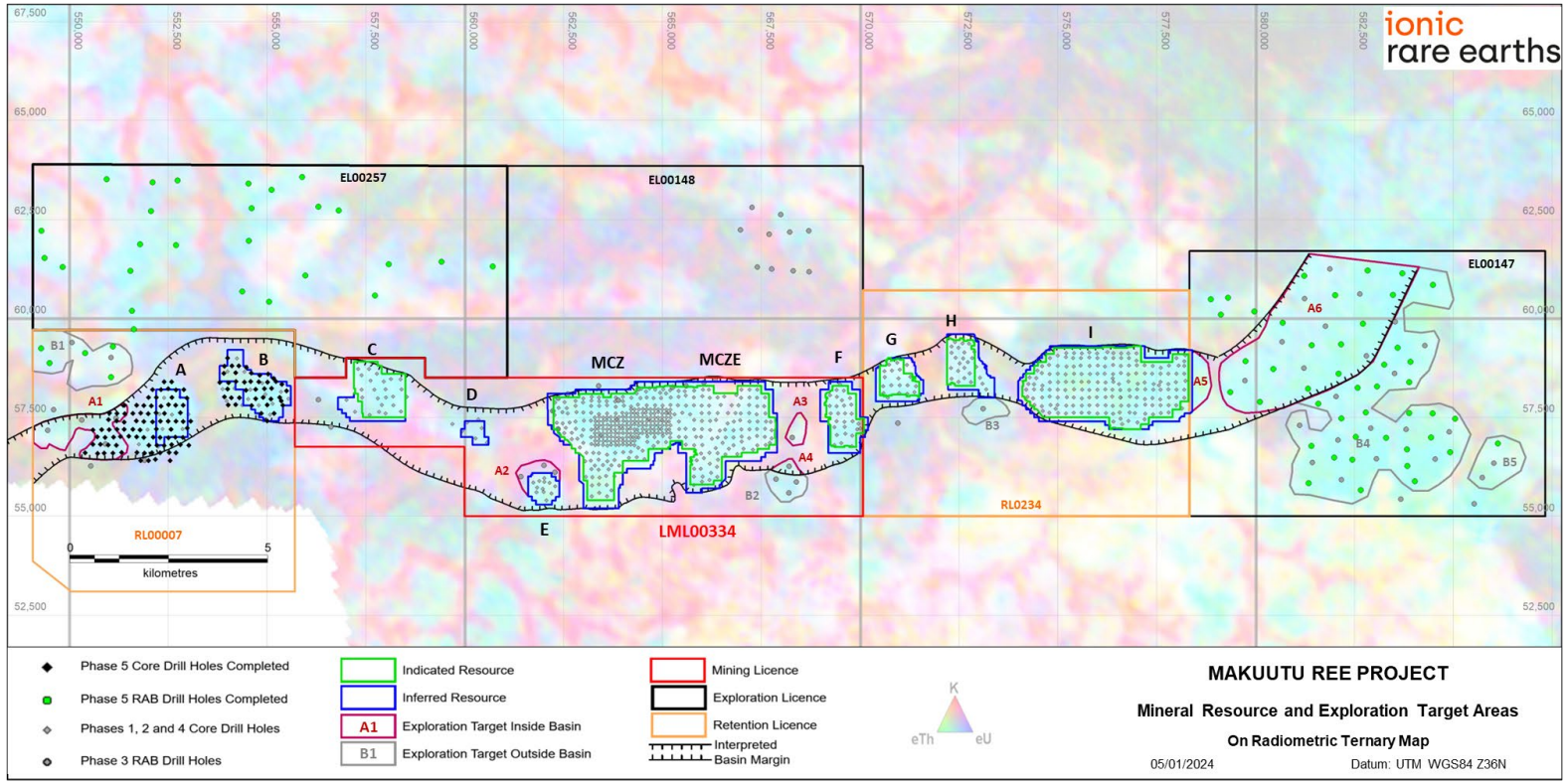


Large MRE with Exploration Upside

EXCELLENT LOCAL INFRASTRUCTURE SUPPORTS LOW CAPEX DEVELOPMENT

For personal use only

- JORC MRE of 532 million tonnes @ 640 ppm Total Rare Earths Oxide (TREO), at a cut-off grade of 200 ppm TREO-CeO_2
- 76% of Makuutu MRE now converted to Indicated Resource, at 404 million tonnes at 670 ppm TREO
- Shallow, near surface IAC mineralisation, with clay layer averaging 5 to 12m thick under cover approximately 3m deep. Average hole depth ~18m, maximum clay thickness ~29m
- Updated MRE expected late Q1 2024 to roll in Phase 5 drill program results across RL00007 (Makuutu Wester zone) to upgrade Inferred resource to Indicated resource supporting next MLA



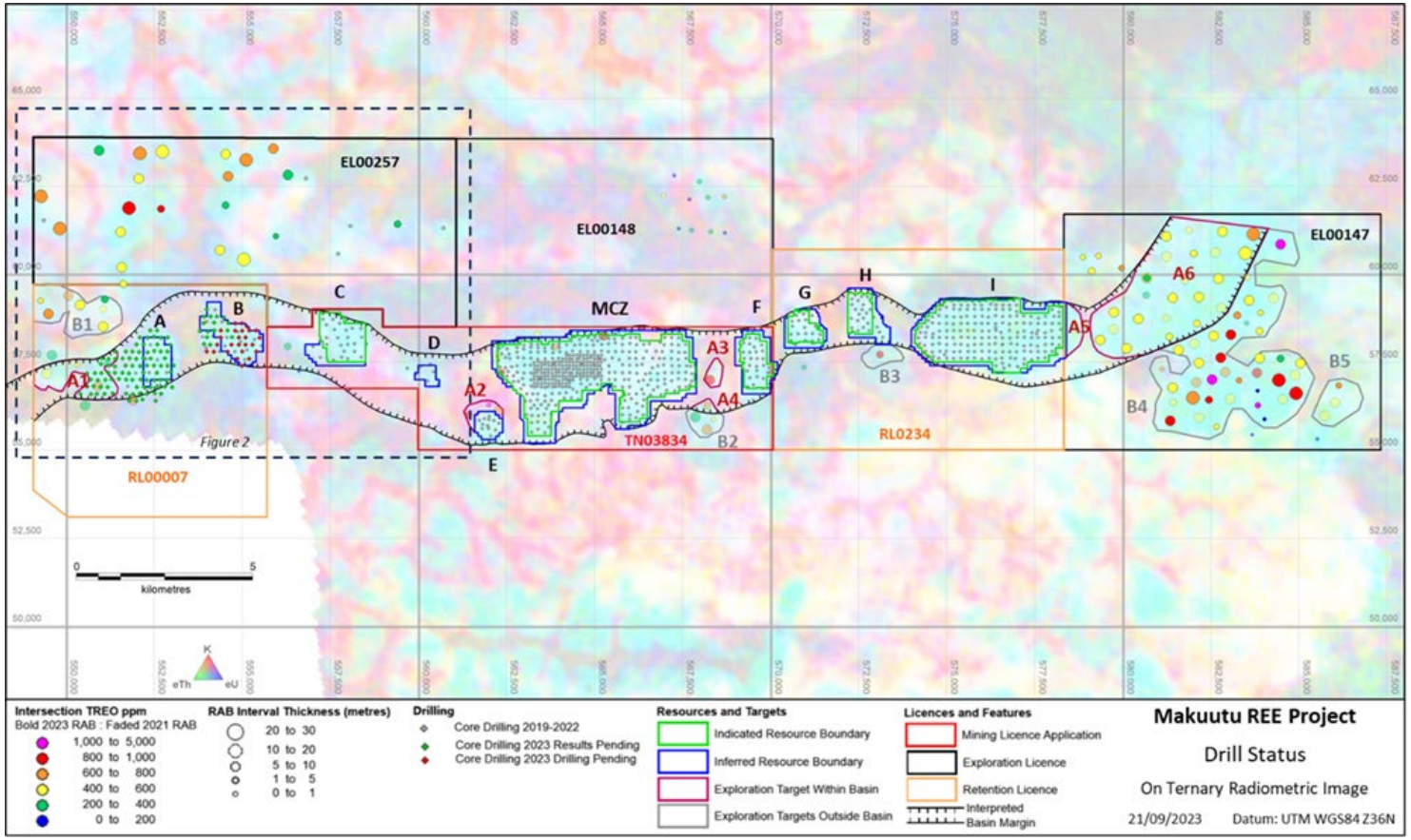
Category	Estimation Domain	Tonnes (Mt)	TREO (ppm)	TREO no CeO_2 (ppm)	LREO (ppm)	HREO (ppm)	CREO (ppm)	Sc_2O_3 (ppm)
Indicated	Clay	404	670	450	500	170	230	30
Inferred	Clay	127	540	360	400	140	180	30
Total Resource	**Clay**	**532**	**640**	**430**	**480**	**160**	**220**	**30**

Exploration Target Upgrade Expected

SUCCESSFUL PHASE 5 DRILL PROGRAM EXPECTED TO FOLLOW THROUGH TO SIGNIFICANT EXPLORATION TARGET UPGRADE

For personal use only

- Exploration Target additional to existing Mineral Resource Estimate
- Phase 5 drill program completed in q4 2023, results to date very positive ahead of substantial Exploration Target upgrade
- 43 of 45 holes drilled on EL00147 reported REE grade above MRE cut-off, supporting 2021 drilling
- 26 of 31 holes drilled (maiden program) on EL00257 reported REE grade above MRE cut-off
- Metallurgical test work pending



Makuutu Exploration Target

216 – 535 million tonnes grading 400 – 600 ppm TREO*

*This Exploration Target is conceptual in nature but is based on reasonable grounds and assumptions. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

This excludes EL00257

Makuutu Stage 1 Feasibility Study

BASE CASE LAYS FOUNDATION, EXTENSION OF LIFE POTENTIAL REMAINS

For personal use only

- Large Scale Mining Licence LML00334 awarded in January 2024;
- Stage 1 production of a value-added mixed rare earth carbonate (MREC) product (including Scandium), via a modular heap desorption processing plant, amounts to a total Capital Expenditure (CAPEX) of US$121 million;
- Stage 1 plant capacity is 5.0 million tonnes per annum (Mtpa) Run of Mine (ROM) throughput;
- Maiden Ore Reserve for the Makuutu Stage 1 over RL 1693 classified as a Probable 172.9 Mt at 848 ppm TREO, or 584 ppm TREO – CeO2, and 30 ppm Sc2O3; and
- Further staged development at Makuutu with additional tenements.

Stage 1 DFS Metrics

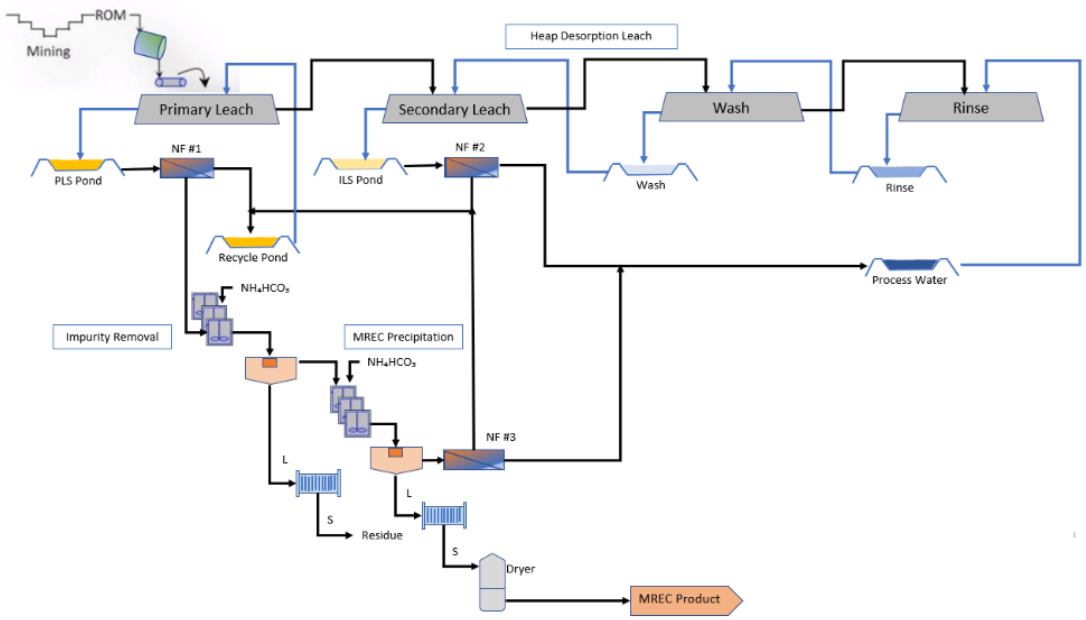
Stage 1 Life **35 Years**	Post-Tax Free Cash Flow **US$1.02 billion**
EBITDA **US$1.28 billion**	Pre-Tax Net Present Value (8) **US$406 million**
Product Basket (magnet + heavy) **71%**	Pre-Production CAPEX **US$120.8 million**
IRR (Post-Tax) **32.7%**	

IonicRE Basket is a highly strategic basket with escalating forecast value

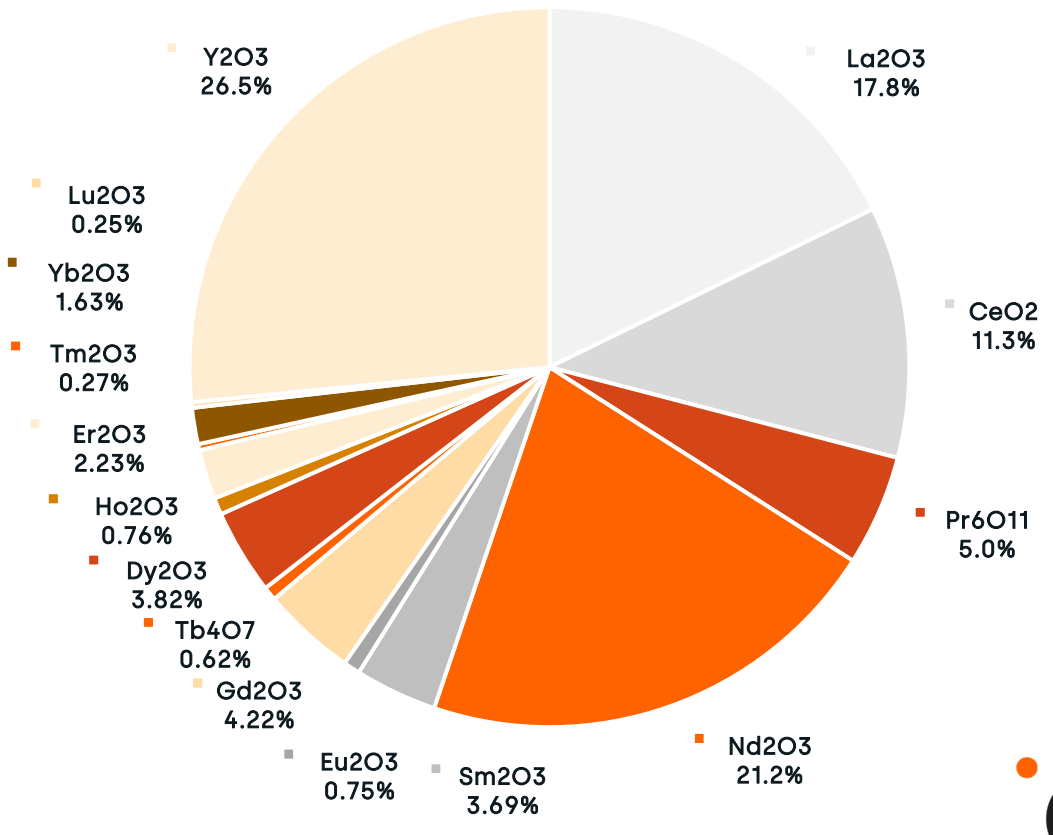
A BALANCED MREC PRODUCT BASKET PRODUCED VIA HEAP DESORPTION PROCESS FLOWSHEET

For personal use only

- Magnet and heavy REO rich basket (71% magnet + heavy)
- Flowsheet used heap desorption for extraction of REEs from IAC ore
- Magnet REOs make up approx. 84% of projected revenue; other heavy REOs make up remaining 16%



Makuutu Stage 1 DFS Product Basket, by composition



Makuutu – Poised to Supply 'New Economy' Demand

TICKING THE BOXES AS THE MOST ADVANCED, NEW IAC PROJECT GLOBALLY, WITH PRODUCT AVAILABLE FOR WESTERN CUSTOMERS

Project (Owner) (Ticker)	Location	Market Cap	Mineral Resource Estimate	Scoping Study / PEA	Pre-Feasibility Study	Ore Reserve Estimate	Definitive Feasibility Study	Demo Plant	Env Permits	Mining Licence	Offtake	Final Investment Decision	Target First Production
Pela Ema Mineração Serra Verde (Private)		N/A	✓	–	✓	✓	✓	✓	✓	✓			✓
Makuutu Ionic Rare Earths Ltd (ASX: IXR)		A$94m	✓	✓	–	✓	✓	Q1 2024	✓	✓		H2 2024	2026
Penco Module Aclara Resources Inc (TSX: ARA)		C$82m	✓	–	✓	✓	–	✓	✗				
Carina Module Aclara Resources Inc (TSX: ARA)		C$82m	✓	✓									
Koppamurra Australian Rare Earths Ltd (ASX: AR3)		A$22m	✓										
Caldeira Meteoric Resources Ltd (ASX: MEI)		A$470m	✓							✓			
Colossus Viridis Mining & Minerals Ltd (ASX: VMM)		A$63m											
Bluebush Alvo Minerals Ltd (ASX: ALV)		A$16m											
Brazilian Rare Earths Ltd (ASX: BRE)		A$318m	✓										
Ampasindava Harena Resources Pty Ltd / Citius Resources Plc (Private)		N/A	✓										

For personal use only

For personal use only

Makuutu Demonstration Plant

TICKING THE BOXES TOWARDS PRODUCTION, DE-RISKING AHEAD OF FINAL INVESTMENT DECISION

- Demonstration Plant Program producing first MREC Q1 2024 in Uganda to de-risk Makuutu ahead of expected Final Investment Decision
  - Technical facility progressing with planned production of MREC in Q1 2024;
  - Phase 1 to include 6m columns and cribs, expected to start next month, prior to Phase 2 (trial heaps) in H2 2024;
- Update to Exploration Target (Q1, 2024) and define future growth potential
- Update MRE (Q1 2024) to include upgraded classification on RL 00007 to support next MLA area (Nov 2024)
- Ongoing Community and Stakeholder engagement activity, land access agreements and expanding work program on Resettlement Action Plan (RAP)
- Capacity building in Uganda – recruitment and training in Uganda (~ 80 staff in Uganda)
- Makuutu offtake commitment
- Final Investment Decision later in 2024

For personal use only

ionic rare earths

ionic technologies

Magnet Recycling and the Circular Economy of Rare Earths

Rare Earths for Life

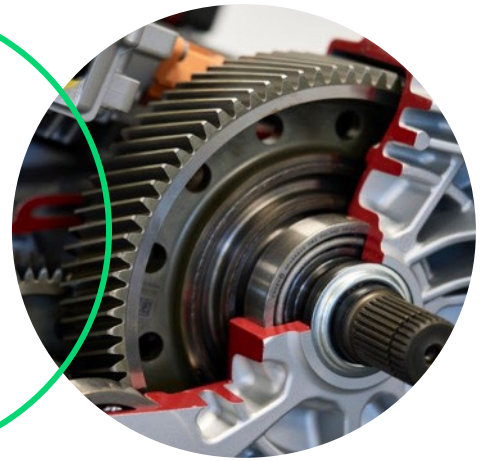
For personal use only

Recycling Neodymium Permanent (NdFeB) Magnets

Developing capacity on rare earth separation, refining and recycling

Mixed grades of waste permanent magnets

100% recycled individual high purity grade magnet rare earth oxides



High spec permanent magnets for net zero carbon technologies such as EV motors and off-shore wind turbines

About Ionic Technologies

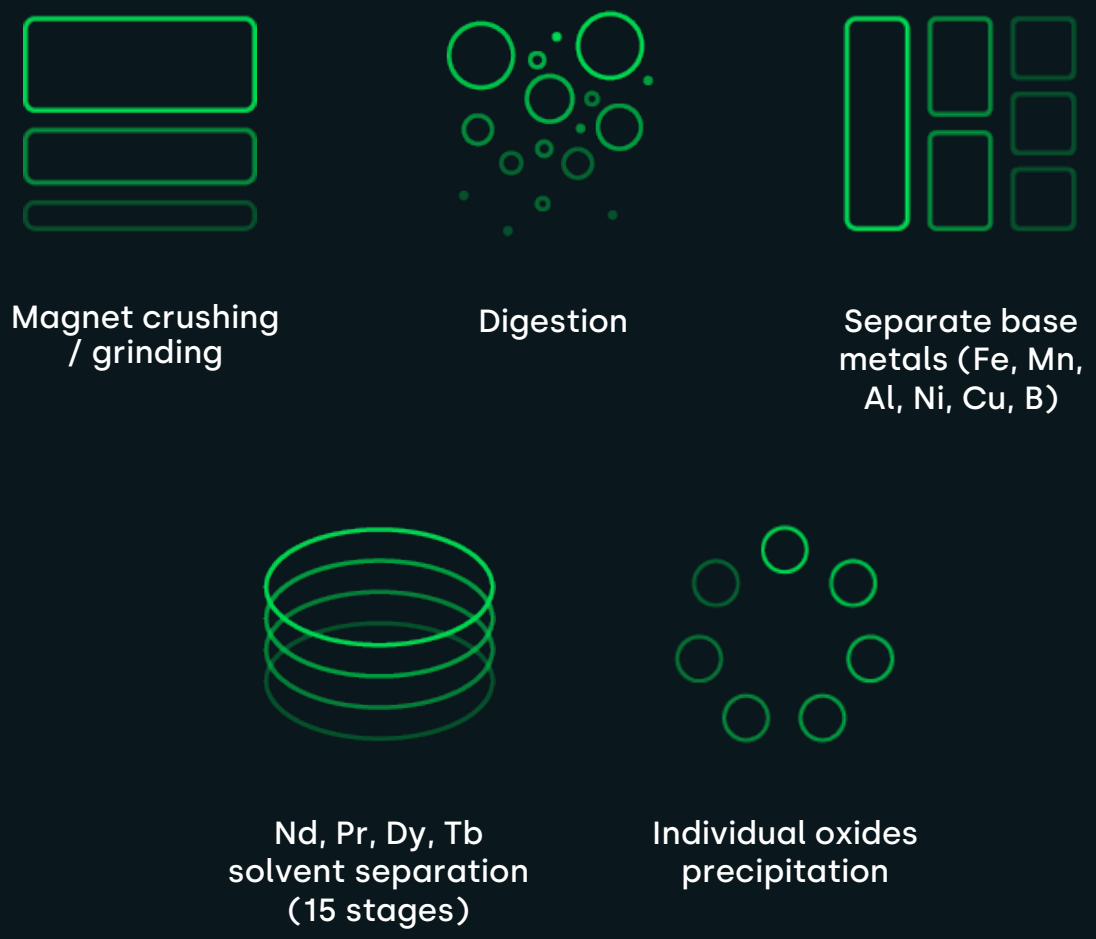
Ionic Technologies has developed separation and refining technology that can be applied to the recycling and refining of individual magnet rare earths from used permanent (NdFeB) magnets.

Our hydrometallurgical process is able to deliver high purity separated magnet rare earth oxides, independent of variability in composition of magnet feedstock.

Ionic Technologies is 100% owned by Australian rare earth resources company Ionic Rare Earths Limited (ASX: IXR).

Intake flexibility

Unlike other recycling processes, our technology can recycle any form of mixed waste magnets and production swarf regardless of type, age or coatings. We are not reliant on a single feedstock stream.



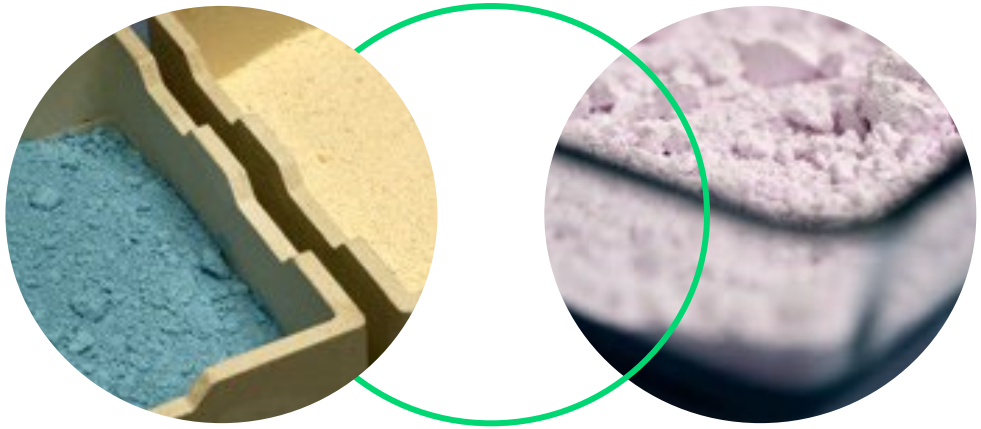
For personal use only

For personal use only

High purity separated magnet rare earth oxide (REO) products

Unique recycling technology that can hydrometallurgically extract, separate and refine magnet REOs from spent magnets and swarf to high purity recycled individual 99.5%+ oxide products – both light and heavy magnet REOs.

- ✓ Nd_2O_3
- ✓ Dy_2O_3
- ✓ Pr_6O_{11}
- ✓ Tb_4O_7



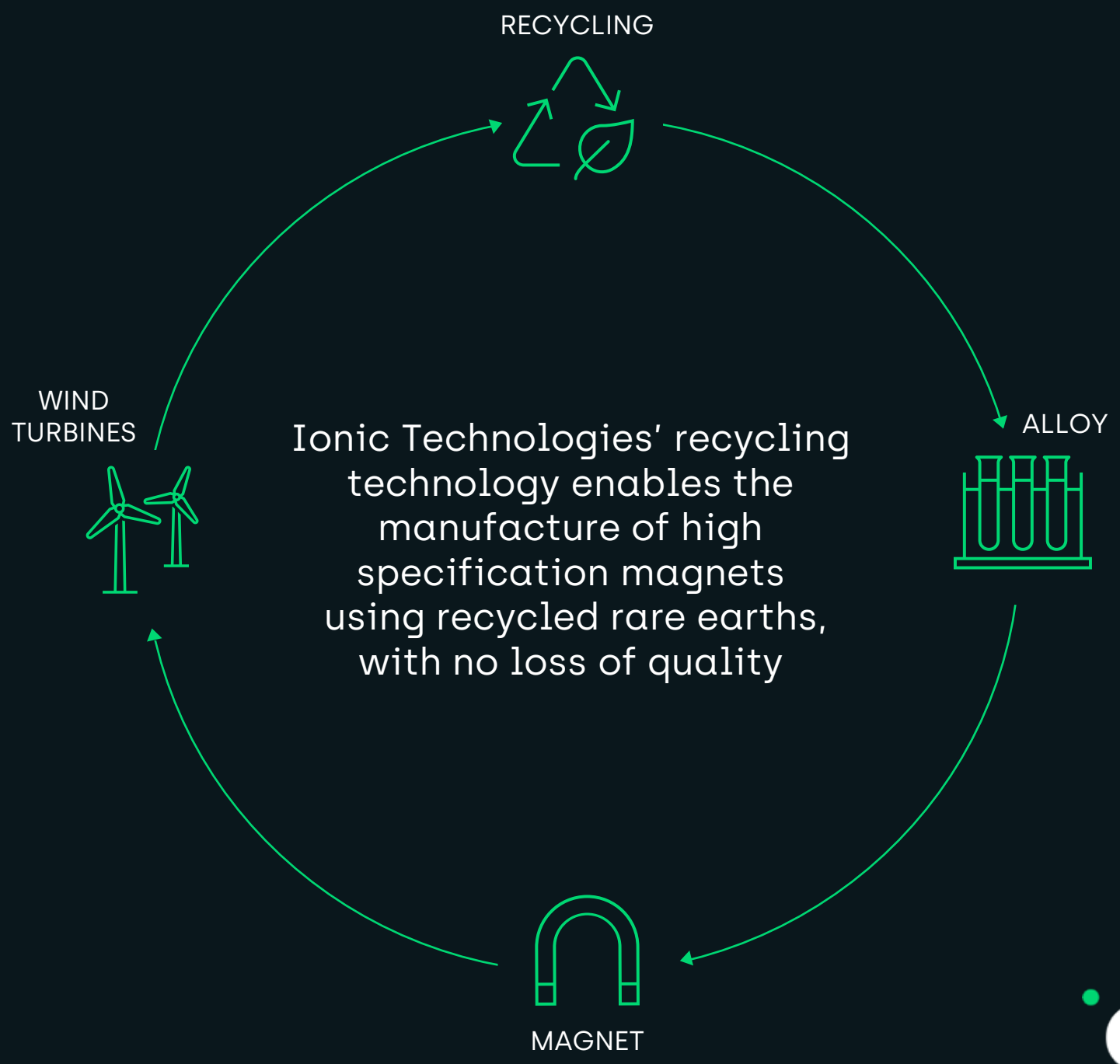
ionic technologies

For personal use only

Rare Earths for Life

Forming collaborative platforms to secure a domestic supply of rare earth metals globally

- Sustainability
- Transparency on quality
- Closed loop domestic strategy
- Stability of price
- Rapidly deployable technology



For personal use only

Collaborative Stakeholders

Thanks to the CLIMATES programme, delivered by Innovate UK, Ionic Technologies will be funded to work on two critical projects.

Feasibility study into the construction and supply side dynamics of a magnet rare earth recycling plant in the UK

Working in partnership with BGS to better understand wider needs for critical minerals and to collate data on magnet import, export and application.

EV permanent magnet circular supply chain

This project will enable Ionic Technologies, Ford UK and LCM to develop a traceable, circular model supply chain within the UK for REEs.

Rare Earth Supply Chain

The unlock through Ionic Technologies

ionic technologies

For personal use only

Via Ionic Technologies, IonicRE is engaging now with key supply chain partners[3] on value addition and developing commercial relationships with metal, alloy and magnet manufacturers

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

ionic technologies

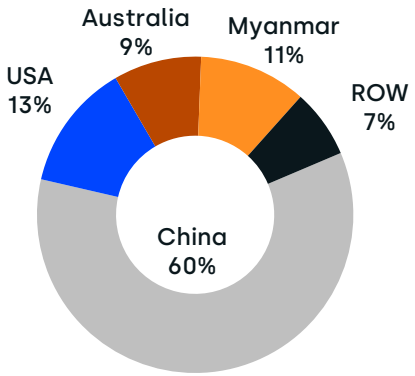
LCM less common metals

Ford

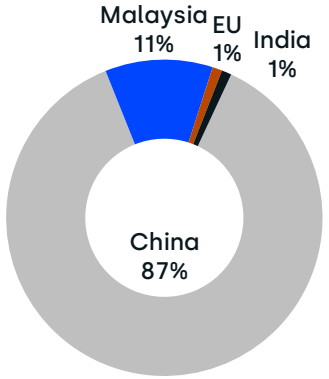
RE Concentrate | RE Oxide | RE Metal | Nd-Fe-B Magnet | Electric Motor

Exploration & Development → Mining & Production → Separation & Refining → Metal Reduction → Magnet Production → Production Of Components → Final Products

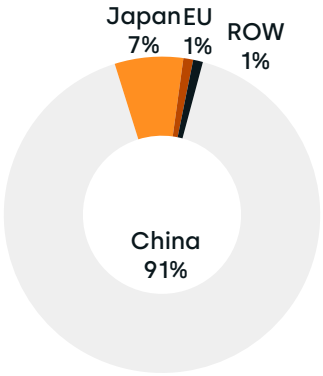
REE Mining[1]



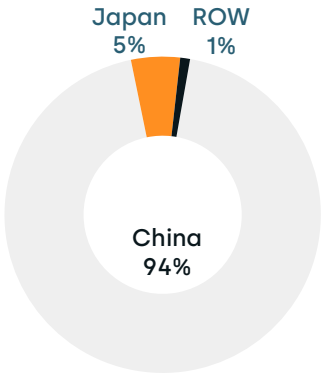
REE Processing[1]



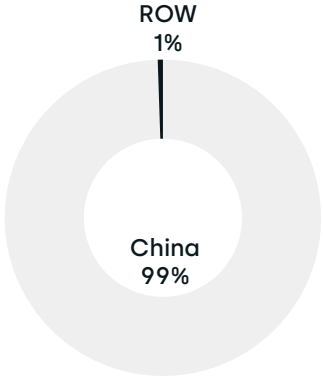
REE Metals[1]



REE Magnets[1]



REE Recycling[2]



[1] Rare Earth Magnets and Motors: A European Call for Action A report by the Rare Earth Magnets and Motors Cluster of the European Raw Materials Alliances, Oct 2021. Argus Analytics Oct 2021.
[2] Wood Mackenzie Global rare earths short-term outlook August 2022. [3] ASX Announcement Ionic, Ford and LCM Execute Landmark Recycling Partnership, 12 September 2023

Our Path to Commercialisation

Rapid acceleration of our technology ready to scale globally

Lab scale

Pilot scale

Demo scale

Commercial scale

April 2022

July 2022

2023 / 2024

Demonstration Plant Launch

24/7 plant operations

FS Expected Q3 2024

2026 planned operations

Ready to scale

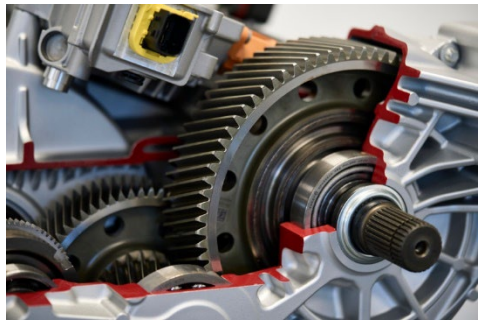
Global Deployments

For personal use only

For personal use only

Ionic Technologies Demonstration Plant

- Our Demonstration Plant officially opened September 2023 where 2 new grants and strategic partnerships announced
- Feasibility Study commenced for commercial plant in Belfast
- Demonstration Plant commenced 24/7 operation in January 2024 to process both end of life magnets (waste) and swarf, to recover, separate and refine high-purity magnet Rare-Earth Oxides (REOs) using our sustainable technology
- 30tpa magnets & swarf → 10 tpa separated magnet REOs



Strategic Location
Belfast Harbour

Ionic Technologies is strategically located within the Belfast Harbour Estate, which is the UK's largest single port estate comprising 2,000 acres.

Dual Market Access

- UK - Windsor Framework and Critical Minerals Strategy and Refresh
- EU - Critical Minerals Act, and Shared Island Fund

USA

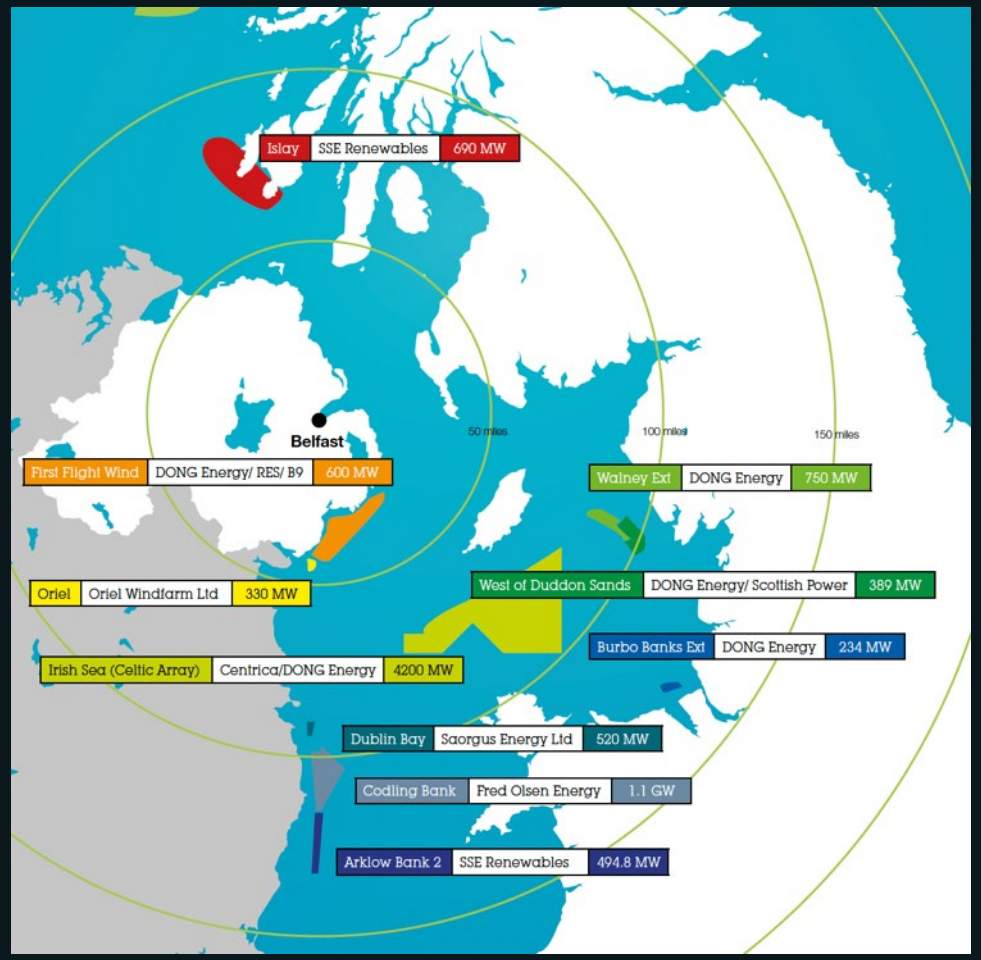
Atlantic Declaration
US Directives on supply chains,
£5bn potential US funding

Renewable Hub

Belfast Harbour is home to many world-class companies who play a key role in the global renewable energy sectors.

#1 Port in UK

Belfast Harbour is home to the UK's number one port for offshore wind.



Infrastructure

Belfast Harbour has unrivalled port infrastructure encompassing the UK's first offshore wind terminal.

For personal use only

For personal use only

IonicRE Value Proposition

- Direct exposure to heavy rare earths market growth
- Ionic Technologies → entry into a circular economy for magnet REOs, with partnerships announced, and more to come
- Low capital, development ready access to magnet and heavy REOs
- Strategic importance as one of the few ex-China supply options
- Geopolitical tensions driving demand for secure and resilient alternative supply
- Downstream refining potential to unlock value of the Makuutu basket

"With current global heavy rare earth oxide production increasing just marginally each year and the outlook for Myanmar (miner of 40% of the world's dysprosium and terbium) uncertain, heavy rare earth elements remain a massively under-addressed blind spot in the automotive supply chain."

"By 2035, Adamas projects the global rare earth market will be short more than one China's worth of NdPr oxide supply, and over five China's worth of Dy and Tb oxide supply, annually (referring to China's 2022 production levels) should supply not increase substantially more than what is currently anticipated."

Adamas Intelligence, 2022

ionic rare earths

ASX: IXR | FSE: 6UH

For personal use only

Ionic Rare Earths Limited
Level 5 South
459 Collins Street
Melbourne,
Victoria, 3000, Australia

www.ionicre.com
investors@ionicre.com

T +61 3 9776 3434