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## **VIRIDION BACKED TO BUILD BRAZILIAN MAGNET SUPPLY CHAIN**

### **Belfast Feasibility Study supports plans for magnet recycling in Minas Gerais**

- **Minas Gerais investment promotion agency, Invest Minas backs IonicRE's magnet recycling technology via Viridion JV for building sustainable, traceable and sovereign domestic supply chain;**
- **Ionic Technologies' Feasibility Study data shows potential for profitable Rare Earth Oxide manufacturing facility in Brazil, modelled on Belfast plant;**
- **Talks underway to secure site for pilot plants for both REO refinery and magnet recycling facilities near existing Viridis operations; and**
- **Brazil seen offering potentially lower operating costs in converting alloy feedstock to REO product, with fast-track development plans.**

**Ionic Rare Earths Limited ("IonicRE" or the "Company") (ASX: IXR)**, via its Viridion Joint Venture with Viridis Mining and Minerals Ltd (ASX: VMM) has received strong backing from the state of Minas Gerais, Brazil to replicate its UK magnet recycling technology in the Brazilian state, with potential for substantially lower operating costs in converting alloy feedstock to REO product.

The move follows the recent Feasibility Study announced for Ionic Technologies' Belfast facility, which showed the potential for strong financial returns and environmental sustainability in developing a REO manufacturing facility that recycles pre-consumer rare earth magnet scrap and end-of-life magnets (refer ASX announcement 18 November 2024).

Speaking at a 4 December 2024 meeting in Belo Horizonte, Ronaldo Barquette, Director of Investment Attraction at Invest Minas gave strong support for IonicRE's solution for developing a rare earth supply chain via magnet recycling, commenting: *"Minas Gerais is constantly reinventing itself to remain at the forefront of the innovations that the world demands. In the energy transition, the State demonstrates leadership by exploring the countless opportunities that arise with the mining of strategic minerals, especially by promoting the addition of value to this essential chain for economic development."*



*“A notable example is the rare earth magnet recycling project, made possible through a partnership between the State Government, institutions such as FIEMG, universities, and private companies such as Ionic Rare Earths, Viridis, among others. The Government remains committed to ensuring that these companies find the ideal environment in Minas Gerais to establish themselves and expand, making the most of our highly qualified workforce and our natural resources. Our commitment is to ensure the greatest possible generation of income and jobs for the State.”*

IonicRE's Mr Santos said the meeting highlighted the high level of government support from the state of Minas Gerais for the delivery of Ionic Technologies' unique technology.

*“IonicRE has received strong support from Minas Gerais as the most logical and feasible alternative for building a domestic rare earths supply chain independent of China,” Mr Santos said.*

*“Meeting participants were particularly impressed by the data from the recent Feasibility Study for Ionic Technologies, especially its positive EBITDA, which showed a clear measurement of the potential profitability of such a plant in Brazil.*

*“Overall the reception was excellent, with the Minas Gerais authorities seeing IonicRE as providing an essential solution for the state's critical minerals industry.”*

IonicRE's 50/50 joint venture with VMM, Viridion, recently signed a five-year Memorandum of Understanding with SENAI FIEMG Innovation and Technology Centre, owner of Lab Fab, South America's first rare earth magnet laboratory (refer ASX announcement 6 November 2024).

Signed in Perth, Western Australia during a state visit, the agreement established a basis for cooperation between Viridion and SENAI Regional Department, with a view to jointly develop and produce rare earth magnets at Lab Fab, in the Brazilian state of Minas Gerais.

Viridion holds exclusive rights in Brazil to monetise, implement and commercialise Ionic Technologies' magnet recycling IP. The Company is now in talks with the Minas Gerais authorities on the location of pilot plants for both a potential REO refinery and magnet recycling facilities, near existing Viridis Colossus Project operations in Minas Gerais.

IonicRE sees potential for substantially lower operating costs in converting alloy feedstock to REO product in Brazil compared to other markets, as shown by Managing Director, Tim Harrison's presentation at the Company's recent Annual General Meeting (refer ASX announcement 27 November 2024).

IonicRE Managing Director, Mr Tim Harrison commented: *“Brazil has enormous potential as a new market for our patented magnet recycling technology, with magnet recycling likely the first step in developing a domestic integrated supply chain.*

*“The production of magnet REOs within Brazil will enable the ramp up of magnet production capability at CIT SENAI's LabFab facility, which is targeting a ramp up in NdFeB production to 100 tonnes per annum by the end of 2026.*

*“We also plan to recycle waste streams produced in the ramp up of activities, which will enable the development of a truly insulated and secure NdFeB supply chain in Brazil that can support significant advanced manufacturing activities.*

*“Brazil represents a very exciting opportunity for the Company. The South American giant is currently the world’s seventh largest wind energy market, growing at 29% CAGR over the past decade, and will be a wind energy powerhouse into the future. Additionally, the establishment of EV production capacity in Brazil along with existing and growing advanced manufacturing capacity will drive further demand for REO’s in what is presently the world’s 10<sup>th</sup> largest economy.*

*“IonicRE and Viridion are delighted by the strong support from Invest Minas and look forward to replicating our Belfast model in Brazil, working closely with our partners to fast-track its development and deliver on Brazil’s vision of an integrated REE supply chain.”*

## **Viridion JV**

IonicRE and Viridis executed a Binding Agreement in April 2024 (refer ASX announcement 3 April 2024), for the commercialisation of intellectual property developed by IonicRE’s 100% owned UK subsidiary, Ionic Technologies, to separate and refine Rare Earth Oxides (REOs) from concentrates and carbonates feed from the Colossus Project, and magnet recycling in Brazil.

The 50/50 JV between Viridis and Ionic Rare Earths aims to commercialise and implement the Separation and Recycling Technology within a separation plant in Brazil and is positioned to become the first major producer of the full suite of refined magnet REOs in South America.

The JV has formed Viridion Pty Ltd (“**Viridion**”) in Australia and Viridion Rare Earth Technologies Ltda in Brazil, which will hold exclusive global rights (excluding Asia and Uganda) to Ionic Technologies separation IP to produce REE Oxides from Mixed Rare Earth Carbonate (‘MREC’) or equivalent intermediate feed streams, and own any new IP developed from the commercialisation process.

Viridion also holds exclusive rights in Brazil to monetise, implement and commercialise Ionic Technologies’ magnet recycling. This grants Viridion rights to exclusively commercialise separation technology for other REE producers, with an initial focus on partnering with existing Brazilian Rare Earth Projects before expanding the technology globally.

Ionic Technologies is a global first mover in the recycling of Neodymium-Iron-Boron (NdFeB) permanent magnets to high purity separated magnet rare earth oxides (REOs) – enabling the creation of sustainable, traceable, and sovereign rare earth supply chains.

Ionic Technologies is now a producer of a suite of magnet REOs including neodymium oxide (Nd<sub>2</sub>O<sub>3</sub>), didymium oxide (NdPr oxide), dysprosium oxide (Dy<sub>2</sub>O<sub>3</sub>) and terbium oxide (Tb<sub>4</sub>O<sub>7</sub>) and is a leader in producing such high-quality REO products.

IonicRE Executive Chairman, Brett Lynch added: *“IonicRE is building a global industrial business and Brazil is an important piece of this puzzle, being a major advanced manufacturer at the heart of the South American economy.*

*“Having shown the strong financial returns and environmental sustainability of our Belfast model, we look forward to replicating this across new markets in North and South America, Asia and elsewhere to unlock increased value for shareholders in creating a secure and sustainable ex-China rare earths supply chain.”*



**Figure 1: Left to right – Ronaldo Barquette, Director of Investment Attraction at Invest Minas, Ana Beatriz Sullato, Invest Minas Strategic Advisor, Gabriel Longo dos Santos, Business Development Manager LATAM, Ionic Rare Earths, Henrique Tavares Maior Soares, Manager, Invest Minas and João Barbosa, Superintendent of Medium and Large Enterprises at the Minas Gerais Development Bank (BDMG).**

## Technology Overview

Since its founding in 2015, as a spinout from Queens University Belfast (QUB), Ionic Technologies has developed processes for the separation and recovery of REEs from mining ore concentrates and waste permanent magnets.

The technology developed is a step up in efficient, non-hazardous, and economically viable processing with minimal environmental footprint.

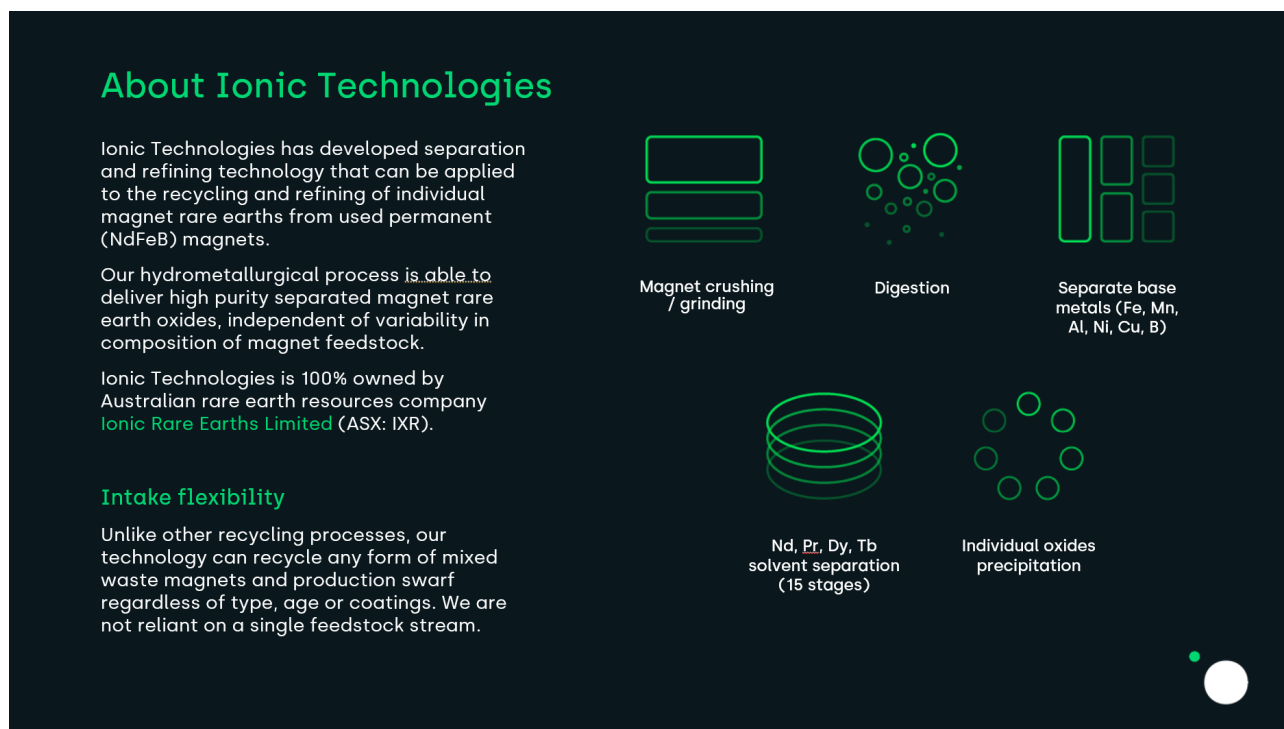
Ionic Technologies has demonstrated capability for REEs to achieve near complete extraction of REO's from lower quality spent magnets and waste (swarf) to a recovery of high value magnet REO product quality exceeding 99.9% REO.

Ionic Technologies now has “first mover” advantage in the industrial elemental extraction of separated REOs from spent magnets and waste, enabling near term magnet REO production



capability to satisfy growing demand from the energy transition, advanced manufacturing, and defence.

Ionic Technologies proprietary technology provides a universal method for the recovery of high purity REEs from lower quality and variable grade magnets, to be used in the manufacture of modern, high-performance and high specification REPMs required to support substantial growth in both electric vehicle (EV) and wind turbine deployment.



**Figure 3: Ionic Technologies technology overview.**

For more information about IonicRE and its operations, please visit [www.ionicre.com](http://www.ionicre.com).

Authorised for release by the Board.

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## About Ionic Rare Earths Ltd

Ionic Rare Earths Limited (ASX: IXR or IonicRE) is an emerging miner, refiner and recycler of sustainable and traceable magnet and heavy rare earths needed to develop net-zero carbon technologies.

Ionic Technologies International Limited (“Ionic Technologies”), a 100% owned UK subsidiary, has developed processes for the separation and recovery of rare earth elements (REE) from mining ore concentrates and recycled permanent magnets. Ionic Technologies is focusing on the commercialisation of the technology to achieve near complete extraction from end of life / spent magnets and waste (swarf) to high value, separated and traceable magnet rare earth products with grades exceeding 99.9% rare earth oxide (REO).

In June 2023, Ionic Technologies announced initial production of high purity magnet REOs from its newly commissioned Demonstration Plant and moved to continuous production in March 2024, providing a first mover advantage in the industrial elemental extraction of REEs from recycling. In September 2023, Ionic Technologies announced collaboration partnerships with Ford Technologies, Less Common Metals (LCM) and the British Geological Survey (BGS) to build a domestic UK supply chain, from recycled REOs to metals, alloys and magnets and supplying UK based electric vehicles (EV) manufacturing, with potential to replicate across other key markets. Ionic Technologies gained further UK Government support in September 2024, via its CLIMATES funding programme to demonstrate a circular supply chain for pre-consumer NdFeB magnet scrap (swarf) in partnership with LCM and Vacuumschmelze. The business also benefited from support from the UK Government to develop magnet demagnetisation and comminution processes in partnership with Materials Processing Institute (MPI) and Swansea University.

The Makuutu Rare Earths Project in Uganda, 60% owned by IonicRE, moving to 94% ownership) is well-supported by existing tier-one infrastructure and is on track to become a long-life, low Capex, scalable and sustainable supplier of high-value magnet and heavy REO. In March 2023, IonicRE announced a positive stage 1 Definitive Feasibility Study (DFS) for the first of six tenements to progress to a mining licence, which was awarded in January 2024. Makuutu is now producing mixed rare earth carbonate (MREC) from a Demonstration Plant on site to advance offtake negotiations.

IonicRE has also executed a transformational 50/50 joint venture refinery and magnet recycling facility in Brazil with Viridis Mining and Minerals Limited (ASX: VMM) to separate high value magnet and heavy rare earths from the Colossus Project’s full spectrum of REOs.

This integrated strategy completes the circular economy of sustainable and traceable magnet and heavy rare earth products needed to supply applications critical to EVs, offshore wind turbines, communication, and key defence initiatives.

IonicRE is a Participant of the UN Global Compact and adheres to its principles-based approach to responsible business.

For more information about IonicRE and its operations, please visit [www.ionicre.com](http://www.ionicre.com).

## About Invest Minas

Founded in 1968, Invest Minas is the Minas Gerais State Government's Investment Promotion Agency – the first of its kind in Brazil. We have more than 50 years' experience promoting the attraction of investments and expansion of companies based in the state, contributing to job creation for the people of Minas Gerais. For more information, visit <https://investminas.mg.gov.br/en/>

## Forward Looking Statements

*This announcement has been prepared by Ionic Rare Earths Limited and may include forward-looking statements. Forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside the control of Ionic Rare Earths Limited. Actual values, results or events may be materially different to those expressed or implied in this document. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. Any forward-looking statements in this document speak only at the date of issue of this document. Subject to any continuing obligations under applicable law and the ASX Listing Rules, Ionic Rare Earths Limited does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions, or circumstances on which any such forward looking statement is based.*

## References to Previous ASX Releases

- *IonicRE AGM presentation – 27 November 2024*
- *FS demonstrates profitable magnet REO business case – 18 November 2024*
- *Viridion JV to fast track Brazilian magnet supply chain – 6 November 2024*
- *IXR and VMM to form REE Refining and Recycling JV in Brazil – 3 April 2024*

*The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and all material assumptions and technical parameters continue to apply and have not materially changed.*