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ASX Announcement

6 November 2024

BRAZILIAN JOINT VENTURE VIRIDION SIGNS MOU WITH SENAI FEIMG TO ESTABLISH SECURE BRAZILIAN MAGNET SUPPLY CHAIN

Viridion integration into Brazilian rare earth market to facilitate near term NdFeB magnet production capacity

- **IonicRE joint venture (JV) with Viridis Mining and Minerals Ltd (ASX: VMM), "Viridion" signs Memorandum of Understanding ('MoU') with SENAI FIEMG Innovation and Technology Centre of Minas Gerais, owner and operator of Lab Fab, the first rare earth magnet laboratory in South America;**
- **Transformational JV agreement has Viridion strategically placed to become the first Brazilian producer of refined Rare Earth Oxides ('REO') from either a Mixed Rare Earth Carbonate ('MREC') or from recycling of spent magnets using IP from IonicRE's 100% owned UK subsidiary, Ionic Technologies;**
- **Viridion to launch Scoping Studies for the REO Refinery and Magnet Recycling facilities in January 2025, following Viridis completing production of MREC from its Southern Concessions at Colossus;**
- **Several potential locations under review to support pilot plants for both the REO Refinery and the magnet recycling facilities near existing Viridis operations in Poços de Caldas, Minas Gerais;**
- **Agreement to target developing rare earth magnets at Lab Fab facility in Lagoa Santa, Belo Horizonte, an immediate and near-term local source of magnet REO.**

Ionic Rare Earths Limited ("IonicRE" or the "Company") (ASX: IXR) is advancing its integration into the Brazilian magnet supply chain, with the Company's Viridion joint venture with Viridis Mining and Minerals (ASX:VMM) signing 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.

Signed recently in Perth, Western Australia during a state visit, the agreement establishes a basis for cooperation between Viridion and SENAI Regional Department, with a view to jointly develop and

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produce rare earth magnets at Lab Fab, in the Brazilian state of Minas Gerais, by identifying activities of common interest between the parties:

- Supply of raw materials by Viridion for pilot production of rare earth magnets;
- Promote actions to strengthen the parties and, consequently, their relations with industries interested in these technologies;
- Develop joint projects of applied research, assessment activities, experiments, training, consulting and specialised technological services;
- Implement other joint activities and programs, as well as pilot and experimental programs in areas and subjects of mutual interest and benefit that may be agreed upon between the parties.

Welcoming the MOU, Ionic Rare Earths' Managing Director, Mr Tim Harrison said: *"This latest agreement is a major step forward for the Viridion JV, helping to unlock magnet recycling's significant role in the development of initial REE supply chains in new markets such as Brazil.*

"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 see the JV as the natural partner to help deliver this within the timeframe via recycling.

"By working with LabFab, we will also be able to recycle waste streams produced in the ramp up of activities, which will enable the development of a truly insulated, secure NdFeB supply chain in Brazil that can support significant advanced manufacturing activities underway in that market.

"Having recently hosted delegates from Invest Minas to our facility in the UK, and discussing our vision for the potential Brazilian REE supply chain, we are excited to now look to quickly replicate what we have been able to achieve in Belfast, to help CIT SENAI meet its initial NdFeB ambitions, and map a path forward where we can continue to grow in an integrated REE supply chain with strong support from government and active engagement from industry in Brazil."

Viridion Joint Venture

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. 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.

Viridion also holds exclusive rights in Brazil to monetise, implement and commercialise Ionic Technologies' magnet recycling IP.

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_2O_3), didymium oxide (NdPr oxide), dysprosium oxide (Dy_2O_3) and terbium oxide (Tb_4O_7) and is a leader in producing such high-quality REO products.

IonicRE Executive Chairman, Brett Lynch added: *"IonicRE is rapidly becoming a significant participant in the global rare earths supply chain and this MOU provides further demonstration of the growing demand for secure, sustainable and traceable supply.*

"Our magnet recycling technology based in Belfast, UK is on a fast-track to commercialisation targeting UK/European markets. It is the potential replication of this technology into new markets in South America, North America and Asia that is extremely exciting for shareholders as we execute our global growth strategy, hyper-scaling this closed loop technology for the circular economy of the 21st century."

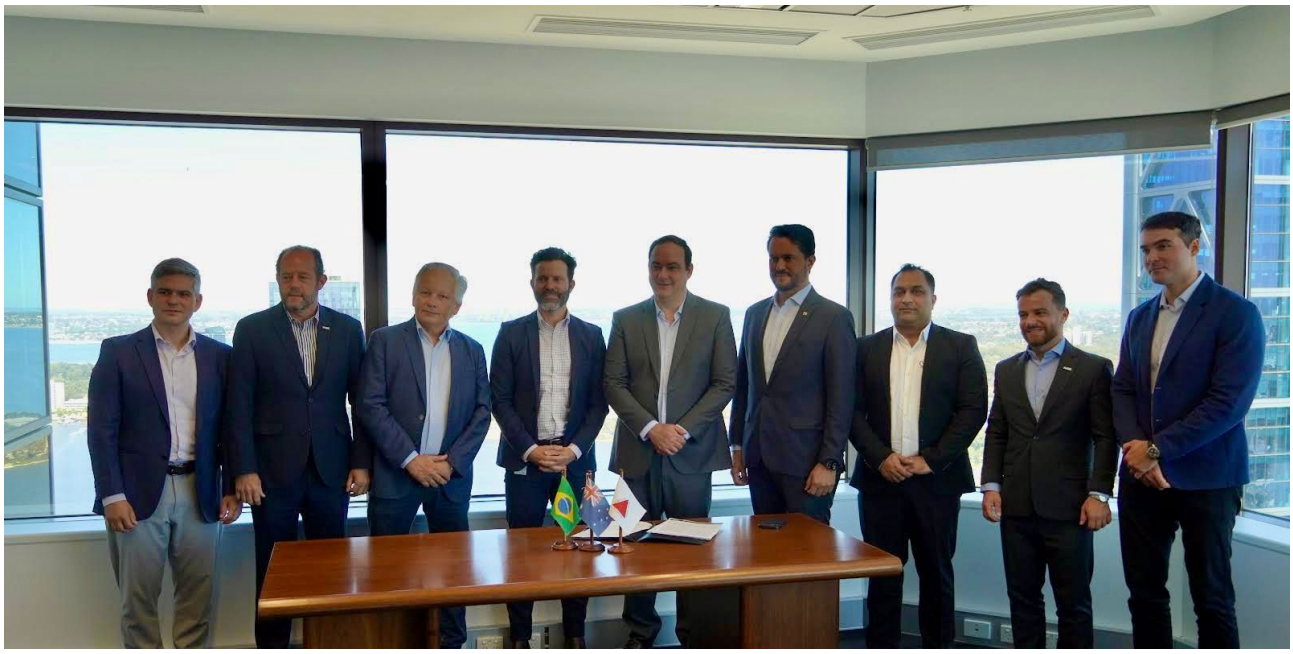

Figure 1: Viridis executives and industry figures from Minas Gerais at MoU signing ceremony in Perth – (Left to Right) Germano Vieira (Partner Alger), Ronaldo Barquete (Director of Invest Minas), Klaus Peterson (Viridis In-Country Manager), Rafael Moreno (Viridis CEO), Flavio Roscoe (President FIEMG), Fernando Passalio (Secretary of Development Minas Gerais), Agha Shahzad Pervez (Viridis Executive Chairman), JP Braga (CEO Invest Minas)], Antonio Malard (Partner Alger).

Figure 2: Invest Minas recently visited Ionic Technologies in Belfast, UK, to discuss plans on downstream activity, with left to right, Tim Harrison (IonicRE MD), Henrique Tavares Maior Soares (Invest Minas Manager), Ana Beatriz Sullato (Invest Minas Strategic Advisor), Fergal Coleman (Ionic Technologies Head of Technology) and Tom Kelly (Ionic Technologies Operations Director).

Figure 3: Invest Minas representatives inspecting Ionic Technologies' Belfast magnet recycling demonstration plant with an eye to replication in Brazil.

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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.

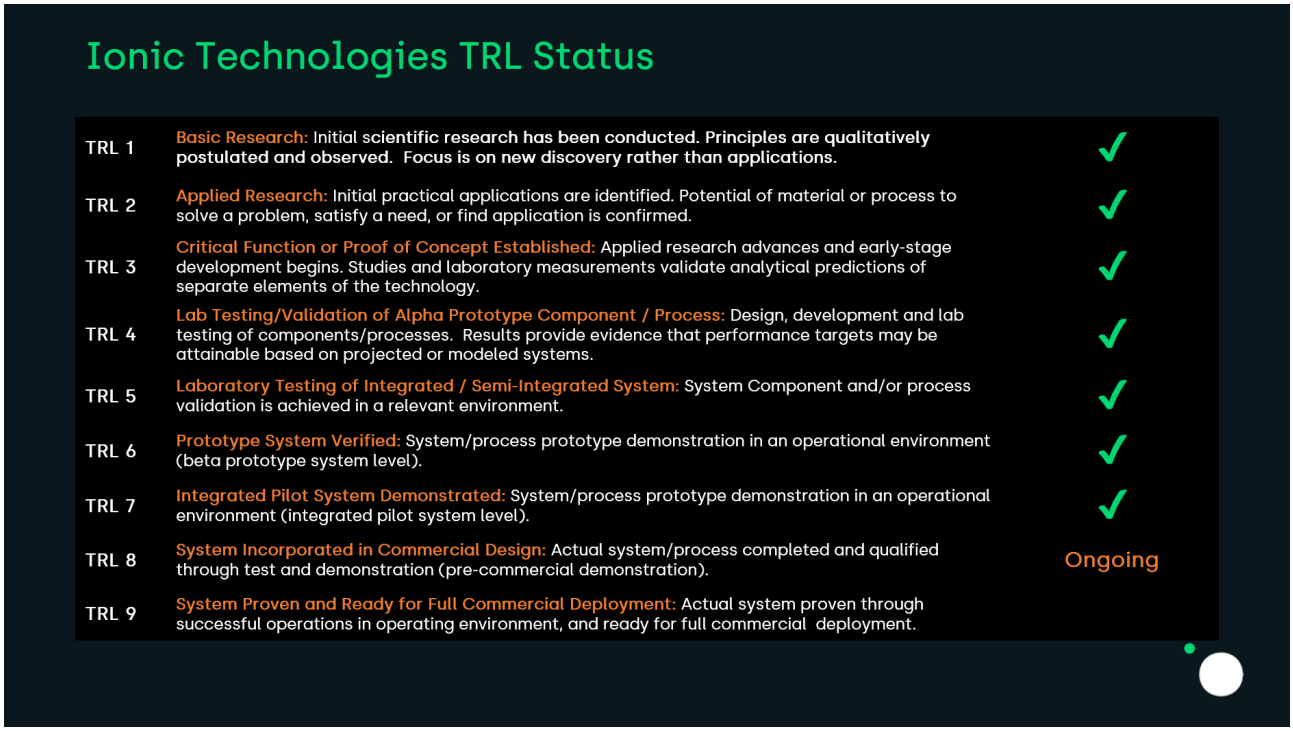

Figure 4: Ionic Technologies' progress through Technology Readiness Levels (TRLs) towards commercialisation.

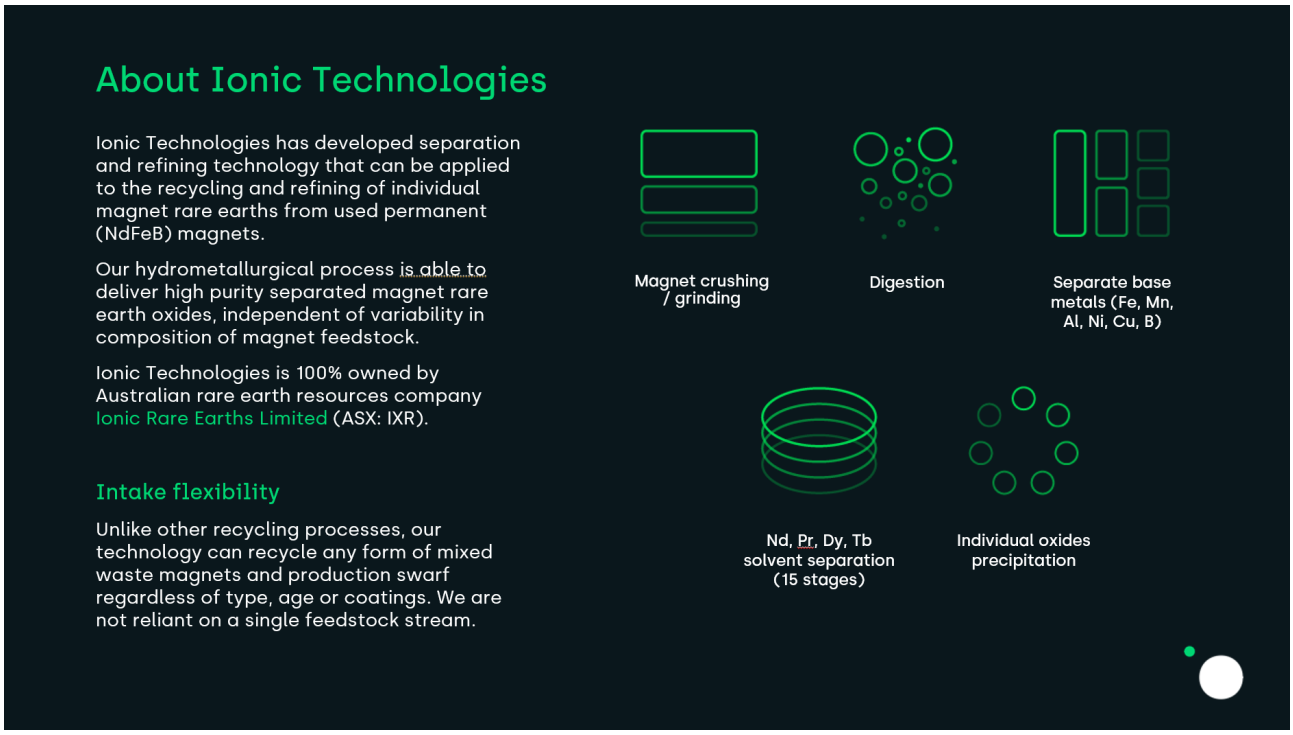

Figure 5: Ionic Technologies technology overview.

For more information about IonicRE and its operations, please visit 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.

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.

About FIEMG – Federation of Industries of the State of Minas Gerais

For over 90 years, FIEMG has represented the industrial sector of Minas Gerais and works to defend its local and national interests. It works to ensure that the industry develops businesses and products that have an impact, with social and financial returns. For more information, visit https://www.fiemg.com.br/fiemg/

About CIT SENAI

CIT – SENAI Innovation and Technology Centre is made up of a set of laboratories with the purpose of promoting competitiveness through science applied to the technological challenges of the Brazilian industry. With a focus on the Metal value chain, they provide Technological Services and execute Research & Development projects for the Mining and Metallurgy industries, as well as the

Automotive, Oil and Gas, Energy and Food and Beverage sectors. For more information visit https://www.fiemg.com.br/cit/

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

- *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.