12 December 2022

IONIC TECHNOLOGIES BELFAST FACILITY UPDATE

- **New Ionic Technologies facility fit out progressing on schedule with analytical and hydrometallurgical labs now operational**
- **Magnet recycling pilot plant has produced over 5 kg of Nd_2O_3 and Dy_2O_3 products as part of verification program processing NdFeB swarf**
- **Demonstration plant equipment being received with commissioning planned to commence late March 2023, with first demonstration plant magnet rare earth oxides (REO) expected late June 2023**
- **Expanding the technical and business development team to accelerate technology scale up**

The Board of Ionic Rare Earths Limited ("IonicRE" or the "Company") (ASX: IXR) is pleased to advise on progress at Ionic Technologies International Ltd ("IonicTech"). IonicTech is the rebranded 100% owned subsidiary (formerly Seren Technologies Ltd) based in Belfast UK, which the Company acquired earlier in 2022. IonicTech has developed rare earth element separation and refining technology and applied this to the recycling and refining of individual magnet rare earths from spent permanent magnets.

Over the past quarter significant progress has been made at our newly established facility in Belfast, UK, which is progressing on schedule, with the new facility now home to the expanding team.

The new facility, located in the Titanic Quarter in Belfast, has been equipped with analytical and hydrometallurgical laboratories, plus piloting and demonstration plant bays to progress the scale-up verification of the technology. Additionally, the team is being expanded in Belfast to accelerate the work streams with current plans for commissioning of the demonstration plant expected in late Q1 2023, and first recycled rare earth oxide (REO) products produced by the end of Q2 2023.

In September, the Company was awarded a grant of £1.72 million (approximately A$2.9 million) from the UK Government's Innovate UK Automotive Transformation Fund Scale-up Readiness Validation (SuRV) program, to develop a demonstration scale magnet recycling plant, a significant step towards securing the UK supply of critical rare earth metals for EV manufacture.

IonicRE is evaluating several opportunities for commercialisation of the technology offering from IonicTech, into modular magnet recycling initiatives and partnerships, with global governments looking to develop domestic magnet REO supply chains to empower localised manufacturing, including EV and renewable energy transitions. Such partnerships will also provide more secure and traceable supply chains for critical raw material.

Having recently visited the Belfast facility to observe progress made at IonicTech, IonicRE's Managing Director Mr Tim Harrison commented:

"The progress in Belfast has been very positive over the past 10 weeks since visiting in September. To see the facility taking shape to now support the growing team, the laboratories and analytical equipment now installed and operational, and magnet REO products being produced, bodes well for further positive developments in 2023."

"We see the successful demonstration plant at Belfast as a key catalyst for the Company in being able to establish meaningful supply chain partnerships in value addition beyond the magnet REOs we will produce, and the ability to deploy the technology into several opportunities we have identified to date."

Magnet Rare Earth Oxides Produced in Belfast

The recently completed pilot plant campaigns have further validated the improvements incorporated in the technology and process since the acquisition in April 2022, demonstrating hydrometallurgical extraction from Neodymium-Iron-Boron (NdFeB) swarf, supplied by a UK metal and alloy manufacturer.

The latest completed campaign treated a swarf (waste material from alloy manufacturing) treating a sample rich in both magnet REEs, Neodymium (Nd) and Dysprosium (Dy). The pilot campaign successfully processed the swarf (Figure 1) into a number of intermediary REE products (Figure 2), prior to the separation (Figure 3), and production of approximately 5 kgs of separated high purity rare earth oxides (REO), Nd_2O_3 and Dy_2O_3, with analysis pending (Figure 4). Internal and external analysis of the products confirms they are consistent with separated REO products produced and sourced from existing Chinese producers.

Figure 1: Feedstock (swarf) sourced from NdFeB metal alloy production, rich in Nd and Dy only.

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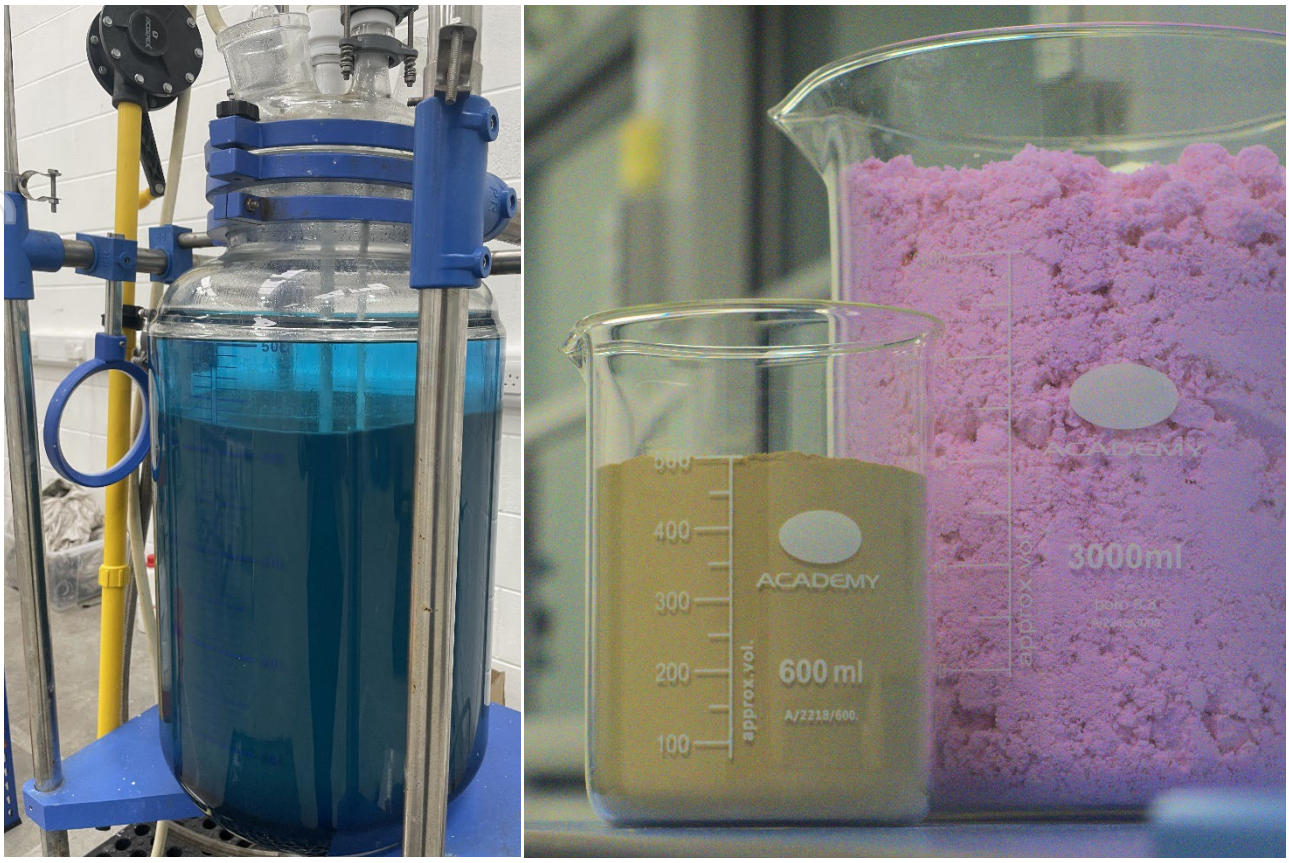

Figure 2: Swarf processing in reactor on left, prior to production of intermediate products – mixed Nd/Dy oxide (brown) and mixed Nd/Dy oxalate (pink), right.

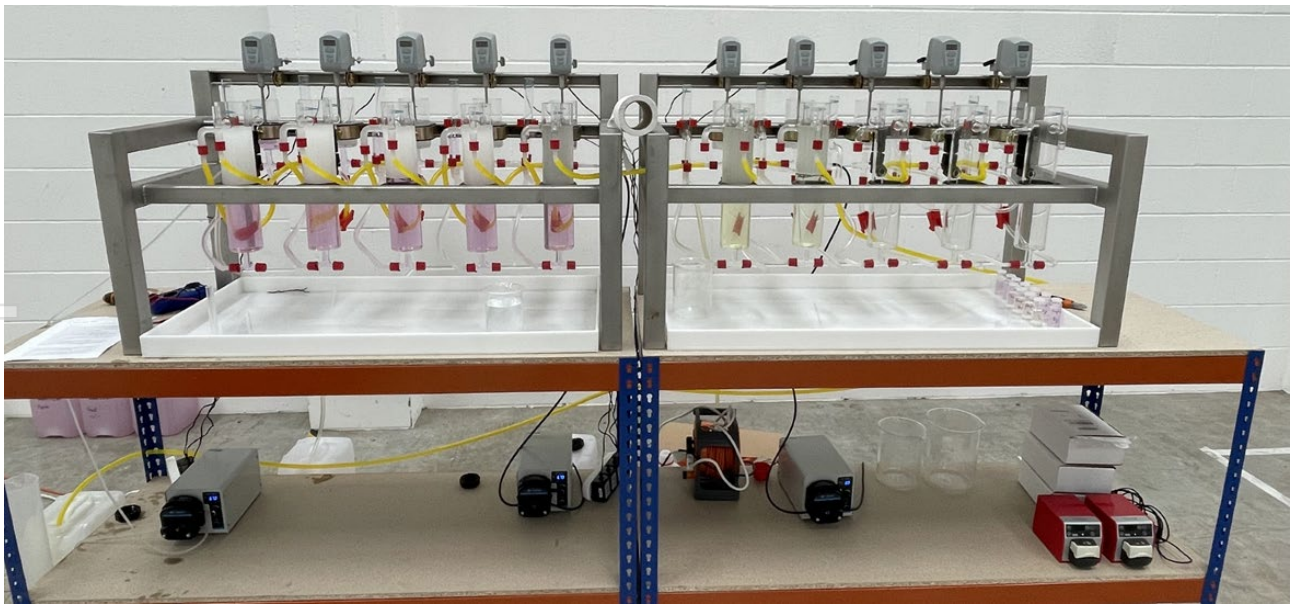

Figure 3: Mixer-settler circuit as part of the magnet recycling pilot plant. The first 5 stages show the separation of Neodymium (Nd) from Dysprosium (Dy) in the last two stages.

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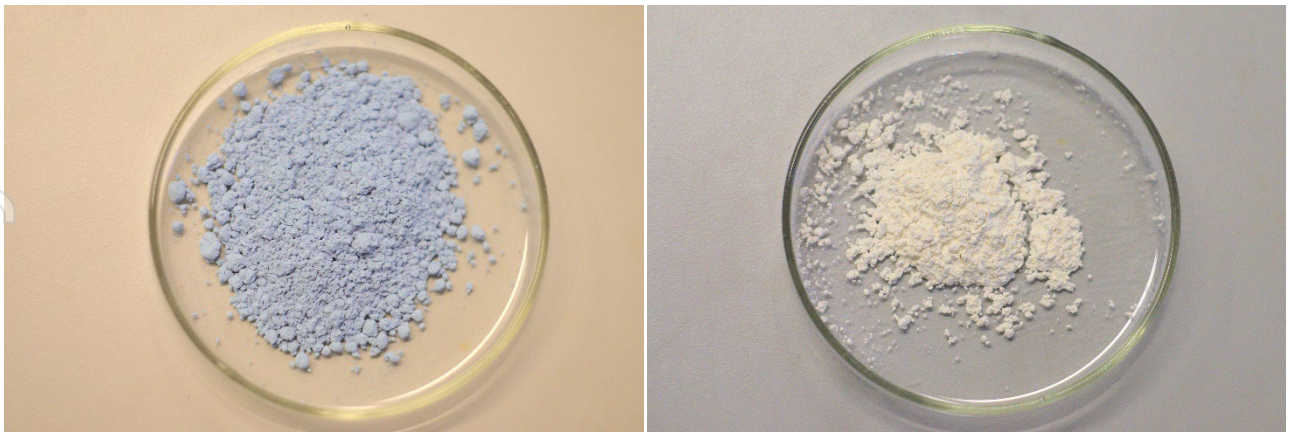

Figure 4: High purity separated oxides, showing Neodymium (Nd_2O_3) (left) and Dysprosium (Dy_2O_3) (right).

Belfast Technical Centre

The facility fit out has now been completed and demonstration plant equipment is now being delivered to Belfast. Hydrometallurgical and analytical laboratories are now operational, and the team is now in the process of migrating test work from Queen University Belfast (QUB) across to our dedicated facility where the Company can continue to develop intellectual property around both magnet and heavy rare earth separation, and magnet recycling.

Figure 5: Ionic Technologies new facility located at the Titanic Quarter, Belfast, UK.

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Figure 6: Benches and fume cupboards installed across several wet hydrometallurgical labs.

Figure 7: Left, analytical laboratory now operational with two (2) Inductively Coupled Plasma mass spectrometry (ICP-MS) instruments, and right, temperature-controlled glass process reactors being delivered for the demonstration plant.

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Figure 8: Process reactors and additional mixer-settlers delivered for the magnet recycling demonstration plant.

Demonstration Plant and Technology Overview

The demonstration scale plant will separate individual high purity magnet REOs from recycling 30 tonnes per annum of waste magnets and swarf, suitable for high specification permanent magnets in the EV and offshore wind sectors. It is expected that in excess of 10 tonnes of separated magnet REOs will be produced from June 2023, enabling greater supply chain collaboration with downstream metal, alloy and magnet manufacturers.

Since its founding in 2015, as a spinout from Queens University Belfast (QUB), IonicTech has developed processes for the separation and recovery of REEs from mining ore concentrates and waste permanent magnets. The technology developed has the potential to provide a step change in efficient, non-hazardous, and economically viable processing with minimal environmental footprint compared to current practices.

Impressively, work to date has demonstrated capability for REEs to achieve near complete extraction from lower quality spent magnets and waste (swarf) to near complete recovery to high value magnet REO product quality exceeding 99.9% REO.

This presents a potential opportunity to provide a first mover advantage in near term to IonicRE in the industrial elemental extraction of REEs from spent magnets and waste, enabling near term magnet REO production capability to satisfy growing demand from lagging new supply chains.

The technology developed by IonicTech provides considerable benefits over alternative magnet recycling technology presently being marketed and operated, including hydrogen decrepitation, which simply breaks down spent magnets and swarf to be recast as magnets of lesser quality.

The advantage of the technology developed by IonicTech is to provide a universal method for the recovery of high purity grade rare earth elements from lower quality and variable grade magnets, to be used in the manufacture of high-performance magnets for EV and wind turbine production.

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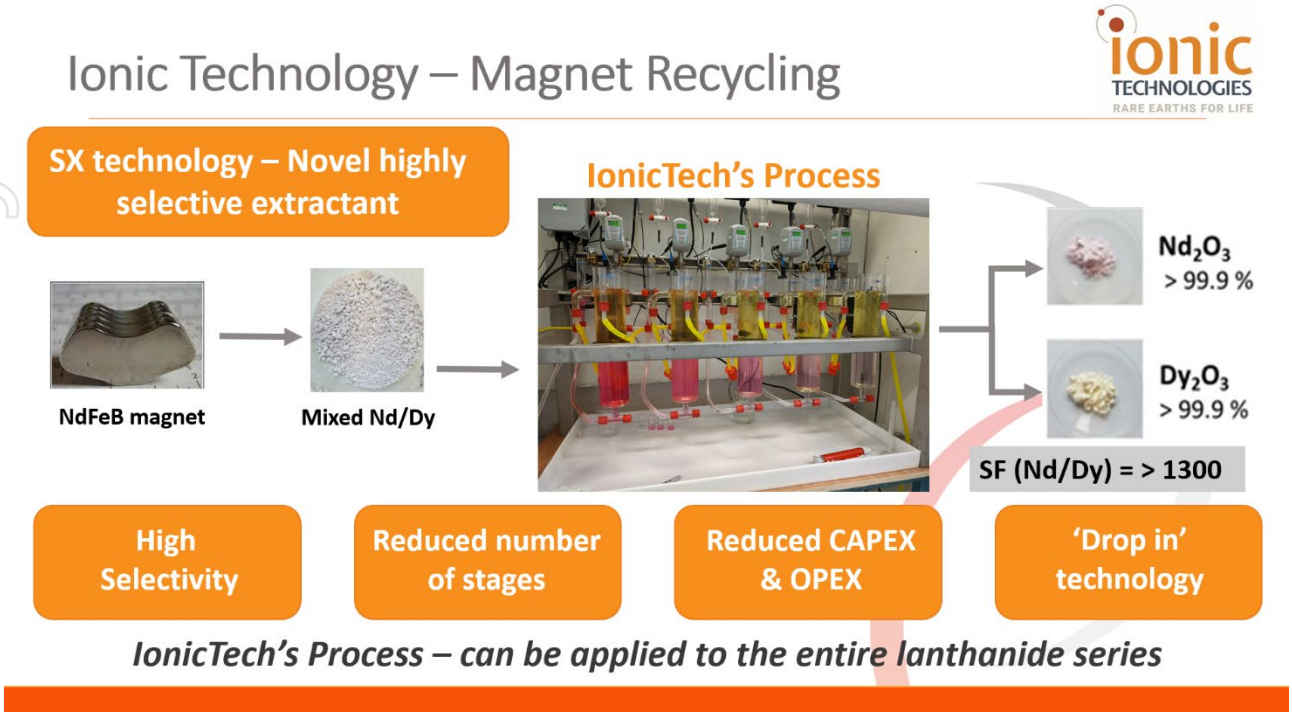

Figure 9: Magnet recycling technology developed by Ionic Technologies.

Authorised for release by the Board.

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About Ionic Rare Earths Ltd

Ionic Rare Earths Limited (ASX: IXR or "IonicRE") is focused on developing a sustainable and traceable supply of magnet and heavy rare earths for application to net zero carbon technologies, from its unique Makuutu asset in Uganda, and recycled end of life magnets through its 100% owned UK subsidiary, Ionic Technologies International Limited ("IonicTech").

IonicRE's flagship Makuutu Rare Earths Project in Uganda is a significant, long life, supplier of high-value magnet and heavy rare earths oxides (REO). Makuutu is an advanced-stage, ionic adsorption clay (IAC) hosted rare earth element (REE) project highlighted by near-surface mineralisation and significant exploration upside. The clay-hosted geology at Makuutu is similar to major IAC rare earths projects in southern China, which are responsible for the majority of global supply of low-cost rare earths, specifically the high value Heavy REOs (>95% originating from IAC). Metallurgical testing at Makuutu has demonstrated a proven ionic fraction, which provide multiple avenues for a low-CAPEX process route. Makuutu is well-supported by tier-one existing infrastructure which includes access

to major highways, roads, power, water and a professional workforce. IonicRE announced a substantial 70% increase to the MRE at Makuutu in May 2022, with potential for a 50+ year life of mine (LOM).

IonicRE plans to become a vertically integrated magnet and heavy rare earths supply chain early mover. In August 2021, IonicRE announced plans to develop its own heavy rare earth refinery, or hub, to market its unique and high value magnet and heavy rare earths dominant basket (~73%). Now with the addition of Ionic Technologies, acquired in April 2022, a company with patented technology for traceable permanent magnet recycling, IonicRE aims to complete the circular economy of rare earths.

Forward Looking Statements

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