21 December 2023

IONIC TECHNOLOGIES ON TRACK FOR 24/7 OPERATION IN JANUARY 2024

- **Ionic Technologies Magnet Recycling Demonstration Plant in Belfast, UK, is progressing to schedule and readies plant to operate 24/7 from early January 2024;**
- **Process control system commissioning nearing conclusion, expected to be finished this week;**
- **Pre-production has commenced, preparing digestion feed streams plus several intermediate streams in advance of UK government sponsored collaborative project with Ford and Less Common Metals; and**
- **Several further supply chain collaborations with rare earth metal, alloy and magnet manufacturers plus Original Equipment Manufacturers (OEMs) underway to expand global offering from Ionic Technologies.**

The Board of Ionic Rare Earths Limited ("IonicRE" or "the Company") (ASX: IXR) is pleased to advise progress at Ionic Technologies International Ltd ("Ionic Technologies"), a 100% owned subsidiary based in Belfast, UK.

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.

Following our announcement on 12 September 2023, Ionic Technologies successfully secured funding for two CLIMATES grants from the UK Government's Innovate UK totalling £2 million (A$3.90 million). These successful grant funding submissions centred on two CLIMATES projects:

1. in partnership with Less Common Metals (LCM) and Ford Technologies, Ionic Technologies will develop a traceable, circular supply chain of rare earths for application in EV motors within the UK; and
2. in partnership with the British Geological Survey, Ionic Technologies has commenced a feasibility study for a commercial magnet recycling plant in Belfast, UK (refer ASX announcement 7 December 2023).

During 2023, Ionic Technologies constructed a magnet recycling Demonstration Plant and produced initial quantities of high purity (> 99.5%) neodymium (Nd) and dysprosium (Dy) rare earth oxides (REOs) (ASX: 19 June 2023). After initial process commissioning and production runs through Q3 2023, Ionic Technologies installed additional processing equipment and is in the final stages of

upgrading the installed control system which is now undergoing final commissioning. Ionic Technologies is on track to go to 24/7 operations from early January 2024, with commercial production runs to support the LCM and Ford collaboration commencing immediately thereafter.

Additional supply chain engagement discussions have progressed based upon reverse enquiry post-production of high purity REOs in June 2023, and the Company is evaluating several additional opportunities.

Pre-production has commenced ahead of 24/7 operation, with over 300 kg of magnets being processed and over 700kg of magnet slurry being prepared for processing in the Demonstration Plant.

In order to maximise demonstrable efficiency through the pre-treatment and separation processes in the Demonstration Plant, Ionic Technologies have invested in a first-of-kind control system, specifically designed for the complexities of the patented process for magnet recycling and REO recovery.

Figure 1: Reactor and Filter Press (shown in Figure 3 right) and automatic ball valve for feeding Reactor (right).

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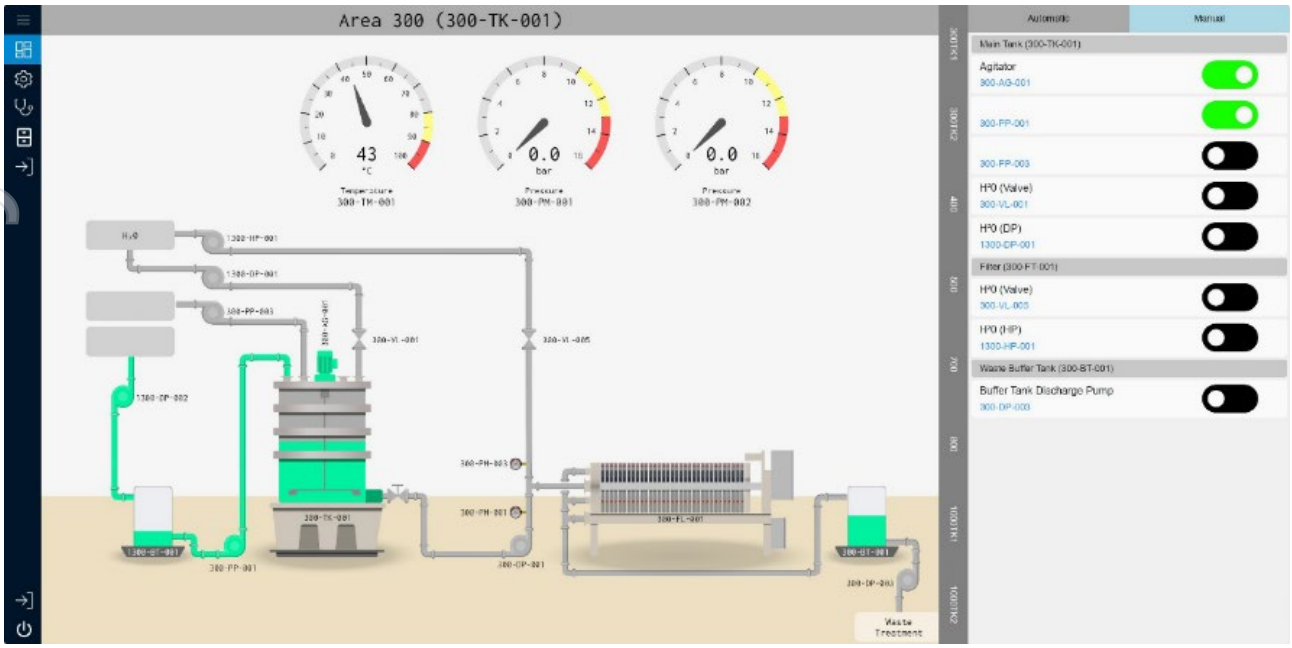

Figure 2: SCADA mimic for Typical Process Stage (shown in Figure 1).

Custom filter presses have been manufactured, installed and commissioned. This additional process capability allows for safe solid/liquid separation across multiple pre-processing stages, across multiple processes to recover separate magnet rare earths.

The presses were designed to enable separation of solids, under the unique conditions created within Ionic Technologies' patented processes. Ionic Technologies partnered with Andritz AG to develop Engineered-to-Order SE470CD filter presses (see Figure 3), which have now been installed and integrated into the process.

To facilitate the significant number of new production projects and demand for recycled magnet REOs coming from rare earth permanent magnet supply chain partners, including Less Common Metals and Ford, Ionic Technologies have expanded the operations team in readiness for an extensive campaign through 2024 and beyond.

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.

The Company's proprietary technology provides 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 modern high-performance and high specification permanent magnets required to support substantial growth in both electric vehicle (EV) and wind turbine deployment.

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Figure 3: Left, Scada control panel in front of reactor vessel, and right, new digestion product filter.

Figure 4: Magnet slurry inventory prepared ahead of digestion process commissioning activity.

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Figure 5: Left, crushed magnets prepared, and right, mixed rare earth filter cake prepared for downstream process commissioning activity.

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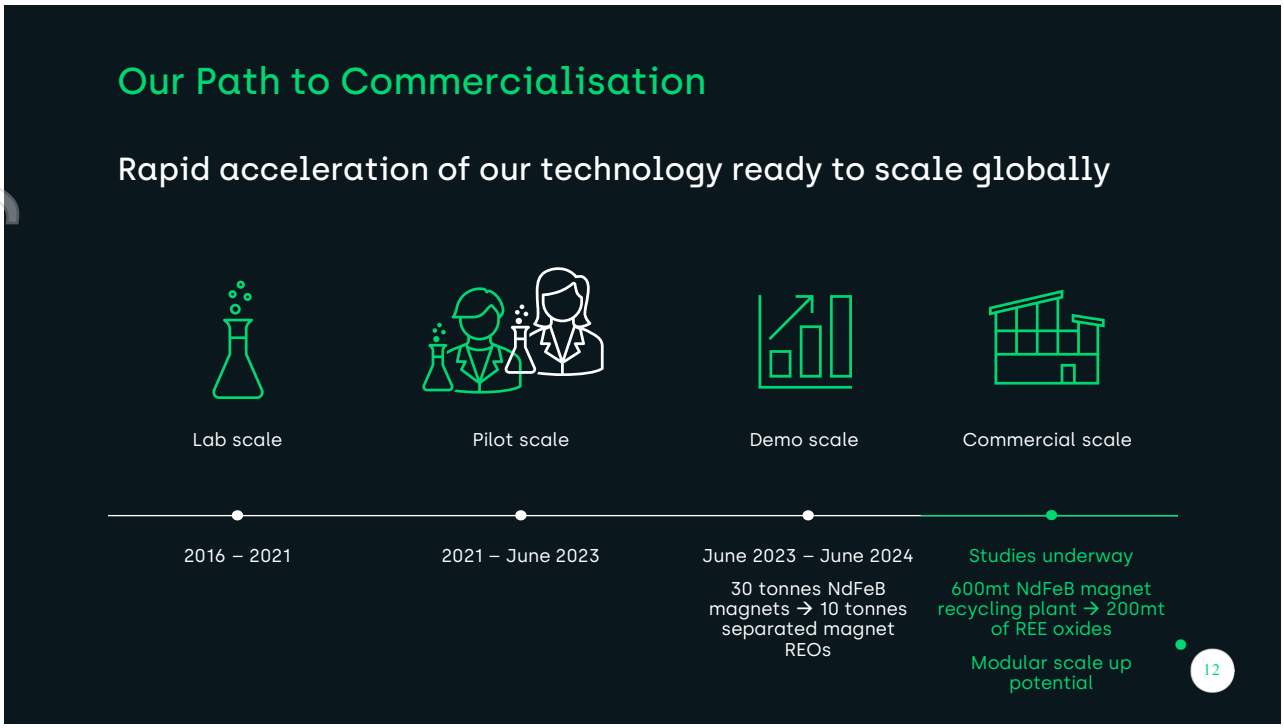

Figure 6: Ionic Technologies path to production.

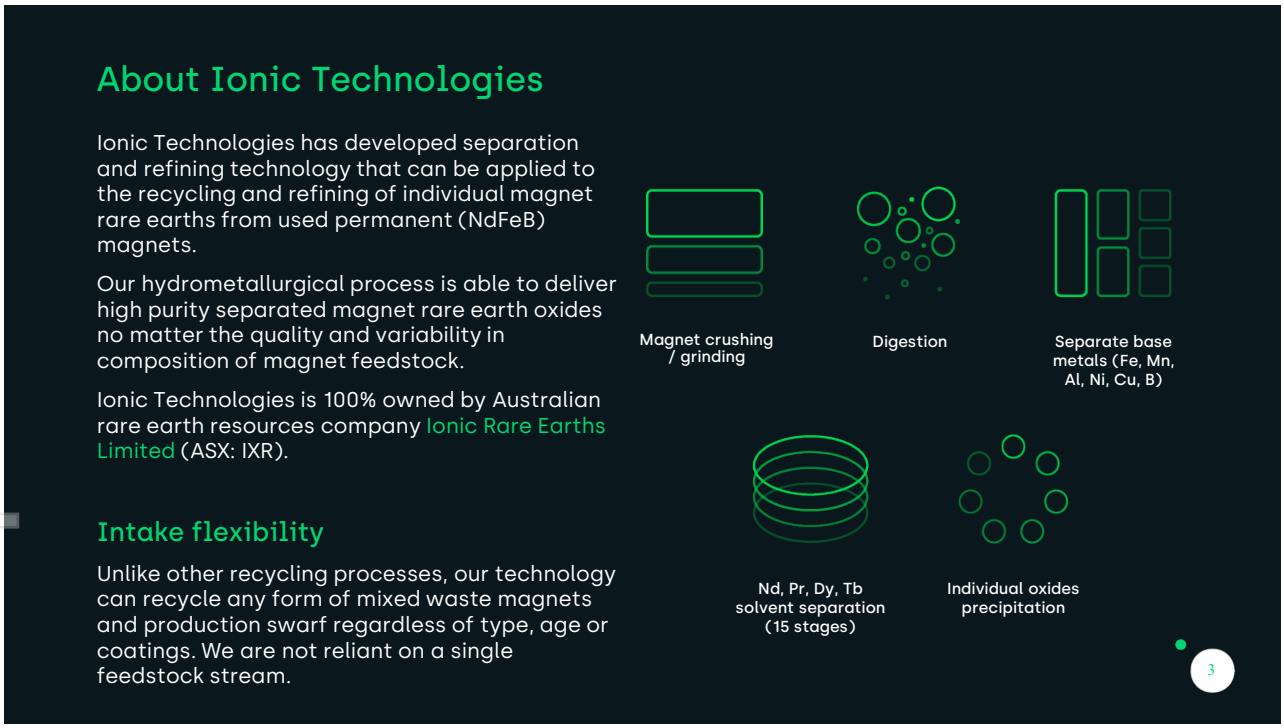

Figure 7: Ionic Technologies technology overview.

Authorised for release by the Board.

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About Ionic Rare Earths Ltd

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

The Makuutu Rare Earths Project in Uganda, 60% owned by IonicRE, moving to 94% ownership in Q1 2024, 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 rare earths oxides (REO). In March 2023, IonicRE announced a positive stage 1 Definitive Feasibility Study (DFS) for the first of six (6) tenements to progress to a Mining Licence Application (MLA) which is pending in Uganda. The Makuutu Stage 1 DFS defined a 35-year life initial project producing a 71% rich magnet and heavy rare earth carbonate (MREC) product basket and the potential for significant potential and scale up through additional tenements.

Ionic Technologies International Limited ("Ionic Technologies"), a 100% owned UK subsidiary acquired in 2022, 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. This technology and operating Demonstration Plant provides first mover advantage in the industrial elemental extraction of REEs from recycling, enabling near term magnet REO production capability to support demand for early-stage alternative supply chains. In September 2023, Ionic Technologies announced with the support of the UK government, collaboration partnerships 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.

As part of an integrated strategy to create downstream supply chain value, IonicRE is also evaluating the development of its own magnet and heavy rare earth refinery, or hub, to separate the unique and high value magnet and heavy rare earths dominant Makuutu basket into the full spectrum of REOs plus scandium.

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.

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.