8 September 2022

IONIC'S 100% OWNED SUBSIDIARY SEREN TECHNOLOGIES RECEIVES £1.7 MILLION UK GOVERNMENT GRANT TO ADVANCE MAGNET RECYCLING DEMONSTRATION PLANT

- **Grant award of £1.72 million (approximately A$2.9 million) from the UK Government Advanced Propulsion Centre ("APC") to develop a demonstration scale magnet recycling plant**
- **APC is supporting the UK Government deliver its aspiration for net-zero carbon across the automotive industry**
- **New facility secured in Belfast, UK, will house magnet recycling technology at demonstration scale to secure critical rare earth metals for renewable energy applications and reduce sovereign risk**
- **The demonstration scale plant will produce separated individual high purity rare earth oxides ("REO") from recycling waste magnets and swarf, suitable for high specification magnets in the EV and offshore wind sectors**

The Board of Ionic Rare Earths Limited ("IonicRE" or "The Company") (ASX: IXR) is pleased to announce the grant of £1.72 million (approximately A$2.9 million) from the UK Government Advanced Propulsion Centre ("APC") to Seren Technologies ("SerenTech"), a 100% owned subsidiary of IonicRE, based in Belfast, UK. IonicRE completed the acquisition of SerenTech on 22 April 2022.

The APC is a non-profit organisation that facilitates funding to UK based research and development projects developing low-carbon emission powertrain technologies, funded by UK Department for Business, Energy and Industrial Strategy ("BEIS") and managed by Innovate UK.

SerenTech applied for the grant under the 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 Electric Vehicle ("EV") manufacture. The magnet REO products are also crucial for facilitating offshore wind farm development.

The grant offering is part of the 1130: SuRV competition and will now accelerate activity at SerenTech.

The SuRV competition targeted supporting businesses by part-funding the validation of products and their associated processes, as ready for scale-up, with a particular focus on producing physical samples, which can be used to validate a pilot production process. The SuRV competition allocated £25 million to validate readiness for scale-up of low-carbon technology and processes. Up to £2 million in grant funding was available for individual projects – with SerenTech receiving £1.72 million of this pool.

Commenting on the successful application and award, **Mr Tim Harrison, IonicRE's Managing Director**;

"This is a tremendous endorsement from the UK Government and the APC on the potential for scaling our technology offering from SerenTech. This grant validates the significance of magnet recycling in a tight supply market as well as pointing to the additional value for IonicRE shareholders in the longer-term."

"Since IonicRE's acquisition of SerenTech earlier this year, the team has been busy setting a platform to accelerate from the pilot scale studies at Queens University Belfast, and now relocation to a new commercial facility in Belfast, where a demonstration scale 30 tonne per annum magnet recycling circuit can be housed. The scale of the proposed demonstration plant will produce sufficient quantities of separated REOs for further product development with industry partners."

"Magnet recycling already represents approximately 25% of the current processed magnet REO production globally, which is dominated by China."

"In developing this technology, IonicRE is positioning itself as a vertically integrated rare earth participant developing and delivering a circular rare earth business plan. We expect that the importance of a circular rare earth economy will increase dramatically over the next few years as the energy transition away from carbon gathers more momentum, and desire from governments to develop alternative secure supply chains amplifies."

Mr Ian Constance, CEO, Advanced Propulsion Centre, commented:

"I am pleased that this project has been successfully funded, sharing part of £25 million from our Scale-Up Readiness Validation competition. With this support, the APC aims to increase confidence in large-scale manufacturing investments to build electrified supply chains in the UK. It is vital, in the transition to net zero, that the automotive sector seizes the opportunity to grow the industry, create or safeguard jobs and build on the expertise anchored here in the UK."

Julian Hetherington, Automotive Transformation Director, Advanced Propulsion Centre, commented:

"This announcement underlines the commitment to support the automotive sector, one of the UK's strategically important industries, as it makes an unprecedented transition towards net zero. I am proud of the role the Automotive Transformation Fund is playing in unlocking opportunities for investment, and the projects chosen here all have real potential to scale-up to something significant. Through our support, we aim to encourage and de-risk subsequent private investment by demonstrating that these innovative products and technologies work at scale."

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Figure 1: Attending the event at UTAC Millbrook, England, from left to right, Trevor Benson (Chairman, IonicRE), Andrew Holmes (GM Seren Technologies, IonicRE), Julian Hetherington (Director – Automotive Transformation, APC), and Tim Harrison (Managing Director, IonicRE). (Photo Alex Broadway).

In addition to the development of a standalone facility suitable to house hydrometallurgical laboratories and a purpose-built magnet recycling demonstration plant in Belfast, the group has been progressing workstreams to further advance SerenTech towards commercialisation, including;

1. Progressing test work and flowsheet development evaluation and modelling for IonicRE's standalone REE separation and refinery;
2. Relocation of the pilot plant from Queen's University Belfast ("QUB") with planned pilot runs set over the remainder of 2022 to validate process improvements identified in collaboration with IonicRE;
3. Equipment selection, procurement, construction and operation in H1 2023 of a demonstration plant of the full magnet recycling pilot plant, processing approximately 30 tonnes per annum of magnets, to produce 10 tonnes of individual separated Nd_2O_3, Pr_6O_{11}, Dy_2O_3 and Tb_4O_7;
4. Engineering studies initiated with ANZAPLAN in Germany to revise CAPEX and OPEX estimates from the 2018 techno-economic study;
5. Progressing commercial relationships on sourcing and recycling spent magnets and swarf; and
6. Progressing commercial relationships to form downstream collaboratives seeking closed loop domestic supply chains.

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Authorised for release by the Board.

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About Seren Technologies Limited

Seren Technologies Limited ("SerenTech") is a 100% owned subsidiary of IonicRE, with unique and leading-edge rare earth separation and refining technology. Since its founding in 2015, as a spinout from Queens University Belfast ("QUB"), SerenTech has developed processes for the separation and recovery of Rare Earth Elements ("REE") 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.

SerenTech has developed a toolkit of separation techniques and solvent systems incorporating both conventional organophosphorus extractants and ionic liquids that can be combined to and applied to different mixed rare earth feeds.

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 rare earth oxide ("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 and lagging new supply chains.

The technology developed by SerenTech 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 the similar or lesser quality. The advantage of the technology developed by SerenTech is to provide potential for magnets REEs to be extracted from lower quality and variable grade magnets, to then be recycled into newer higher content REE containing permanent magnets, used in higher value applications.

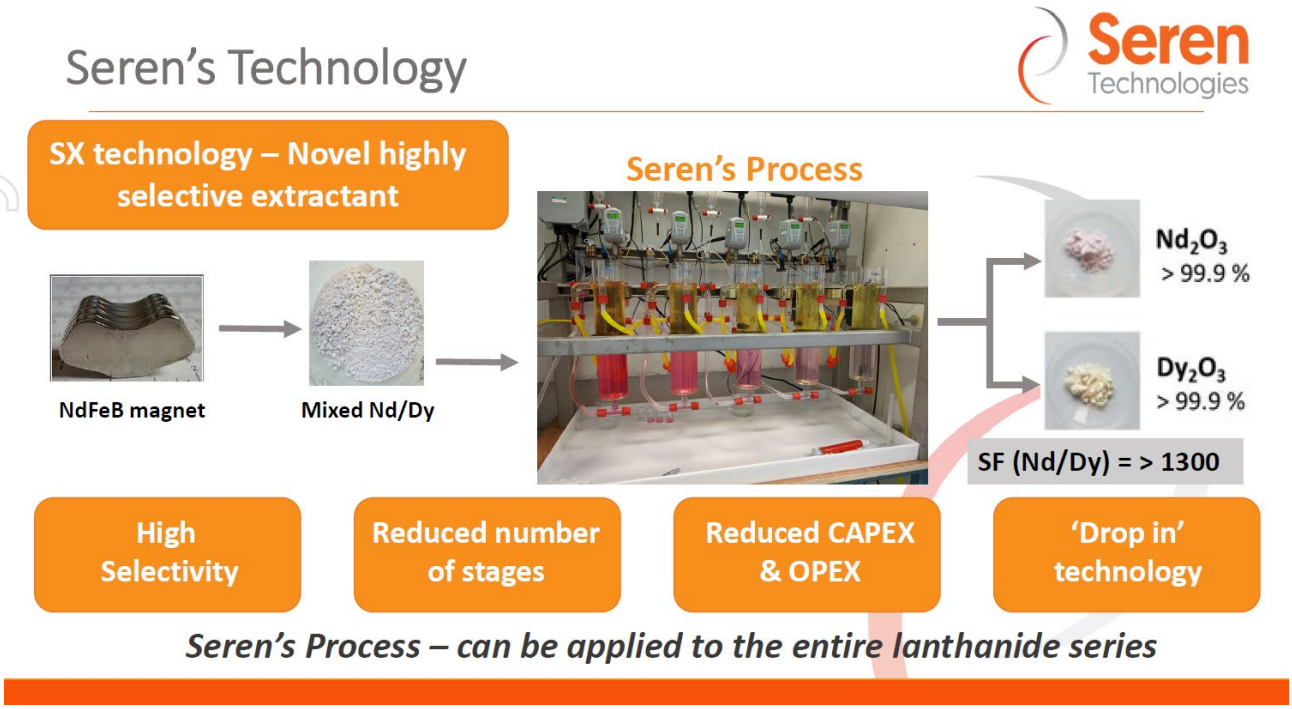

Figure 2: Magnet recycling potential of ionic liquids technology developed by SerenTech.

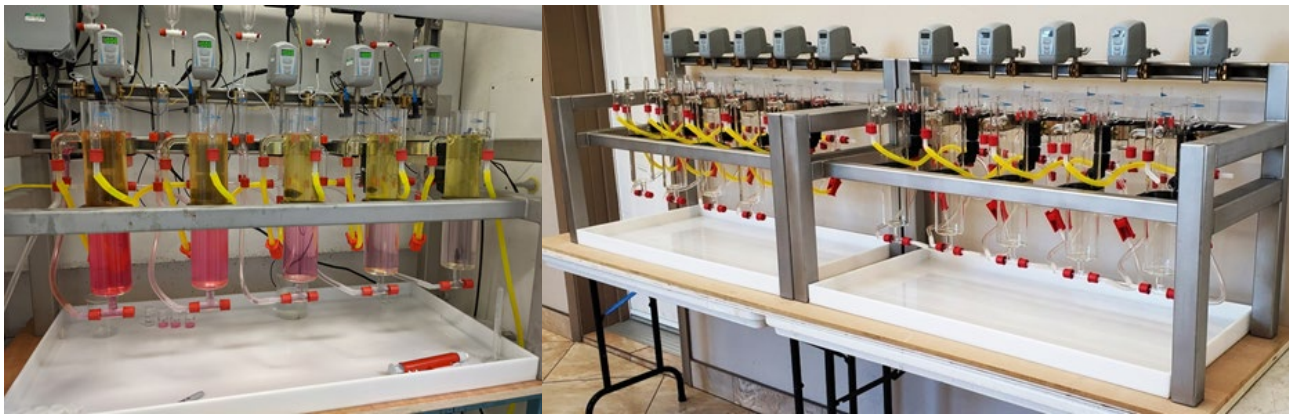

Figure 3: Mixer Settler pilot plant located at Queens University Ionic Liquids Laboratory (QUILL) at QUB.

About the Advanced Propulsion Centre

The Advanced Propulsion Centre ("APC") is a non-profit organisation that facilitates funding to UK based research and development projects developing low-carbon emission powertrain technologies. It is headquartered at the University of Warwick in Coventry, England.

The APC manages a £1 billion investment fund, which is jointly supplied by the automotive industry – via the Automotive Council – and the UK government through the Department for Business, Energy and Industrial Strategy ("BEIS") and managed by Innovate UK.

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About the Automotive Transformation Fund (ATF)

The Automotive Transformation Fund ("ATF") is a funding program created to support large-scale industrialisation. Up to £1 billion of funding will be invested in developing a high-value end-to-end electrified automotive supply chain in the UK. The fund is highlighted as an important mechanism to reach targets in the UK Government's 10-point plan for a green industrial revolution and its recent Transport Decarbonisation Plan.

Working alongside the Department for International Trade, the ATF team works closely with organisations to provide customised support for inward investors in the UK. Their role is to make the process of starting and growing businesses in the UK as easy as possible and to provide support for the long term, helping organisations to become integral to the UK electrified supply chain.

About Ionic Rare Earths Ltd

Ionic Rare Earths Limited (ASX:IXR or IonicRE) is focused on developing its flagship Makuutu Rare Earths Project in Uganda into a significant, long life, high margin, 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.

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%). Additionally, IonicRE in April 2022 IonicRE completed an acquisition of a UK company with plans to deploy patented technology into permanent magnet recycling, completing the circular economy of rare earths.

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