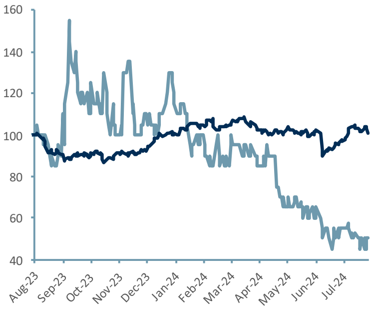
ACF EQUITY RESEARCH

UPDATE

VALUE RANGE

0.104 - 0.115



IXR (lighter line) ASX market vs price relative

Wednesday, 04 September 2024

Intrinsic Price (AUD)	0.109
Value Range Low (AUD)	0.104
Value Range High (AUD)	0.115
Implied MCAP (m)	543.54
Implied EV (m)	543.54
XASX	IXR
Financial YE	30-Jun
Currency	AUD

Business Activity
Mining E&P

Key Metrics	
Close Price (AUD)	0.005
MCAP (m)	24.35
Net Debt (Cash) (m)	-5.68
EV (m)	18.67
52 Wk Hi	0.034
52 Wk Lo	0.005
Key Ratios	
(Net Cash) / Shareholder Equity %	-23.34%
FX Rate AUD/USD	0.67

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Ionic Rare Earths

Magnet Recycling + Leading ex-China REE Supply

Ionic Rare Earths Ltd (ASX:IXR) is a magnet (REOs) recycling (Belfast, UK) and REE mining explorer (Uganda) plus a Brazilian REE Refining JV, excluded from our NPV, with Viridis Mining and Metals Limited (VMM). ACF visited IonicTech's magnet recycling demo plant in July 2024. Since our last IXR Flash Note, we raise our valuation by 16% to A$ 0.109 vs A$ 0.094 previously and put Makuutu in a maintenance period. IXR has a unique position in the REE recycling ecosystem. IonicTech's patented technology is backed by UK govt (grants £1.72m in 2023 + £2m over 2 yrs) and its Northern Ireland partners (Titanic Quarter and Belfast Harbour) – this suggests a derisked solid growth strategy with high margin potential. The demo plant is strategically located with access to well-developed surrounding infrastructure.

- IonicTech Belfast – 24/7 magnet REO production;
- IonicTech – 30 tonnes magnet feedstock p.a.;
- IonicTech – 10 tonnes separated magnet REO capacity p.a.;
- P5 potential of 617 Mt @ 630 ppm TREO (included in NPV);
- Cash & CE 4Q24A (30 June 2024) A$ 2.028m + PBSE A$ 5.5m.

ACF est. A$ (m)	Revenue	EBITDA	EPS (diluted)	CPS	CPS (diluted)
2027E	79.5	31.5	0.00	0.01	0.01
2031E	62.0	16.0	0.00	0.00	0.00

Multiples	EV/ Revenue	EV/ EBITDA	P/ EPS (diluted)	P/ CPS	P/ CPS (diluted)
2027E	0.2x	0.59x	1.38x	0.84x	0.85x
2031E	0.3x	1.2x	1.4x	1.8x	1.8x

Share Price History	No. of Shares in issue	Fully diluted
NoSh (m)	4,869.76	4,965.46
Implied Intrinsic Price	0.1116	0.1095
Value Range Low	0.1060	0.1040
Value Range High	0.1172	0.1149
XASX	IXR	
Financial YE	30-Jun	
Reporting Currency	AUD	
NoSh (m)		4,869.76
NoSh (m) expected dilution (Exp D)		4,869.76
NoSh (m) full dilution (FD)		4,965.46

Key Metrics	A$	adj.
MCAP (m)	24.3	24.3
Net Debt (Cash) (m)	(5.7)	(5.7)
EV (m)	18.7	18.7
52 Wk Hi	0.03	0.03
52 Wk Lo	0.01	0.01
Free Float	26%	26%

*Key Metrics FCF adj.	2027E	2031E
CPS (AUD)	0.01	0.00
CPS (Exp D) (AUD)	0.01	0.00
CPS (FD) (AUD)	0.01	0.00
P/CPS	0.84x	1.78x
P/CPS (Exp D)	0.84x	1.78x
P/CPS (FD)	0.85x	1.81x

Investment Case

We have raised our IXR valuation range 16% after several milestones/catalysts have been reached and we have now included the Belfast magnet recycling demo plant. IXR value range raised to A$ 0.1040 - A$ 0.1149 p/s suggesting 1980% - 2199% (~20x-22x) upside.

IXR is now a permanent magnet recycling business with rare earths explorer assets attached. IXR's future value is dominated by its clean energy technologies business – recycling REO magnets from swarf and retired magnets for, e.g. wind turbines and electric vehicles (EVs). IXR has a low capital cost, high value rare earths mining project (Makuutu) that is a global supply chain strategic asset. Makuutu is an advanced stage heavy REE development opportunity. Makuutu's geology is a key advantage – Ionic Adsorption Clay (IAC) mineralization

We have valued Makuutu based on the latest upgrade potential (May 24) I+I resource 617 Mt @ 630 ppm (up 28%) including the Probable reserve of 172.9 Mt @ 848 ppm. First MREC production was completed in 1Q24 and first production is now expected in 2027E.

Vertical Integration and the Circular Economy: We recently carried out a verification visit to IXR's IonicTech Magnet Recycling Demo Plant in Belfast, UK, which has begun 24/7 operations – it can deliver 10tpa of separated REO magnet out for 30tpa of REO magnet feedstock. IXR's partnerships with **alloy and magnet** manufacturers and **OEMs**, signals a potential trend shift in the REE supply chain away from China.

Ionic Technologies is the key: IXR is in a strong position to become a long-term sustainable magnet recycler and heavy REO producer whilst overcoming the supply chain and technical complexities in the market related to China dominance. The IonicTech demo plant and site for the commercial plant plugs into an ecosystem of Greentech innovators found at the large scale offshore wind and Titanic Quarter business park, feeding into IonicTech's business (and contributing to climate change mitigation).

Advancing REE Production: IXR has a JV with Viridis Mining (ASX:VMM) - the scoping study is expected by 4Q24E. VMM's Colossus Rare Earth Project has the potential to be a high-grade IAC (ionic adsorption clay) – 46m @ 3,285ppm TREO (27 % MREO), 24m @ 4,573 TREO (38% MREO) and metallurgical recoveries ~80% NdPr and ~66% DyTb. We have excluded the JV from our NPV.

Catalysts

Final Investment Decision (FID) likely pushed back given softness in the REE market; Long run rising critical metals prices; FS for Belfast plant 3Q24E; Belfast full operation 3Q25E; Commercial plant scale-up 2026E; JV Scoping Study 4Q24E; New partnerships; Evidence of growth in permanent magnet recycling and a global circular economy for REEs.

REE Recycling Ecosystem & REE Mine Expansion

IXR's circular economy is also driven by partnerships with Less Common Metals (LCM) and Ford Technologies (NYSE:F).

IonicTech has partnered with the British Geological Survey for its FS study due in 3Q24.

As of Jan 2024, IXR's Ionic Technologies Magnet Recycling Plant in Belfast, UK has begun 24/7 operations. Production capacity at the Belfast demo plant is currently at 10tpa magnet REOs out for 30tpa magnets in. This production number is expected to increase once the commercial plant is fully operational by 2026E. Feed material has been processed in the demo plant with intermediate products prepared to start seeding the circuit with REEs. This is followed by process commission of the solvent extract (SX) circuit, where the magnet REEs will be separated into high purity magnet REOs. Production has started and IonicTech has sent products to their announced partners across alloy and magnet manufacturers, as well as original equipment manufacturers (OEMs).

REE recycling ecosystem – Ionic Technologies is backed by the UK government-and its Northern Ireland partners. The location of the demo plant and the commercial plant site are located in an area with well-developed supporting modern infrastructure. IonicTech is plugged into an ecosystem of on-site Greentech innovators.

A circular economy promotes sustainable resource management and economic resilience.

The ESG value generating angle - A **magnet recycling plant** contributes to resource conservation and environmental protection (all the more relevant with the increased demand wind turbines and Electric Vehicles (EVs). (EV's are estimated to account for ~18-20% of global car sales by end-2024E, IEA). Feedstock will include abundant swarf from the production of magnets as well as decommissioned older magnets.

IXR now owns 94% of Makuutu project.

Ionic Rare Earths has recently secured a 94% interest in Rwenzori Rare Minerals Limited (RRM) (versus the previous 60%), which owns the Makuutu Rare Earths project. The remaining interest is still owned by the local private partner in the Ugandan company.

Large Scale Mining License LML00334 awarded by Ugandan government on 18 Jan 2024.

ACF maintains a conservative view with MREC production estimated for early 2027E.

Makuutu's geology is similar to projects in Southern China and Myanmar where the lowest cost to extract/most readily available sources of Heavy Rare Earth Oxides (HREO) are mined. ~98% of the global supply of HREO originates from clay-hosted mines. Although China dominates the REE market and REE prices, IXR has a **competitive de-risking advantage given its progress in creating a de-risked and revenue enhancing vertically integrated business that will also form part of the circular economy from REE mining to magnet recycling.**

IXR to send MRECs to potential customers for evaluation – potential for economic viability.

The phase 5 drilling program was completed Oct 2023 with **Mixed Rare Earth Carbonate (MREC) production completed in 1Q24** (first commercial production of MREC remains expected in 2027E). The existing mineral resource estimate (MRE) at Makuutu was upgraded to I+I 617 Mt @ 630 ppm TREO in May 2024.

IXR plans to send the MREC samples to potential customers and offtake parties to evaluate for economic viability, product differentiation, environmental impact and marketability. This will convey further **competitive advantage to IXR versus many of its peers as far as penetrating the market and improving the REE supply chain is concerned**.

Valuation

Exhibit 1: **IXR WACC, DCF and Value Range**

We have imputed a conservative contribution to the NPV in our valuation from the MRE upgrade to provide an idea of potential.

We see current fair value for IXR at A$0.1095 per share (fully diluted) for phase 5 Makuutu and now includes the Belfast margent recycling demo plant.

In our sensitivity testing we have very conservatively reduced Makuutu to ~50% of our valuation. We have excluded the JV contribution and we have shown how IonicTech contributes to ~74% of our new NPV, which is up 15% since our last valuation assessment.

We have imputed a conservative contribution to the NPV in our valuation from the MRE upgrade of 15 May 2024 to provide an idea of potential.

ACF's valuation includes the latest upgrade potential of I+I 617 Mt @ 630 ppm adding it to the Probable 172.9 Mt @ 848 ppm and then weighting the NPVs probabilities appropriately.

In this sensitivity analysis ACF's valuation is now dominated by IXR's Belfast magnet recycling demo plant, which we recently visited as part of a verification exercise, and which is expected to generate revenues early 2026E.

Makuutu Rare Earths + Belfast Magnet Recycling Demo Plant WACC Calc	
Pre-tax cost of debt	1.0%
ETR	41.9%
After-tax cost of debt	0.6%
Current Leverage	2.2%
Debt/(Cash)	0.5
Equity	24.3
Target Leverage	15.5%
D / (D+E)	13.4%
ACF β adj levered	1.2
rf	4.1%
ERP	4.6%
Cost of equity	9.7%
Risk adj.	1.0%
WACC	9.4%

Note: Successful issue of draft EIS and permitting will significantly reduce our WACC.

Valuation Range	IXR's Share (A$ m)	% of Valuation
Makuutu DFS MRE 19 Mar 2023	159.33	24%
Makuutu P5 drill results update May 2024	175.98	26%
IonicTech Belfast recycling demo plant	342.11	51%
Brazilian refining and recycling JV	0.00	0%
Total NPV (A$m)	677.42	100%
Reserve Category WAVG probability	80%	
Total NPV (A$m) FX	538.94	
Cash	5.14	
Debt	0.54	
Total NPV (A$m) FX	538.94	
Net Debt/(Cash)	5.14	
Fair Value ($m)	543.54	
NoSh (m)	4,869.76	
NoSh (diluted) (m)	4,965.46	
Intrinsic Value Per Share USD	0.109	
Close Price USD	0.005	
VR (low - high)	**0.104**	**0.115**
VR Spread	5.00%	
Implied VR Return (low - high)	1979.8%	2198.7%

Note: implied value range in this ACF research note is based upon diluted shares in issue at the date of this note.

Project NPV

We have modelled the magnet recycling demo plant in Belfast along with Makuutu. At the moment, neither is Rev/FCF generating – it is a de-risking process aimed to produce material for the supply chain to mature and tighten up robustness in the study.

ACF has taken a highly conservative valuation approach and we value IXR on a sum of the parts (SOTP) DCF valuation now focussing on Ionic Technologies REO recycling business to stress test our IXR valuation, using admittedly very early unrefined and basic assumptions for IonicTech. We have added the Makuutu Project as 'in maintenance' along with the new higher MRE (see table above) and have excluded the VMM JV. The I**onic Technologies Belfast Magnet Recycling Facility is expected to reach commercialisation by 2026E**. For Makuutu, we have captured the recent P5 MRE upgrade of I+I 617 Mt @ 630 ppm in addition to the original Probable 172.9 Mt @ 848 ppm ore reserve and have raised IXR's interest in Makuutu to 94%. We have used downside metals deck assumptions for REO pricing.

Metals Price Deck -Changed to downside case (vs. base case previously used) based on forecasted REO individual pricing from Adamas Intelligence. We have taken a conservative approach in using this price basket and booked Makuutu into maintenance for a period.

We assume the start of production is in 2027E and peak production is further out i.e. in 2028E.

Metal grades assumptions – Global grades of REO forecasted in IXR geology reports.

Makuutu Project – Our base assumptions are informed by the operating parameters in the company's mine plan. We assume that the mine will produce on average per year ~4,500t. Our model assumes a life of mine of 35 years.

Belfast is not expected to reach commercialisation until 2026E.

IonicTech Magnet Recycling Demo Plant NPV Assumptions– We have assumed a FCF Terminal Value (TV) multiple of 20x over a 10 year DCF. (TV accounts for ~73% of the total NPV.) Our assumptions are based on very early and limited REO outputs discussions with the company prior to the FS completion. We assumed a mixed production and licensing model (licensing means FCF margins could in practice tend to 75% of greater, we have assumed FCF margins of ~30% rising to 45%). We have not captured starting capex (expected to be low), feed stock cost per kg is based on verification visit information and we inferred Opex from our FCF margin assumption. Our FCF TV multiple at 20x is underpinned by our IP and part licensing model assumption.

The NPV of the plant is only over the 10-year DCF period.

Our FCF margin assumptions assume a mixed model of production and licensing of IP. Licensing can drive margins to greater than 75%, we have assumed ~35%, rising to 45%, we believe this is very conservative and provides valuation room to capture initial capex and other parameter changes once the FS is available.

Exhibit 2: IonicTech Magnet Recycling Demo Plant DCF

IonicTech Magnet Recylcing Demo Plant DCF in A$m	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E
Revenue	0.0	0.0	0.0	61.8	61.8	61.8	93.1	93.1	93.1	93.1
Feedstock cost	0.45	0.45	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Other Opex	0.0	0.0	0.0	39.0	39.0	39.0	43.0	43.0	43.0	43.0
Working Capital	0.0	0.0	0.0	1.2	1.2	1.2	1.9	1.9	1.9	1.9
Capex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash flow pre-tax	**-0.5**	**-0.5**	**-0.2**	**21.4**	**21.4**	**21.4**	**48.1**	**48.1**	**48.1**	**48.1**
Taxes	0.0	0.0	0.0	2.7	2.7	2.7	6.0	6.0	6.0	6.0
Tax rate (%)	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Cash flow after-tax	**-0.5**	**-0.5**	**-0.2**	**18.7**	**18.7**	**18.7**	**42.1**	**42.1**	**42.1**	**42.1**
NPV	-0.5	-0.5	-0.1	15.6	14.3	13.0	26.8	24.5	22.4	20.5
Total NPV (A$m)	342									

Sources: ACF Research Estimates.

Risks to our Assumptions

Project development risk – This includes failure to reach 12-month targets set out for the UK recycling facility.

Commodity price risk – IXR has historically been highly exposed to commodity price volatility. With the progress of its vertical integration strategy that captures REE recycling delivering high quality/purity/precision REO in the UK, lower commodity prices may be partially mitigated. However IXR's mining projects remain exposed to potential falls in commodity prices, which could lead to its projects becoming economically unviable for extended periods of time. Risk mitigation steps for mine assets could include measures to hedge risk such as stockpiling when prices are low and price hedging when prices rise above expectations. Product prices are relatively high to compensate and may suppress demand/encourage research into substitutes.

IXR scores well on ESG / sustainability within the smaller mining companies' cohort. We expect IXR's ESG credentials to enhance its fund-raising capability.

Funding availability – Whilst IXR's recycling business is not particularly capital intensive, mining is capital-intensive and requires a significant amount of investment as well as working capital. If the company is unable to raise capital for its exploration and development activities, it will adversely impact the timelines for its mining projects. Also, too much new equity (raising money via issuing equity) will lead to dilution while debt funding will increase interest costs thereby putting further pressures on cash flows. We estimate that in 2021 AUM $30trn were formerly inaccessible to companies without an ESG with metrics. We believe the AUM filtered informally at this time using ESG filters is far in excess of AUM $30trn.

Investors should note that IXR has assets in the UK (recycling under development) and exploration and mining assets in Africa which have a commensurately higher risk profile.

Regulatory risk – IXR's magnet recycling business faces relatively low regulatory risks. However, mining projects tend to attract high regulatory interest given their impact on the environment as well as on the country's natural resources. IXR's mining assets are in Africa and recycling in the UK are both subject to extensive country specific laws and regulations. Failure to comply with them could lead to delay or complete shutdown of the development of the assets. IXR is ESG focused but does not have an ESG policy on its website or (unsurprisingly for its current scale).

Personnel risk - Small and mid-sized companies are more dependent on their C-suite/executive management teams than global large/mega-caps. The loss of key personnel can have a disproportionate impact on valuation.

Political risk – China dominates the REE industry, from processing through to value added products. The ongoing geopolitical tensions and machinations are weaponizing commodities.

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Christopher Nicholson
Managing Director
Head of Research
ACF Equity Research Ltd

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