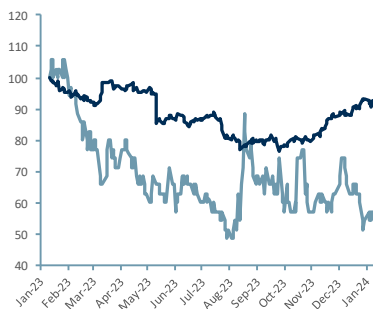


UPDATE

VALUE RANGE

0.090 – 0.099



IXR (lighter line) ASX market vs price relative

Monday, 05 February 2024

Intrinsic Price (AUD)	0.094
Value Range Low (AUD)	0.090
Value Range High (AUD)	0.099
Implied MCAP (m)	407.27
Implied EV (m)	407.27
XASX	IXR
Financial YE	30-Jun
Currency	AUD

Business Activity

Mining E&P

Key Metrics

Close Price (AUD)	0.019
MCAP (m)	86.17
Net Debt (Cash) (m)	-11.13
EV (m)	75.04
52 Wk Hi	0.037
52 Wk Lo	0.016
Key Ratios	
(Net Cash) / Shareholder Equity %	-12.91%
FX Rate AUD/USD	0.65

Mining Sector Research

ASX Market Index

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Ionic Rare Earths

MREC Production Advances + Circular Economy

Ionic Rare Earths Ltd (ASX:IXR). We have raised our valuation range 26%. IXR is a rare earths mining explorer (Uganda) and REO magnet recycling company (Belfast, UK). We have excluded Belfast recycling from our valuation at this stage. Catalysts since ACF's [IXR Initiation note published on 05 Dec 2023](#) include IXR's ownership in the Makuutu project rising to 94% up 34pp from 60%; IXR was awarded the first ever large-scale mining licence by the government of Uganda on 18 Jan 2024; IXR appointed a new Executive Chairman last week. IXR's Makuutu ownership increase has significantly impacted our valuation, we raise it 26% to A\$0.094 vs A\$0.075 previously. IXR's flagship Makuutu REE project contributes to de-risking of global supply chains and its Belfast demo plant contributes to a circular economy.

- Makuutu MREC production start on track for 1Q24E;
- P5 potential of +532 Mt @ 640 ppm TREO (included in NPV);
- IonicTech Belfast magnet recycling plant begins 24/7 operations;
- IXR slates further ~A\$2m raise;
- Cash & CE 1Q24A (31 Dec 2023) A\$ 4.5m.

A\$ (m)	MCAP	EV	RoA %	RoE %	NCO	Levered FCF
2024	407.27	407.27	-11.77%	-18.56%	-11.66	-8.49

Multiples	EV/ Revs	P/ S	Fwd PE	BV/ Share	P/ B	Current
2024	N/A	N/A	N/A	0.01	1.97	16.05

Investment Case

Share Price History	No. of Shares in issue	Fully diluted
NoSh (m)	4,308.29	4,314.99
Implied Intrinsic Price	0.0945	0.0944
Value Range Low	0.0898	0.0897
Value Range High	0.0993	0.0991
XASX	IXR	
Financial YE	30-Jun	
Reporting Currency	AUD	

NoSh (m)	4,308.29	
NoSh (m) expected dilution (Exp D)	4,308.29	
NoSh (m) full dilution (FD)		0.00

Key Metrics	A\$	adj.
MCAP (m)	86.2	86.2
Net Debt (Cash) (m)	(11.1)	(11.1)
EV (m)	75.0	75.0
52 Wk Hi	0.04	0.04
52 Wk Lo	0.02	0.02
Free Float	26%	26%

*Key Metrics FCF adj.	2026E	2030E
CPS (AUD)	0.01	0.01
CPS (Exp D) (AUD)	0.01	0.01
CPS (FD) (AUD)	0.01	0.01
P/CPS	1.56x	2.63x
P/CPS (Exp D)	1.56x	2.63x
P/CPS (FD)	1.56x	2.63x

We have raised our IXR valuation range 26% after several milestones/catalysts have been reached. IXR is a rare earths explorer and permanent magnet recycling business for clean energy technologies, e.g. wind turbines, electric vehicles (EVs). IXR has a low-capital cost, high value rare earths mining project that is a global supply chain strategic asset – The Makuutu project provides an advanced stage, low capital cost, high value heavy rare earths development opportunity. Makuutu’s geology is a key advantage – Ionic Adsorption Clay (IAC) mineralization.

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 Heavy Rare Earths originates from clay-hosted mines there. Although China dominates the REE market and REE prices, IXR has a **competitive advantage given its plan to create a circular economy from REE mining to magnet recycling.**

Advancing Makuutu: We have valued Makuutu based on the latest upgrade potential of I+I resource 532 Mt @640 ppm including the Probable reserve of 172.9 Mt @ 848 ppm. Since our [initiation note 05 Dec 2023](#), IXR has increased ownership of Makuutu to 94% from 60%.

Our value range is A\$ 0.0897 to A\$ 0.0991 p/s suggesting 348% - 396% (~2x-3x) upside.

First MREC production is now expected in 1Q24 and first production remains on track for 2026. Existing mineral resource estimate (MRE) at Makuutu remains unchanged at I+I 532 Mt @ 640 ppm TREO.

in conjunction with its Ionic Technology, **IXR is in a strong position to become a long-term sustainable magnet and heavy REO producer whilst overcoming the tech complexities in the market.**

Circular Economy: Ionic Technologies Magnet Recycling Demonstration Plant in Belfast, UK has begun 24/7 operations and has already processed 2.7 tonnes of end of life (EOL) permanent magnets (excluded from our valuation). IXR has partnered with **alloy and magnet manufacturers** as well as **original equipment manufacturers (OEMs)**, contributing to shifting the REE supply chain dominance away from China.

Catalysts

Final Investment Decision (FID) 2H24E; Makuutu production start 1Q24E; Increased MRE; Long run rising critical metals prices; PFS for Belfast demo plant 2Q24E. FS for Belfast commercial plant 3Q24E; Evidence of growth in permanent magnet recycling and a global circular economy for REEs.

Makuutu Advances – Circular Economy Underway

Large Scale Mining License LML00334 awarded by Ugandan government.

On the 18th of January 2024, Ionic Rare Earths was awarded the first large scale mining licence by the Ugandan Minister of Energy and Mineral Development. As a result, the Final Investment Decision is estimated to be completed by the end of 2024E.

MREC estimated production start date is 1Q24. ACF maintains a conservative view with MREC production estimated for early 2025E.

The phase 5 drilling program was completed Oct 2023 with **Mineral Rare Earth Concentrate (MREC) production scheduled for 1Q24** (first production of MREs remains scheduled for 2026E). The existing mineral resource estimate (MRE) at Makuutu remains unchanged at I+I 532 Mt @ 640 ppm TREO. The basis of our valuation includes the latest upgrade potential of I+I 532 Mt @ 640 ppm including the Probable 172.9 Mt @ 848 ppm and then weighting the NPVs probabilities appropriately.

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

The MREC process involves extracting ore from the earth (Makuutu's ionic adsorption clays), which contains a mixture of minerals, including rare earths. Post-mining, the ore goes through a beneficiation process to separate the rare earth minerals from other components. The end result is a more concentrated product with a higher percentage of mineral rare earth carbonate (MRECs, 90% + REO equivalent grade) compared to ~850 ppm in the ore (1000-fold upgrade), which can be further processed through separation and refining to obtain individual REEs.

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

IXR now owns 94% of Makuutu project.

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

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

As of Jan 2024, IXR's Ionic Technologies Magnet Recycling Plant in Belfast, UK has begun 24/7 operations. The process control commissioning was completed in progressing to plan with separated magnet REOs expected later this quarter.

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

2.7t of magnets and swarf feed material has been processed in the demo plan with intermediate products prepared to start seeding the circuit with REEs prior to process commission of the solvent extract (SX) circuit, where the magnet REEs will be separated into high purity magnet REOs. When production starts, Ionic Technologies will be sending products to their announced partners across alloy and magnet manufacturers, as well as original equipment manufacturers (OEMs).

The ESG value generating angle - A magnet recycling plant contributes to resource conservation and environmental protection (all the more relevant with the increased demand for Electric Vehicles (EVs) estimated to account for ~75% of the automotive market by 2024E). A **circular economy** promotes sustainable resource management and economic resilience.

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\$0.0944 per share (fully diluted) for phase 5 Makuutu and excluding Belfast.

Makuutu Rare Earths WACC Calc	
Pre-tax cost of debt	0.9%
ETR	40.5%
After-tax cost of debt	0.5%
Current Leverage	0.0%
Debt/(Cash)	0.0
Equity	86.2
Target Leverage	21.5%
D / (D+E)	17.7%
ACF β adj levered	1.2
rf	4.1%
ERP	5.0%
Cost of equity	10.1%
Risk adj.	1.0%
WACC	9.4%

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

We have imputed a conservative contribution to the NPV in our valuation from the MRE upgrade of 17 Oct 2023 to provide an idea of potential.

ACF's valuation includes the latest upgrade potential of I+I 532 Mt @640 ppm adding it to the Probable 172.9 Mt @ 848 ppm and then weighting the NPVs probabilities appropriately.

Valuation Range	IXR's Share (A\$ m)	% of Valuation
Makuutu DFS MRE 19 Mar 2023	171.84	34%
Makuutu P5 drill results update 17 Oct 2023	331.73	66%
Belfast recycling demo plant	0.00	0%
Total NPV (A\$m)	503.57	100%
Reserve Category WAVG probability	79%	
Total NPV (A\$m) FX	396.15	
Cash	11.12	
Debt	0.01	
Total NPV (A\$m) FX	396.15	
Net Debt/(Cash)	11.12	
Fair Value (\$m)	407.27	
NoSh (m)	4,308.29	
NoSh (diluted) (m)	4,314.99	
Intrinsic Value Per Share USD	0.094	
Close Price USD	0.020	
VR (low - high)	0.090	0.099
VR Spread	5.00%	
Implied VR Return (low - high)	348.3%	395.5%

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 not modelled the magnet recycling demo plant in Belfast. At the moment it is not Rev/CF generating – it is a de-risking process aimed to produce material for the supply chain to mature and tighten up robustness in the study. We will model it in as milestones are met in 2024.

ACF has taken a highly conservative valuation approach and we value IXR on a single DCF valuation of phase 1 of the Makuutu Project, which includes the company's expectations for rare earths production. We have included the recent P5 MRE upgrade of I+I 532Mt @ 640 ppm in addition to the original Probable 172.9 Mt @ 848 ppm ore reserve estimate assuming no margin gains from scaling up production volumes. **We have included the increase in interest of Makuutu (94%), which has had a significant impact on the valuation.**

Metals Price Deck - Our price assumptions are using the base case scenario of forecasted REO individual pricing from Adamas Intelligence. We have taken a conservative approach in using the base case price basket versus the upside.

Metal grades – We have taken the global grades of REO forecasted in the company geology reports.

Our production schedule is more conservative than IXRs, for example we assume the start of production is later and peak production is further out i.e. in 2028.

WACC – We have moderated our WACC risk adjustment since initiation, which brings it down to 9.4% versus 10.4% previous, and are still using a conservative WACC as opposed to the DFS assumption of 8.0% given that Ionic is non-revenue generating and first production is not expected until 2026E. We have moderated our WACC given that IXR has achieved milestones/catalysts in 2023/24 such as the mining licence from the Ugandan government and the Belfast demonstration plant now operating 24/7. In addition equity risk premiums have risen. As additional milestones are reached, we would expect our valuation to rise through de-risking.

Reserve Category WAVG Probability – ACF has taken a mid-range to generous approach and used a weighted average probability of 79% for the latest upgrade potential of I+I 532Mt @ 640 ppm including the original Probable 172.9 Mt @ 848 ppm ore reserve estimates.

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.

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 is highly exposed to commodity price volatility. A potential fall in prices could lead to its projects becoming economically unviable. Risk mitigation steps could include measures to hedge risk such as stockpiling when prices are low and price hedging when prices rise above expectations. REE mining extraction is capital intensive and relatively inefficient (small product volumes require mining of large ore volumes). Product prices are relatively high to compensate and may suppress demand/encourage research into substitutes.

Funding availability – 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.

Regulatory risk – 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 assets are in Africa and recycling is planned in the UK, both are 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) use big data collection and analysis at this time. Big data collection and analysis can reduce several risk types and wastage and lead to efficiencies.

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 and investor perception compared to similar events at larger more mature (often ex-growth) companies.

Political risk – China dominates the REE industry, from processing through to value added products. The ongoing geopolitical tensions are already weaponizing commodities and the continuation of the Russian/Ukraine war could affect relations with China reducing the ability to find processing centres for sales of rare earths.

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

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.

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Is the research provided by a broker and paid for after it has been produced.	NO	<input checked="" type="checkbox"/>
Is the research potentially cross subsidized by other investment banking services.	NO	<input checked="" type="checkbox"/>
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I, Christopher Nicholson, hereby confirm that ACF Equity Research Ltd.'s investment research products conform to the above five [5] checks.

Christopher Nicholson
 Managing Director
 Head of Research
 ACF Equity Research Ltd

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