ABx Group

(ASX:ABX)

A uniquely positioned Australian company delivering materials for a cleaner future

Mark Cooksey
Managing Director

Bell Bay Major Projects Conference
Hotel Grand Chancellor, Launceston
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Prices for aluminium fluoride (AlF_3) were sourced from Asian Metals, China Customs and verified by comparison with prices from Bloomberg. The price actually achieved will depend upon market conditions at the time of sale.

Competent Person Statement

The information in this report that relate to Exploration Information and Mineral Resources are based on information compiled by Ian Levy who is a member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Levy is a qualified geologist and a director of ABx Group Limited.

Mr Levy has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Levy has consented in writing to the inclusion in this report of the Exploration Information in the form and context in which it appears.

ABx Group

Delivering materials for a cleaner future

Rare earths: Supplying light and heavy rare earths from Tasmania

Fluorine waste recycling: Producing industrial chemicals from aluminium smelter waste

Bauxite: Mining & enhancing bauxite resources for the cement, aluminium & fertiliser industries

Investment Proposition

Low cost hydrogen fluoride production using aluminium smelter bath waste

Will enable hydrogen fluoride production in Australia, to reduce 100% reliance on imports

Team
Experienced and capable ☑

Supply shortage
No hydrogen fluoride produced in Australia
Limited global supplies of fluorspar ☑

Process is low risk
Adaptation of existing commercial process ☑

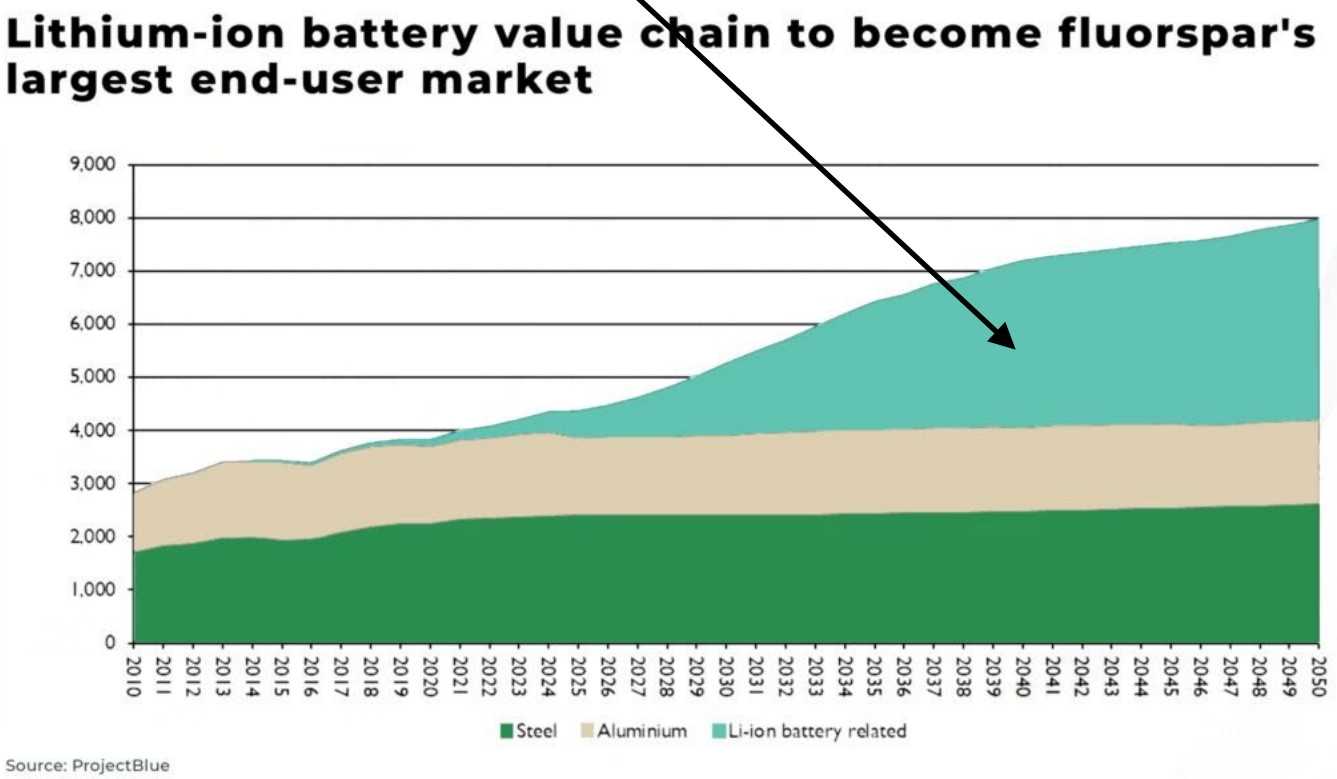
Strongly increasing demand for fluorine
Batteries ☑

New fluorine source available at low cost
Aluminium smelter bath waste ☑

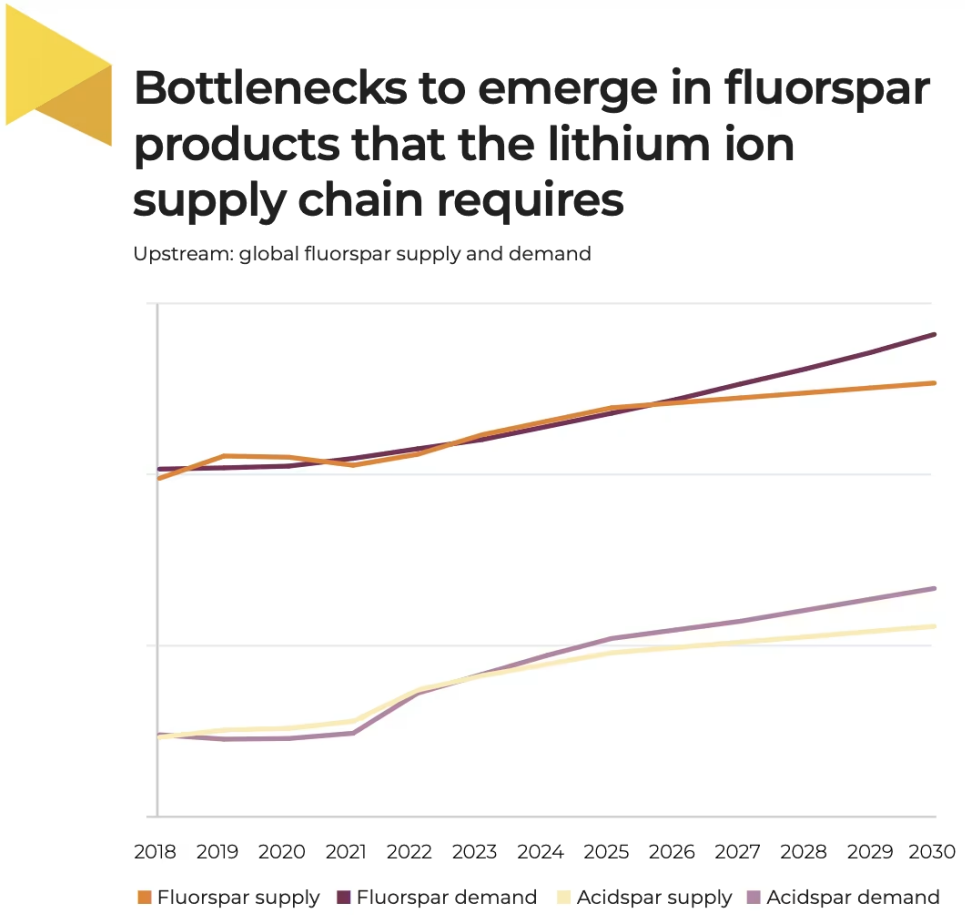
Pathway to production
First mover, at pilot plant stage ☑

Strongly increasing demand for fluorine

Most demand growth due to lithium-ion batteries



Source: ProjectBlue

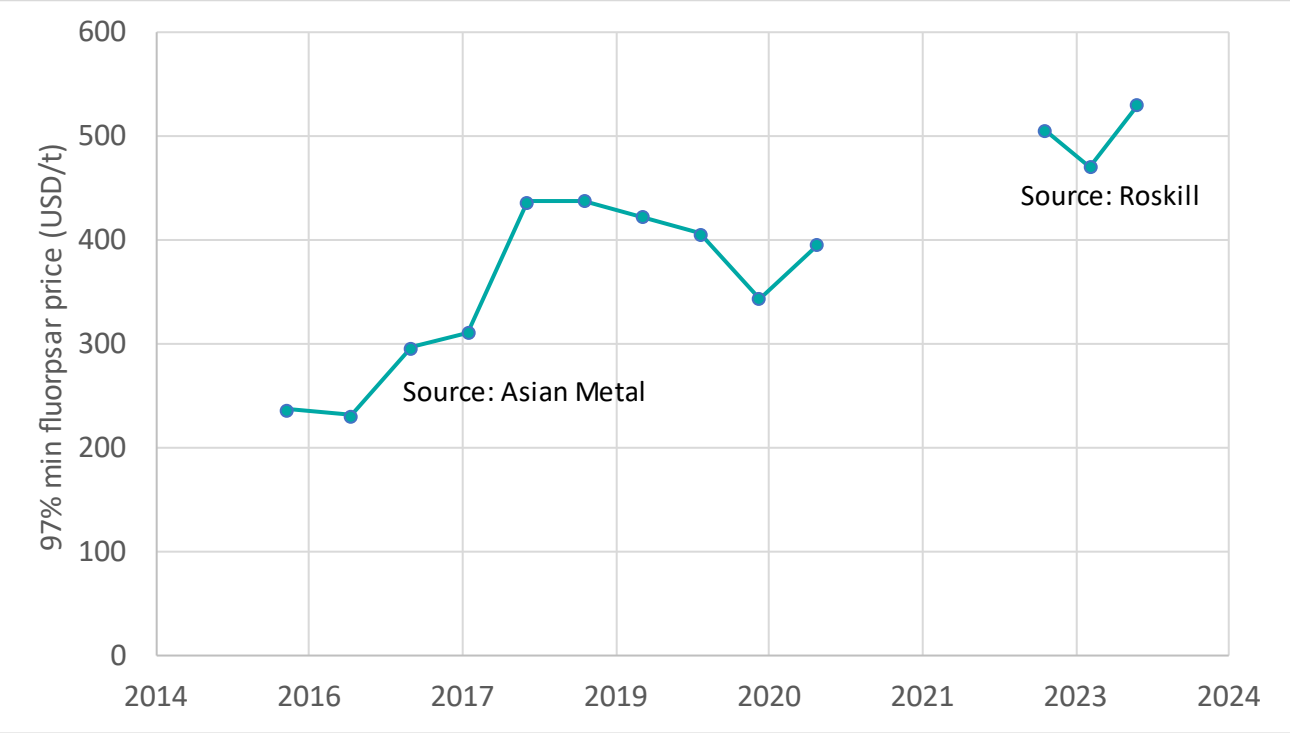


SOURCE: BENCHMARK FLUORSPAR MARKET OUTLOOK

BENCHMARK

Supply shortage: limited supplies of fluorspar

Increasing fluorspar prices



- Most hydrogen fluoride is produced from fluorspar

Government recognition

Critical Minerals Lists	
Fluorspar	USA Europe Japan Canada
Fluorine	Australia

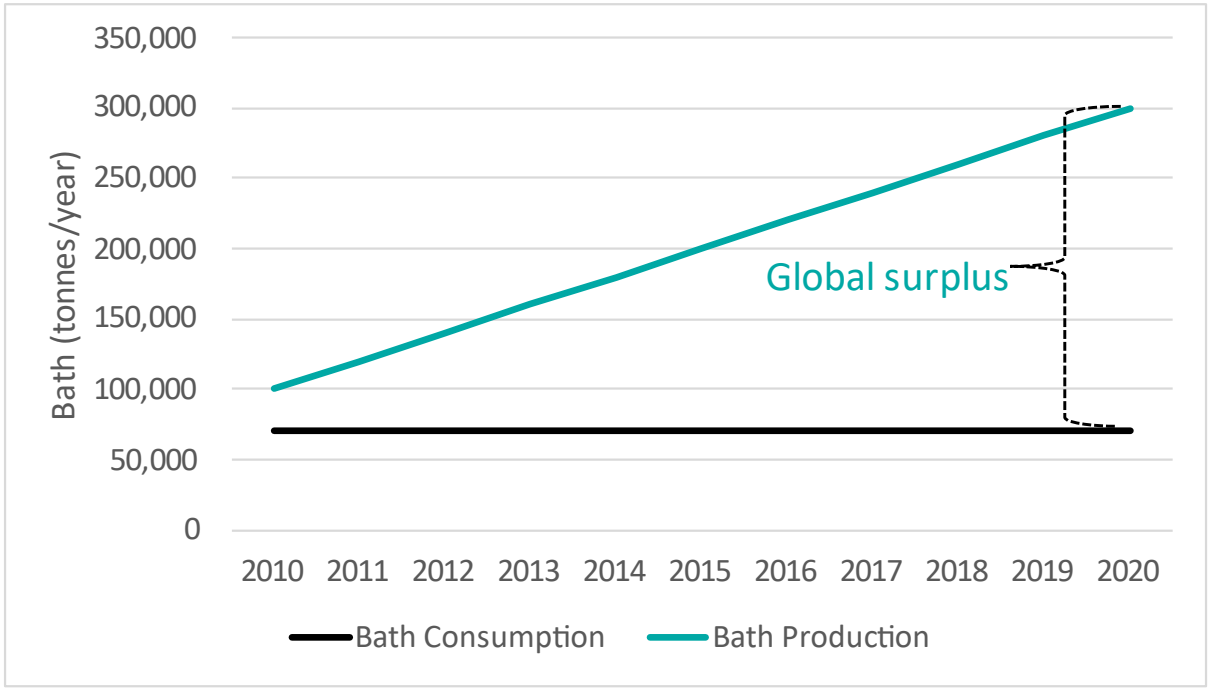
- Global fluorspar market projected to move into pronounced deficit by 2025

New fluorine source available: aluminium smelter bath waste

Aluminium fluoride (AlF_3)

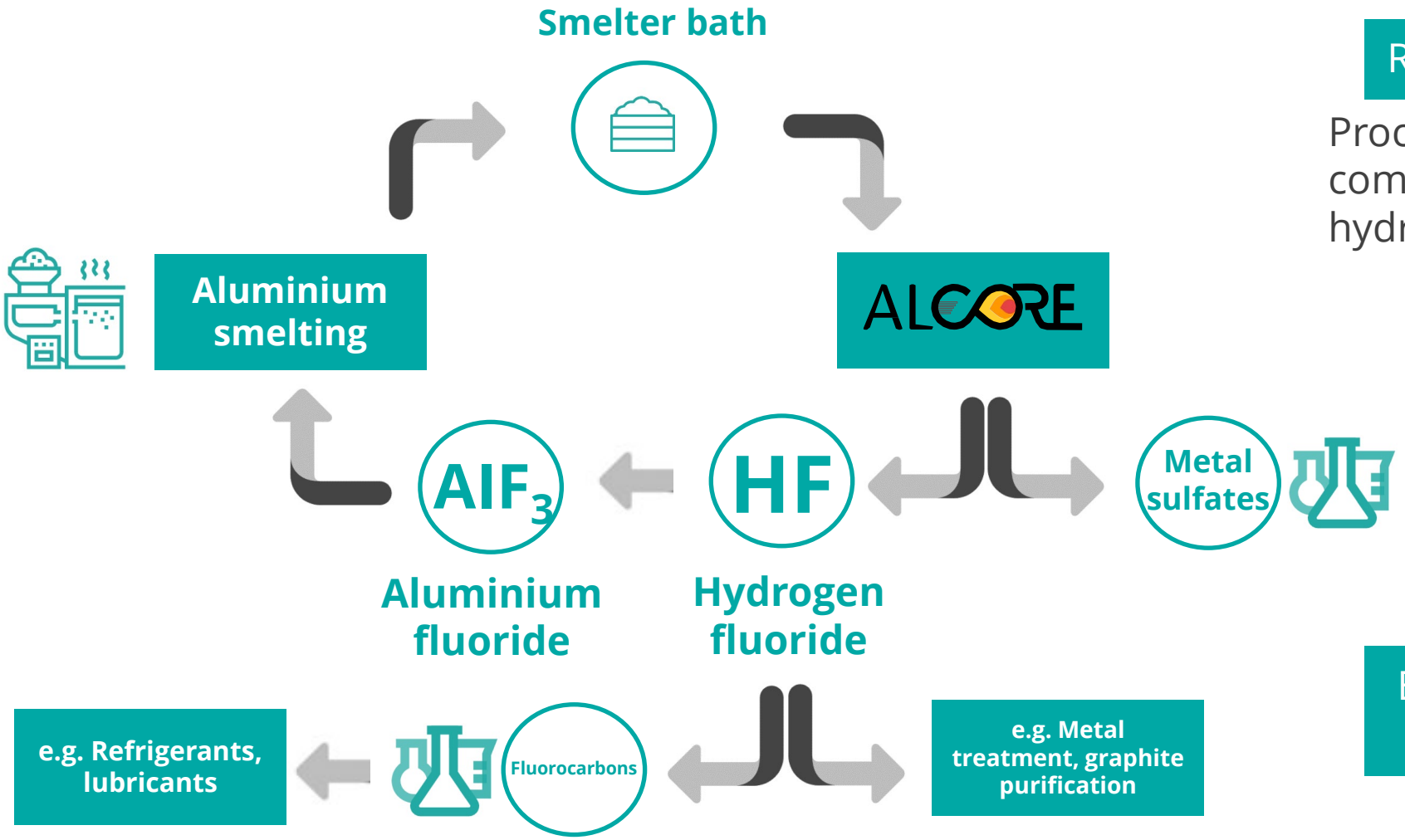
- Essential chemical for aluminium smelting
- 1.2 million tonnes produced globally per year worth US$1.5 billion (US$1,000-1,800 per tonne)
- Australia is the largest aluminium producer without local aluminium fluoride production, and imports mostly from China
- Results in production of aluminium smelter bath – controlled waste containing 50% fluorine

Increasing surplus of aluminium smelter bath



Source: S.J. Lindsay, Bath generation and management, 10th Australasian Aluminium Smelting Technology Conference, 2011

Process is relatively low risk



Relatively low technical risk

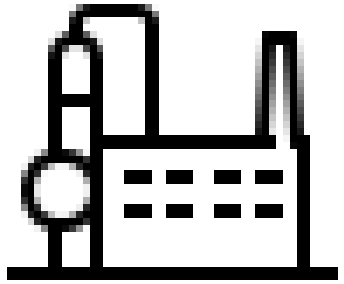
Process is adaptation of existing commercial process to produce hydrogen fluoride from fluorspar

Exemplary demonstration of circular economy

Pathway to production: Vision for fluorine recycling business

Demonstration

Demonstrate chemical process for recycling aluminum smelter waste

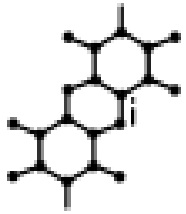


Production

Construct plant to produce hydrogen fluoride and aluminium fluoride from aluminium smelter waste

Expansion

Recycle smelter waste from the global aluminium industry



Diversification

Enable Australian fluorochemical industry

Pathway to production: Project development

✓ ✓

Laboratory	Batch Pilot	Continuous Pilot	Commercial Stage 1	Commercial Stage 2
300g bath NSW $2m (lab)	3 kg bath NSW $50k	20 kg/h bath $2m	200 kg/h bath 1,200 t/y AlF_3 Tasmania $16m	3,000 kg/h bath 20,000 t/y AlF_3 Tasmania $80m
2019-22	2023-24	2024-25		

$7.5m federal government grant awarded[1] and $5.7m instalments received[2]

Critical process steps demonstrated [3]

Achieved target fluorine recovery[4]

Basic engineering design package being finalised

Produce saleable hydrogen fluoride for evaluation by customers

Determine design and operating parameters for commercial plant

First plant planned for Bell Bay, Tasmania

[1]ABX ASX Announcement, 29 April 2022
[2]ABX ASX Announcement, 28 June 2023
[3]ABX ASX Announcement, 24 October 2022
[4]ABX ASX Announcement, 4 June 2024

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Simple processing without drill and blast mining, or use of acids

Team
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Mineralogy and REE Distribution
No acid required for processing
Balance of light and heavy REE ☑

Jurisdiction
Commercial forest plantation in Australia ☑

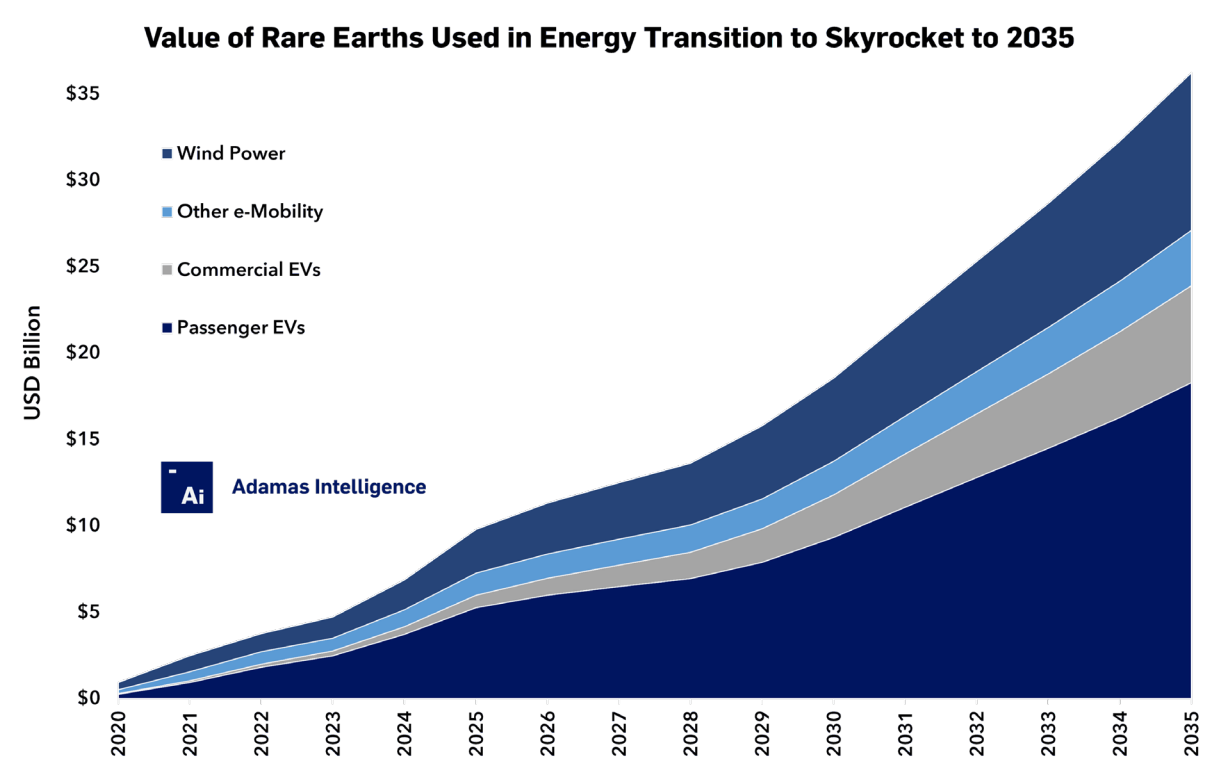
Supply Shortage
Massive demand growth for rare earths ☑

Pathway to Production
Bauxite mining is enabler ☑

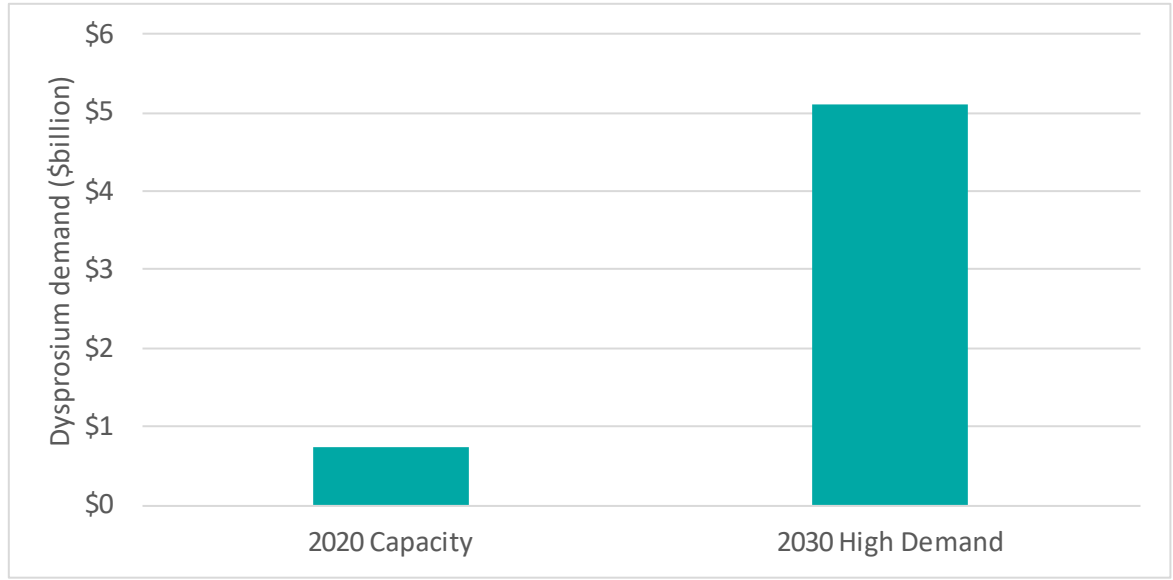
Infrastructure
Less than 50 km to industrial centre and enabling infrastructure ☑

Massive demand growth for rare earths

Electric motors require permanent magnets containing rare earths



Source: Adamas Intelligence



Sources: US DoE, Critical Minerals Assessment, 2023; Ginger International Trade & Investment

- Demand for NdFeB magnets forecast to increase at a CAGR of 8.7% for 2024 to 2040
- Of the rare earths, dysprosium has the most acute supply risk

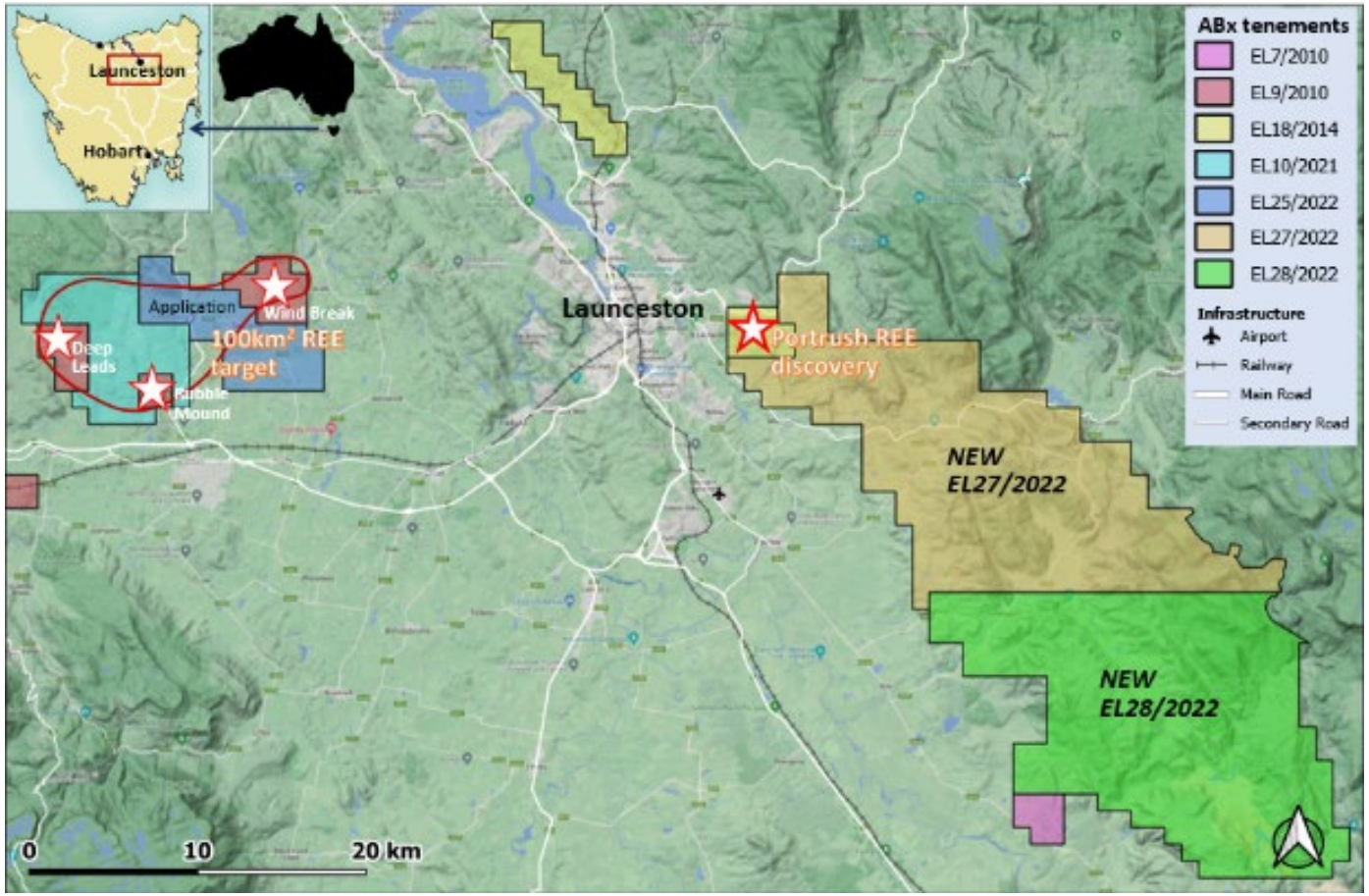
ABx Deep Leads Rare Earth Project

- Upgrade to 89 Mt announced May 2024[1]
- Over 10-fold increase in 12 months

Size	Cut-off (ppm TREO-CeO_2)	Mean TREO (ppm)	Mean TREO-CeO_2 (ppm)	$DyTb^3$ (%TREO)
89 Mt[2]	350	844	652	4.3%

Holes drilled	Metres drilled (m)	Metres assayed (m)	From (m)	To (m)
1,077	9,742	3,843	4.2	12.0

Resource based on only 29% of identified mineralised outline[1]



[1]ABX ASX Announcement, 2 May 2024
[2]41 Mt inferred, 42 Mt indicated and 6 Mt measured
[3]DyTb = Dy_2O_3 + Tb_4O_7

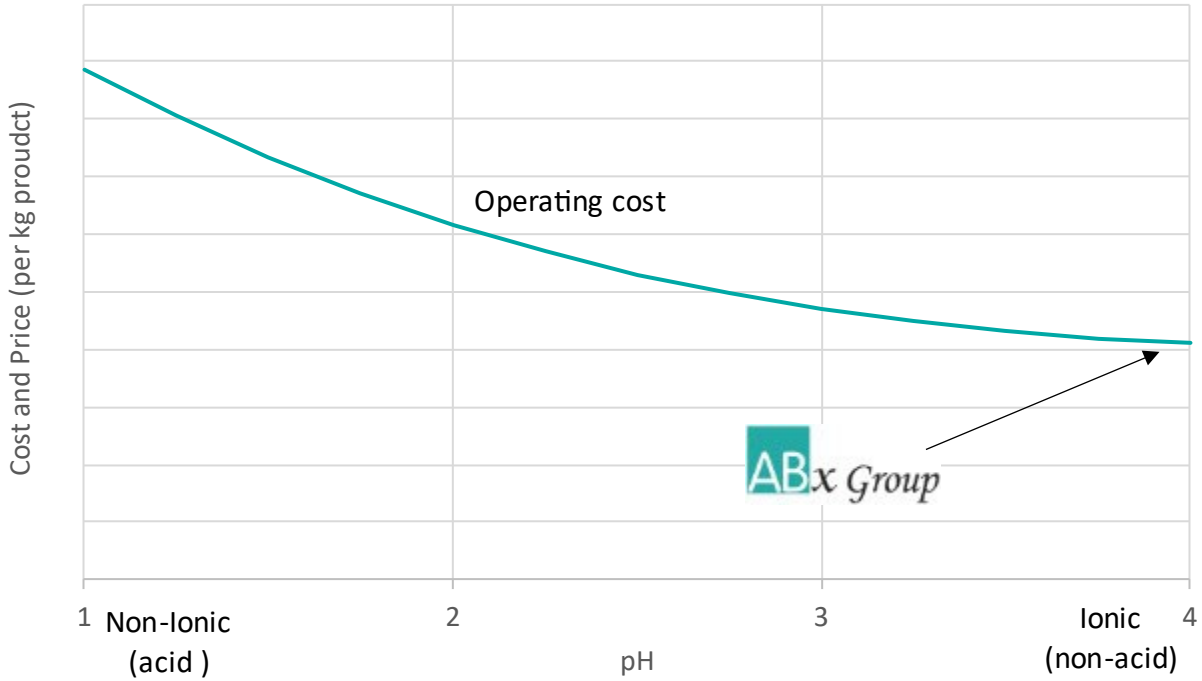
Deep Leads mineralogy is amenable to low cost processing

Deep Leads is one of the few ionic adsorption clay resources

- Rare earths can be extracted from an ionic adsorption clay ore in less than 30 minutes at pH 4 or above. They do not require acid
- Avoidance of acid significantly reduces impurities and hence operating cost
- Most clay-hosted deposits are not ionic

Company	Project	Country	Proposed Leaching
ABx	Deep Leads	Australia	AMSUL, pH 4
Australian Rare Earths	Koppamuura	Australia	MGSUL, pH 1-2.2
OD6	Splinter Rock	Australia	HCl, 25 g/L
Meteoric Resources	Caldeira	Brazil	4
Ionic Rare Earths	Makuutu	Uganda	2

Sources: See Appendix 1



Illustrative cost curve for clay-hosted rare earth resources

Deep Leads has ideal balance of light and heavy rare earths

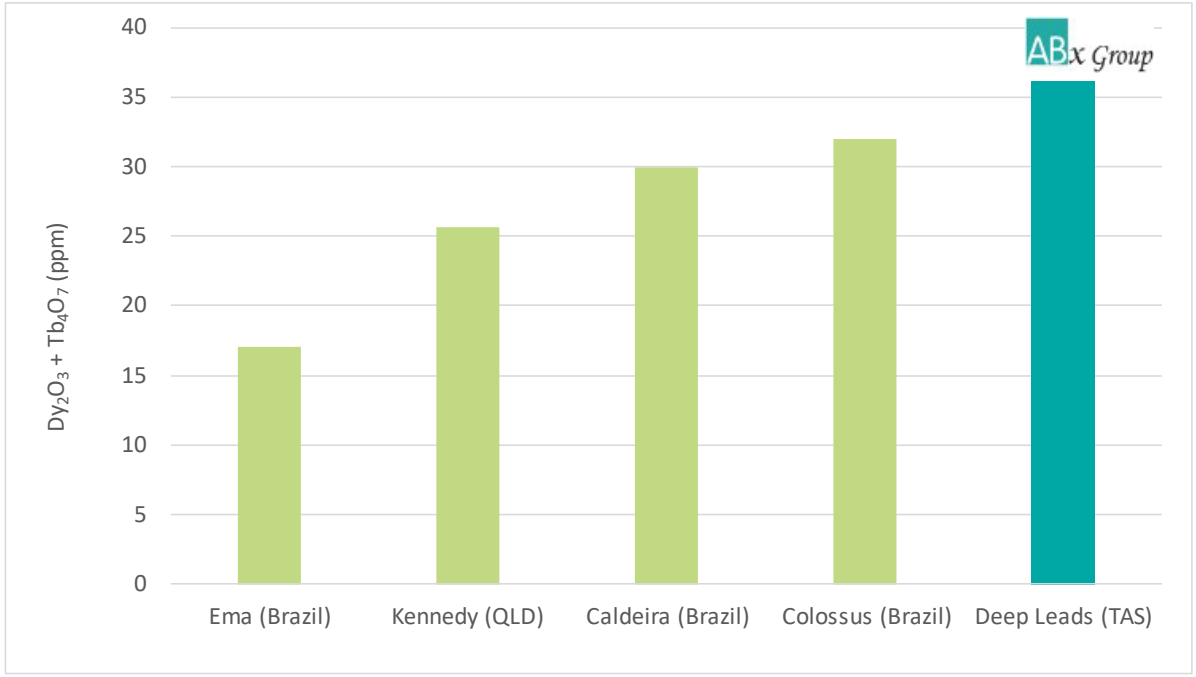
- ABx rare earth product will be attractive to separation plants
- ABx will be more resilient to variation in demand for light and heavy rare earths

Company	Project	Country	%NdPr	%DyTb
ABx	Deep Leads	Australia	21.8%	4.3%
Lynas	Mt Weld	Australia	23.3%	0.4%
MP Materials	Mountain Pass	USA	16.4%	-
Meteoric Resources	Caldeira	Brazil	23%	1.1%

Sources: See Appendix 2

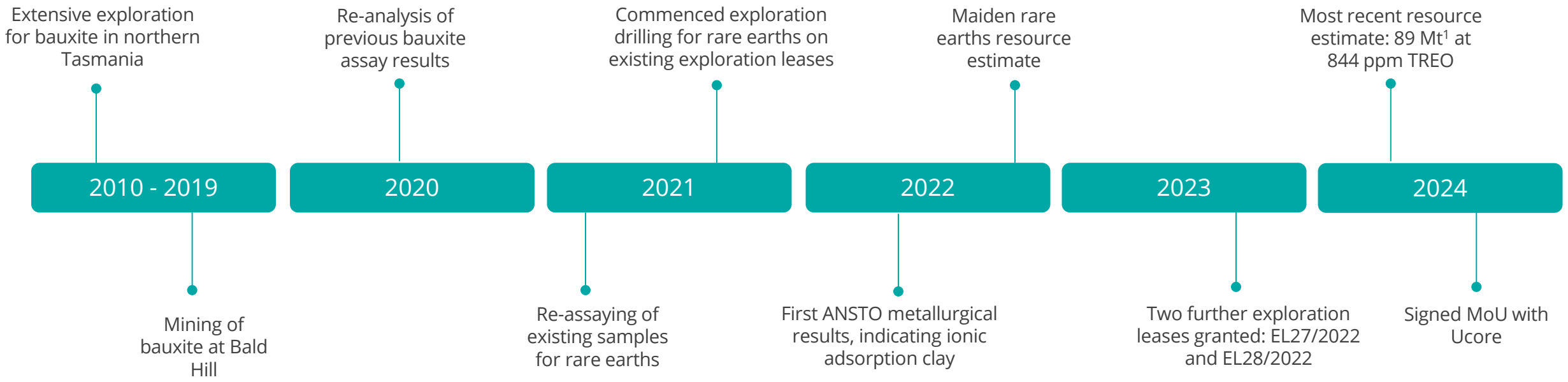
Rare earth	Type	Feature
Nd and Pr	Light rare earth	Provide magnetic strength
Dy and Tb	Heavy rare earth	Retain magnetic properties at high temperatures

- ABx has among the highest Dy and Tb grades of any ionic adsorption clay deposit



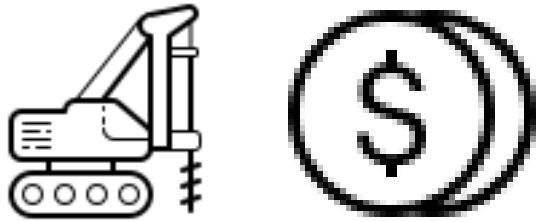
Sources: See Appendix 3

Pathway to Production: Rapid project advancement



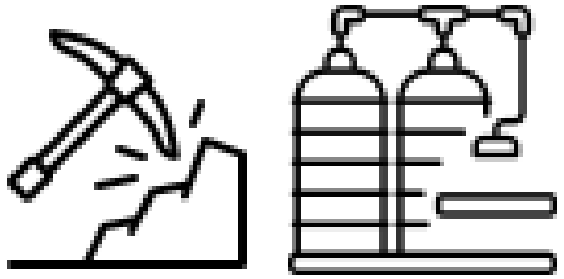
[1]41 Mt inferred, 42 Mt indicated and 6 Mt measured

Pathway to Production: Vision for rare earths business



Project Development

Demonstrate project feasibility

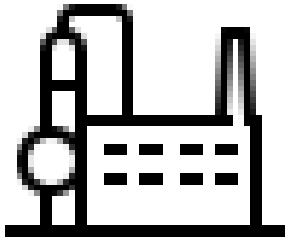


Production

Construct mine and plant to produce mixed rare earth carbonate

Expansion

Identify additional ionic adsorption clay rare earth resources



Value-adding

Construct plant to produce separated rare earth oxides

Deep Leads Project Enabler: Bauxite Mining

Pre-strip bauxite mining to supply cement and fertiliser plants
Project will expose rare earths and provide funding for rare earths development

Pathway to Production: Bauxite operations

- ABx mined bauxite northern Tasmania from 2014 to 2020, and sold the product to cement and fertiliser plants. Customer demand is ongoing[1]
- Similar bauxite resource overlays Deep Leads rare earth resource
- Bauxite mining operations will expose rare earth mineralisation and enable rare earths project to be fast tracked
- Bauxite sales will provide cashflow for funding rare earths development
- Bauxite mining licence application submitted. Operations expected to commence in Q1 2025

ABx bauxite mining at Bald Hill Project near Campbell Town, Tasmania in 2020

[1]ABx ASX Announcement, 11 September 2023

Pathway to Production: Strategic and offtake partnerships

Offtake Interest

- Executed MOU for offtake and potential investment with Ucore, who is undertaking technology transfer from demonstration scale to commercial scale rare earth oxide separation in North America

Strategic Investor Interest

- Engaging with deep-pocketed long-term investors with strategic interest in rare earths supply chain

Government Support

- Engaged with the Australian and Tasmanian governments' critical minerals strategies – potential for the company to receive financial support

Australian Government
Department of Industry, Science and Resources

Tasmanian Government

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Joint Announcement 4 September 2024

ABx Group and Ucore Rare Metals Sign MoU for Australia-USA Rare Earths Supply Chain

Key Objectives:

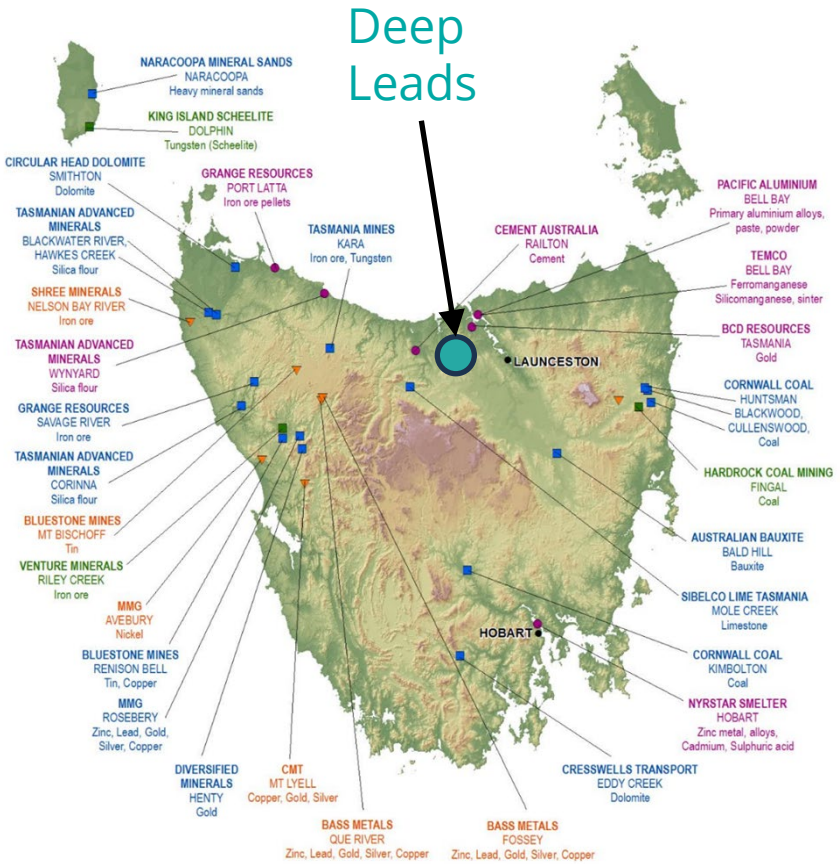
- **Work to establish a binding offtake agreement for the supply of mixed rare earth carbonates from Australia to the USA through enhanced collaboration**
- **Establish an investment pathway for Ucore into ABx**
- **Bolster relationships between the United States and Australia as both countries strive to enhance critical minerals and clean energy projects**

South Melbourne, Victoria and Halifax, Nova Scotia – (September 4, 2024) – **ABx Group** (**ASX: ABX**) ("**ABx**") and **Ucore Rare Metals Inc.** (**TSXV: UCU**) (**OTCQX: URAF**) ("**Ucore**") are pleased to announce the September 3, 2024, execution of a Memorandum of Understanding ("**MOU**") that describes the collaborative pathway ABx and Ucore will embark on to advance to:

Ucore Rapid^{SX} demonstration plant in Kingston, Canada

Deep Leads is in outstanding jurisdiction and location

Commercial plantation forest area in Tasmania, Australia

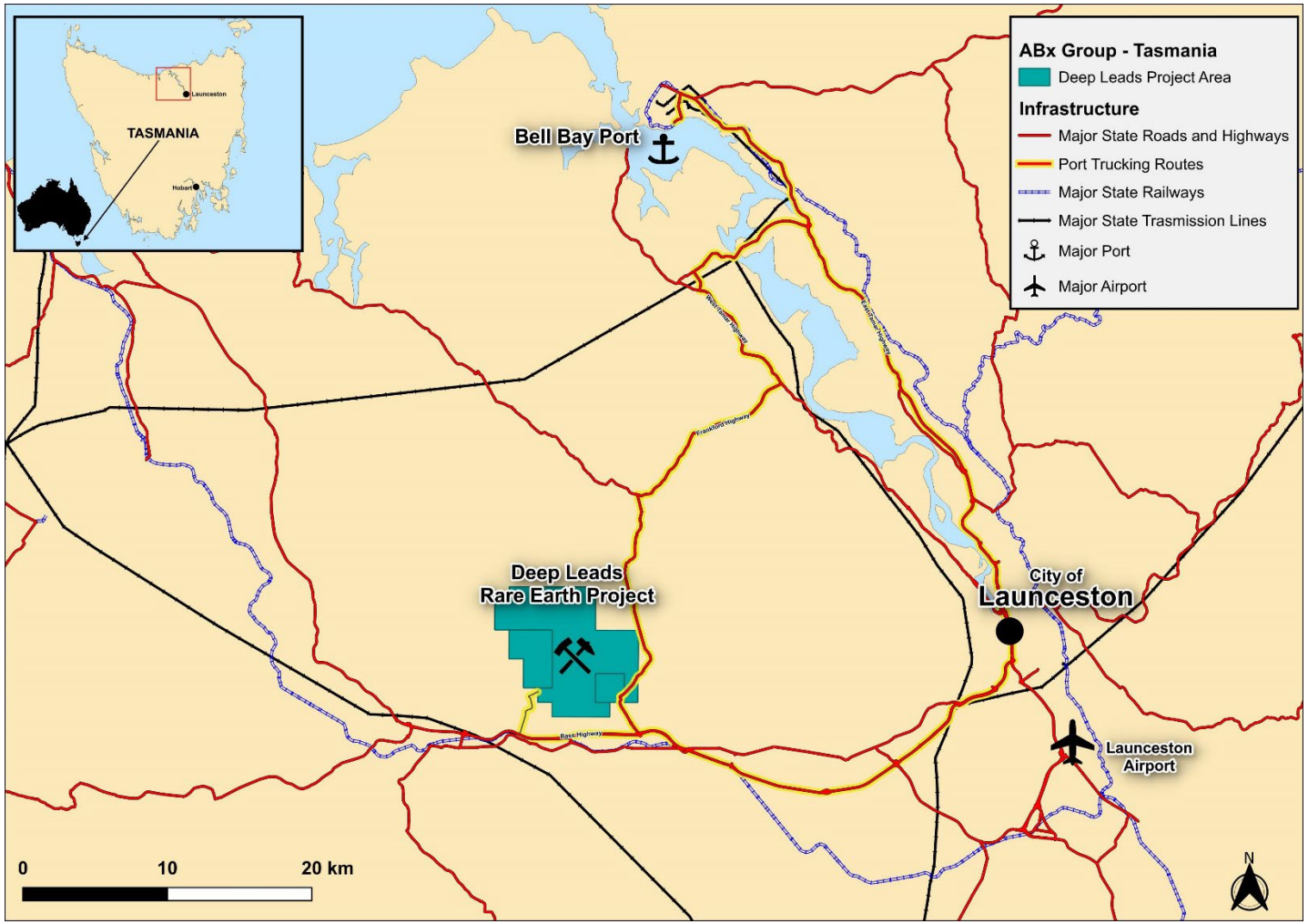


- Deep Leads located in recently harvested commercial hardwood plantation, close to town of Launceston and Bell Bay port
- Australian supply highly attractive to global customers
- ABx has operated in region for over 10 years

Significant infrastructure locally available

Infrastructure	
Transport	Less than 20 km to major highway Less than 100 km to deepwater Bell Bay port
Labour	Less than 50 km to Launceston (pop 65,000)
Water	High availability in Tasmania
Energy	Close to major transmission lines Greater than 90% of Tasmania energy demand generated by renewables[1]

[1]2018-23, Open Electricity



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Simple processing without drill and blast mining, or use of acids

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Mineralogy and REE Distribution
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Balance of light and heavy REE ☑

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Supply shortage
Massive demand growth for rare earths ☑

Pathway to Production
Bauxite mining is enabler ☑

Infrastructure
Less than 50 km to industrial centre and enabling infrastructure ☑

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Appendix 1

Company	Project	Country	Stage	Study Level	Resource							Proposed leaching conditions		
					Mt	Type	Grade (TREO) (ppm)	Cut-off grade (TREO-CeO_2) (ppm)	Reference			Conditions	Reference	
ABx	Deep Leads	Australia	Exploration	-	89	Meas + Ind + Inf	844	350	ABX ASX Announcement	Table 1	2 May 2024	AMSUL pH 4	ABX ASX Announcement	31 May 2022
Australian Rare Earths	Koppamurra	Australia	Exploration	-	236	Meas + Ind + Inf	748	325	AR3 ASX Announcement	Table 1	30 Sep 2024	MGSUL pH 1-2.2	AR3 ASX Announcement AR3 ASX Announcement	16 May 2023 8 July 2024
OD6	Splinter Rock	Australia	Exploration	-	682	Ind + Inf	1,338	1,000[2]	OD6 ASX Announcement	Table 1	29 May 2024	HCl, 25g/L	OD6 ASX Announcement	16 Oct 2024
Meteoric Resources	Caldeira	Brazil	Exploration	Scoping	409	Inferred	2,626	1,000[2]	MEI ASX Announcement	Table 2	1 May 2023	AMSUL pH 4	MEI ASX Announcement	8 July 2024
Ionic Rare Earths	Makuutu	Uganda	Exploration	DFS	532	Ind + Inf	640	200	IXR ASX Announcement	Table 3	20 Mar 2023	AMSUL pH 2	IXR ASX Announcement	20 Mar 2023

[1]Meas = Measured, Ind = Indicated, Inf = Inferred
[2]Cut-off grade is TREO (ppm)

The resource figures provided are the most recent reported by each company, and at the desired reported cut-off grade provided by each company's headline numbers. Each resource model contains its own economic and geological assumptions not represented in this table. Resource sizes and grades vary depending on the cut-off used by the specific company.

The leaching conditions provided are the most representative provided by each company. In the case of a DFS, PFS or scoping study, they are the conditions used as the base case in that study. In other cases, they are those reported as 'optimum' by the company

Appendix 2

Company	Project	Country	Stage	Study Level	Resource (Mt)		Grade (TREO) (ppm)	Cut-off grade (TREO) (ppm)	%Pr[2]	%Nd[2]	%Tb[2]	%Dy[2]	Reference		
					Mt	Type[1]									
ABx	Deep Leads	Australia	Exploration	-	89	Meas + Ind + Inf	844	350[3]	4.4%	17.4%	0.62%	3.7%	ABX ASX Announcement	Table 1	2 May 2024
Lynas	Mt Weld	Australia	Production	-	106.6	Meas + Ind + Inf	41,000	25,000	5.1%[4]	18.3%[4]	0.16%[4]	0.6%[4]	LYC ASX Announcement	Table 1 Table 7	5 Aug 2024
MP Materials	Mountain Pass	USA	Production	-	9.09[5]	Ind + Inf	50,500	21,800	4.2%	12.1%	0.0%	0.0%	MP Materials Form 10-K for 31 Dec 2023	Page 22	22 Feb 2024
Meteoric Resources	Caldeira	Brazil	Exploration	Scoping	409	Inferred	2,626	1,000[2]	5.9%	17.0%	0.19%	1.0%	MEI ASX announcement	Table 2	1 May 2023

[1]Meas = Measured, Ind = Indicated, Inf = Inferred
[2]%Pr = Pr_6O_{11} / TREO, %Nd = Nd_2O_3 / TREO, %Tb = Tb_4O_7 / TREO, %Dy = Dy_2O_3 / TREO,
[3]Cut-off grade is TREO-CeO_2 (ppm)
[4]For 32.0 Mt reserve, not 106.6 Mt resource
[5]Short tons

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Company	Project	Country	Stage	Study Level	Resource (Mt)		Grade (TREO) (ppm)	Cut-off grade (TREO-CeO_2) (ppm)	Tb_4O_7 (ppm)	Dy_2O_3 (ppm)	Reference		
					Mt	Type[1]							
Brazilian Critical Minerals	Ema	Brazil	Exploration	-	1,017	Inferred	793	500	4	13	BCM ASX Announcement	Table 1	22 Apr 2024
Devex Resources	Kennedy	Australia	Exploration	-	150	Inferred	1,000	325	3.7	22	DEV ASX Announcement	Table 2	4 Jul 2024
Meteoric Resources	Caldeira	Brazil	Exploration	Scoping	409	Inferred	2,626	1,000[2]	5	25	MEI ASX Announcement	Table 2	1 May 2023
Viridis Mining and Minerals	Colossus	Brazil	Exploration	Scoping	201	Indicated + Inferred	2,590	1,000[2]	5	27	VMM ASX Announcement	Page 4	4 June 2024
ABx	Deep Leads	Australia	Exploration	-	89	Meas + Ind + Inf	844	350	5.2	31	ABX ASX Announcement	Table 1	2 May 2024

[1]Meas = Measured, Ind = Indicated, Inf = Inferred
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