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Fluorine waste recycling: producing industrial chemicals from aluminium smelter waste

Mark Cooksey
Managing Director

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Delivering materials for a cleaner future

Rare earths: Supplying light and heavy rare earths from Tasmania into Western supply chains



Fluorine waste recycling:
Producing industrial chemicals
from aluminium smelter waste



Bauxite: Mining bauxite resources for the aluminium, cement and 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



Strongly increasing
demand for fluorine
Batteries



Supply shortage

No hydrogen fluoride produced in
Australia
Limited global fluorspar resources



New fluorine source
available at low cost
Aluminium smelter bath waste



Chemical process is low
risk

Adaptation of existing commercial
process



Pathway to production
First mover globally: at pilot plant
stage



Strongly increasing demand for fluorine

Significant traditional markets

Fluorine chemical	Applications
Aluminium fluoride	Aluminium smelting
HCFC	Refrigerants
Hydrogen fluoride	Metal treatment
PTFE	Wire insulation, bearings

Rapidly growing demand for renewable energy

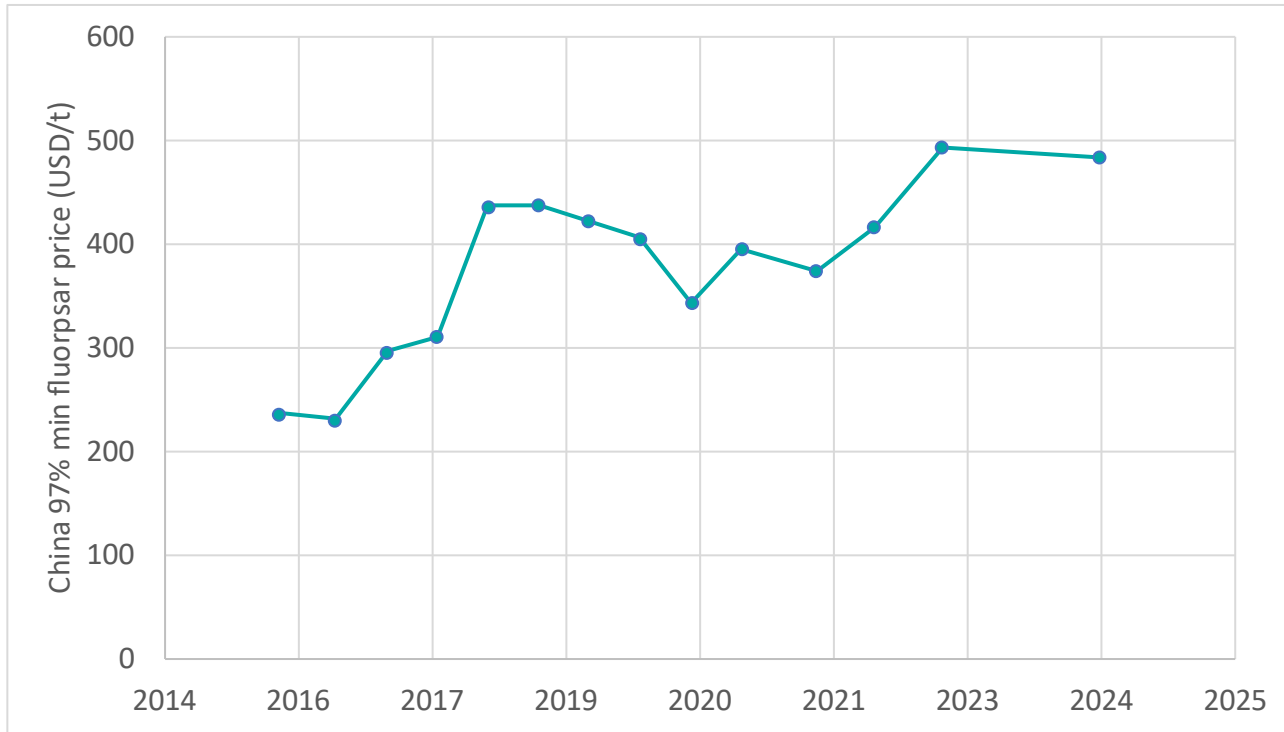
Fluorine chemical	Applications
Lithium hexafluorophosphate	Li-ion batteries (electrolytes)
PVDF	Li-ion batteries (separators and electrodes)
Hydrogen fluoride	Graphite purification

“From 2025 to 2035, fluorine demand for energy applications will increase from 5% to 22% of total fluorine demand”

US DOE Critical Minerals Assessment, 2023

Supply shortage: limited supplies of fluorspar

Increasing fluorspar prices



Source: Asian Metal

Government recognition

Critical Minerals Lists

Fluorspar	USA Europe Japan Canada
Fluorine	Australia

"In 2035, fluorspar demand will exceed current supply by 40-70%"

US DOE Critical Minerals Assessment, 2023

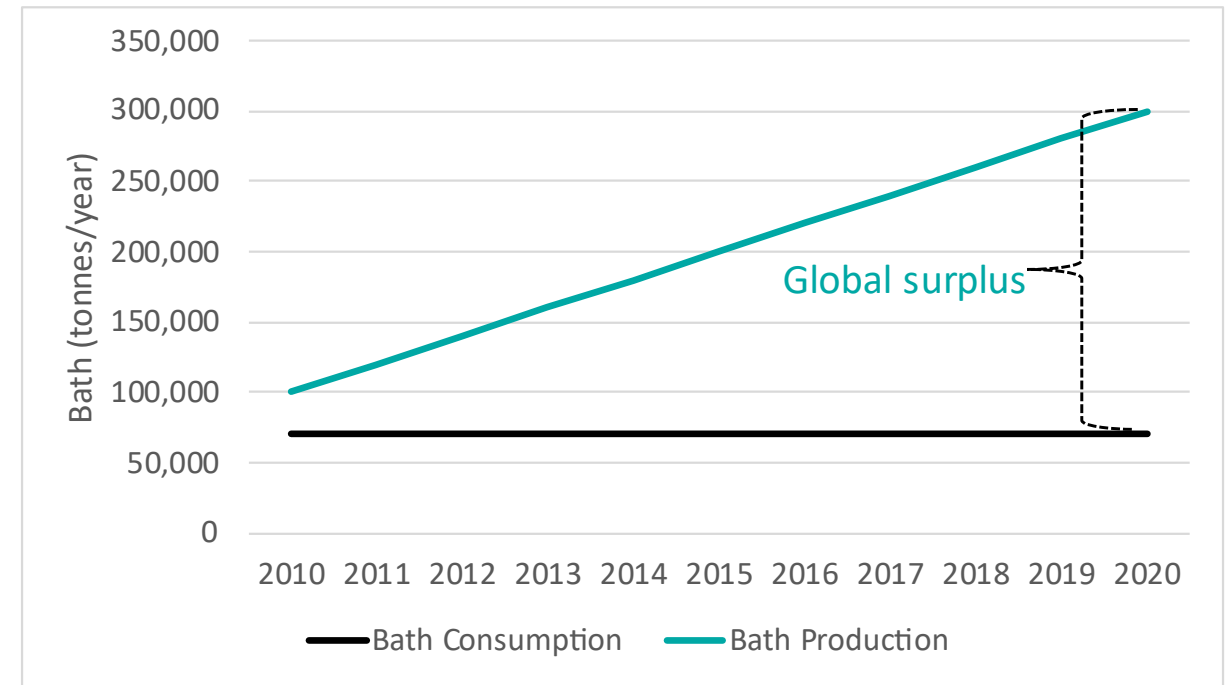
New fluorine source available: aluminium smelter bath waste

- Fluorine is an essential chemical for aluminium smelting
- 50% of fluorine leaves aluminium smelting process as aluminium smelter bath



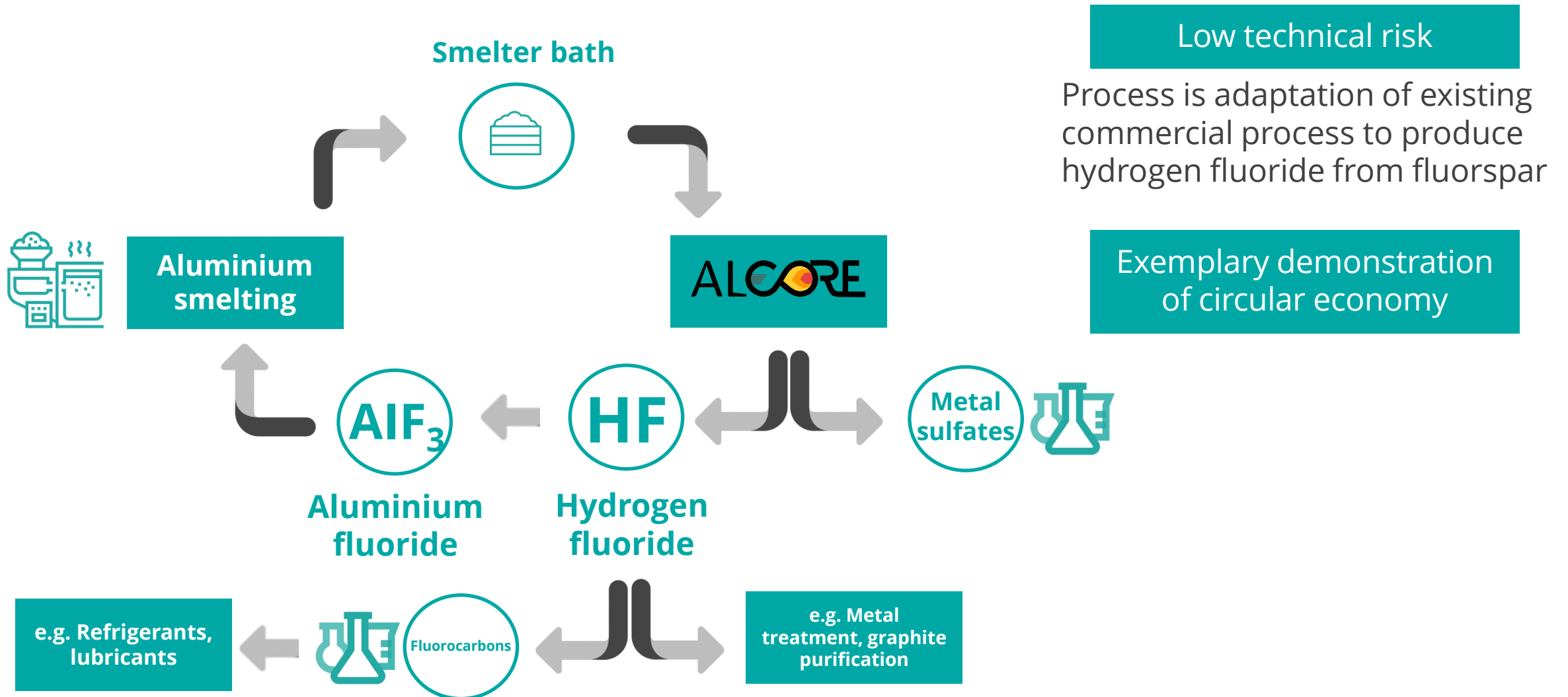
Major fluorine flows in aluminium smelters

Increasing surplus of aluminium smelter bath



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

Process is low risk

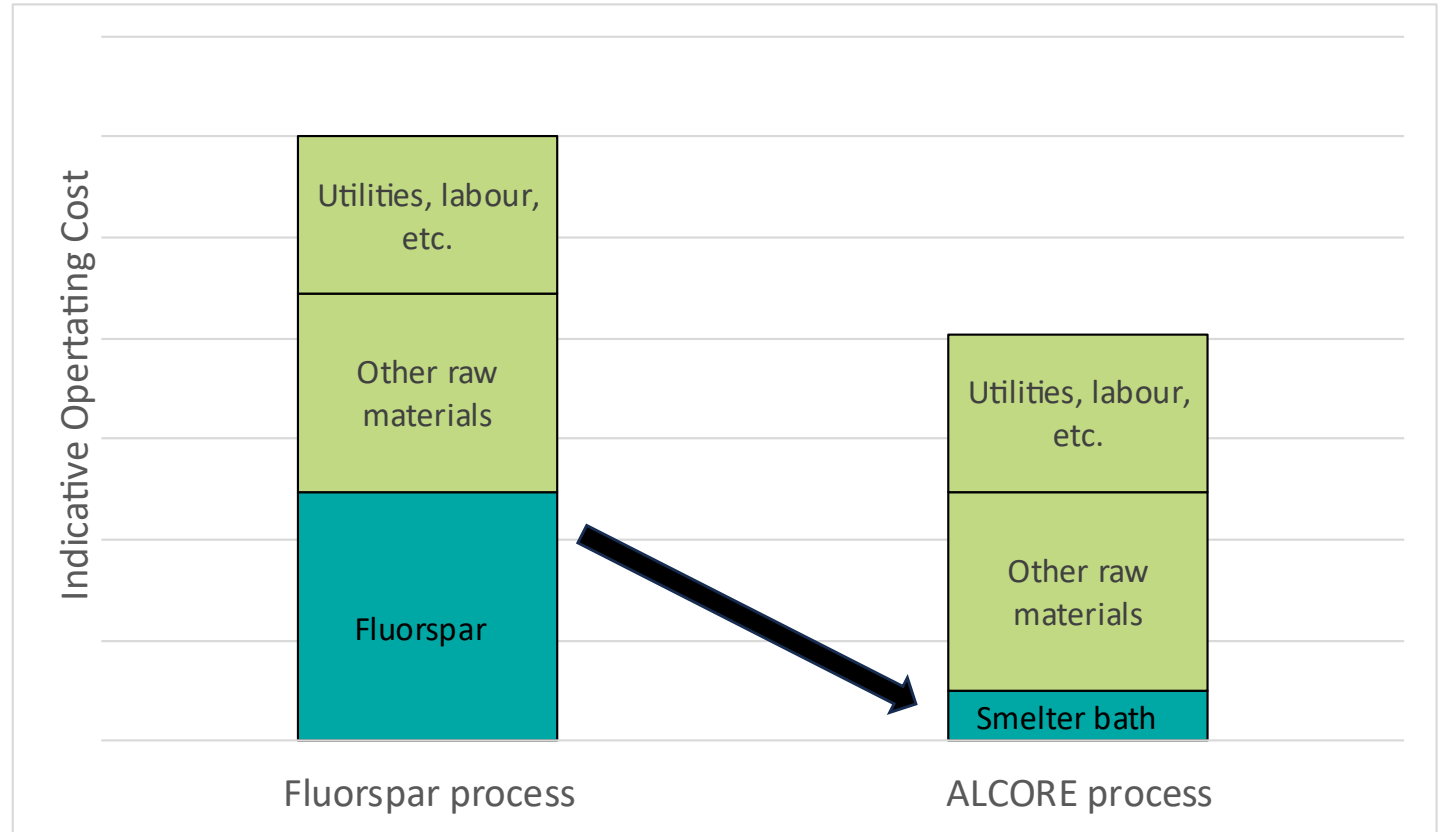


Significant cost advantage of replacing fluorspar with bath

A rare opportunity that is financially, strategically and environmentally attractive

- ALCORE process produces same hydrogen fluoride product using a much lower cost feed material
- Aluminium smelter bath is a good quality material (low impurities)

Potential for significant profit margin

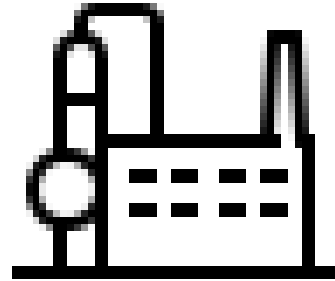
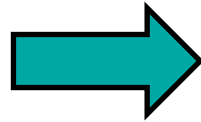


Vision for fluorine recycling business



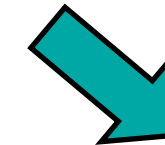
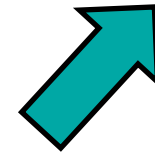
Demonstration

Demonstrate chemical process for recycling aluminum smelter waste



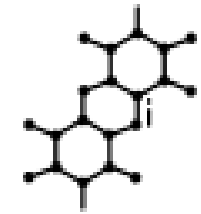
Production

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



Expansion

Recycle smelter waste from the global aluminium industry



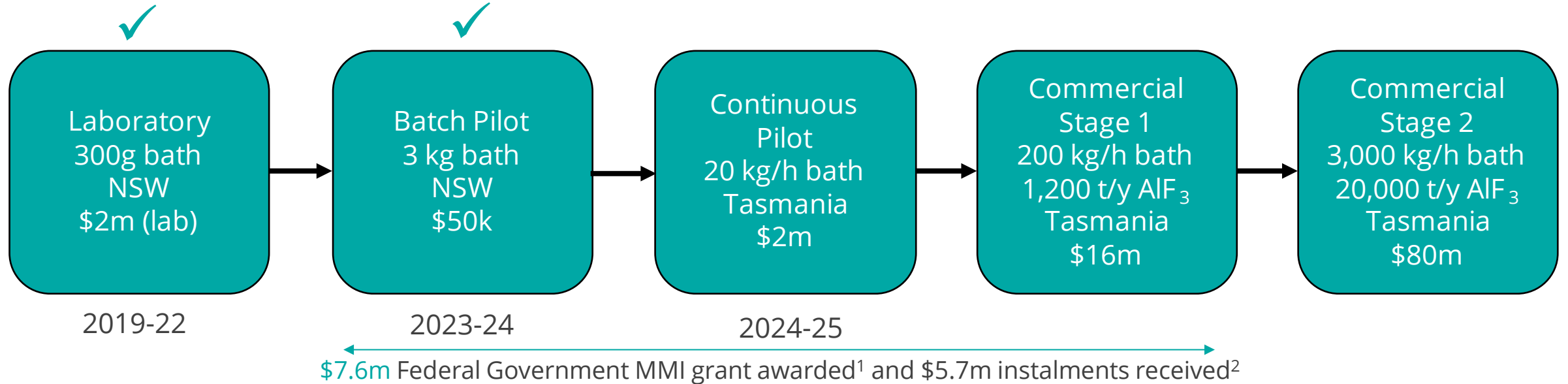
Diversification

Enable Australian fluorochemical industry



Pathway to production: Project development

ALCORE has first mover advantage



Critical process steps demonstrated³



Achieved target fluorine recovery⁴

- At facility leased from Rio Tinto at reduced rate⁵
- \$1m conditional loan from Tasmanian Government⁶
- Orders placed for all key equipment⁷
- Produce saleable hydrogen fluoride for evaluation by customers
- Determine design and operating parameters for commercial plant

First plant planned for Bell Bay, Tasmania

¹ABX ASX Announcement, 29 April 2022

²ABX ASX Announcement, 28 June 2023

³ABX ASX Announcement, 24 October 2022

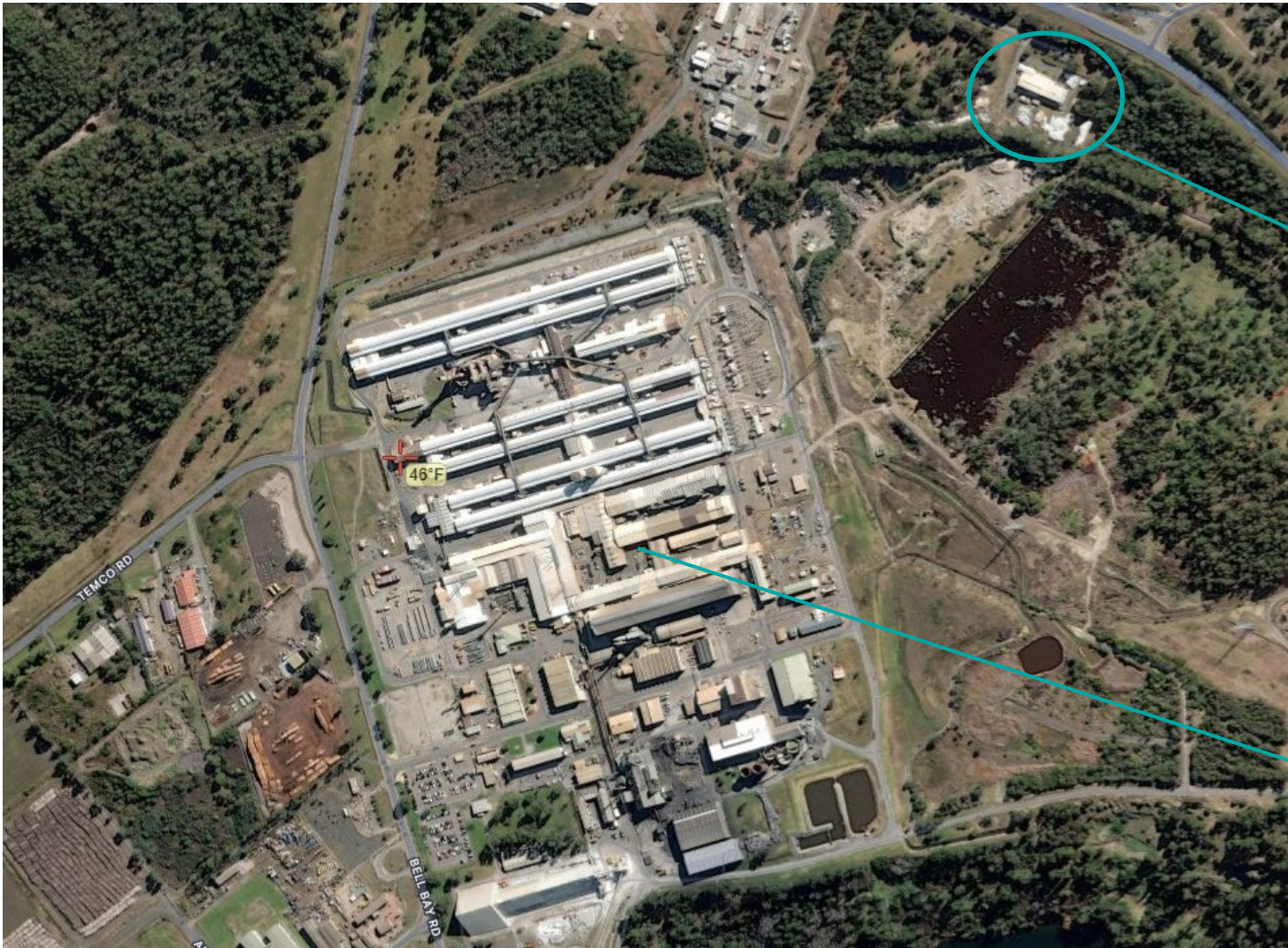
⁴ABX ASX Announcement, 4 June 2024

⁵ABX ASX Announcement, 19 December 2024

⁶ABX ASX Announcement, 15 January 2025

⁷ABX ASX Announcement, 9 April 2025

Pilot plant location



ALCORE pilot plant

Bell Bay aluminium smelter

Pilot plant facility



- Orders placed for all key equipment. Most of the specialised equipment is being fabricated by overseas suppliers
- Site preparation commenced
- Expected that equipment will be delivered late 2025 / early 2026

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ABx Group Limited

www.abxgroup.com.au

Level 4, 100 Albert Rd
South Melbourne VIC 3205
Australia

Phone: +61 3 9692 7222

E: investors@abxgroup.com.au

Mark Cooksey

Managing Director and CEO

E: mcooksey@abxgroup.com.au