CEO Presentation at the Alcore Open Day

In accordance with the requirements of Listing Rule 3.1 we submit the attached material being presented at the Alcore Open Day, 7 June 2022, 11:00 am at the Alcore Research Centre, 6 Craftsman Ave, Berkeley Vale NSW 2261

Mark Cooksey, CEO ABx Group Limited and 83% subsidiary Alcore Limited, will be making the presentation.

ASX Release authorised by Mark Cooksey, CEO.

For further information please contact:

Dr Mark Cooksey
CEO
ABx Group
Mobile: +61 447 201 536
Email: mcooksey@abxgroup.com.au

Website: abxgroup.com.au

.

ABx Group

(ASX:ABX)

ALCORE

Open Day Presentation

7 June 2022

Disclaimer

This presentation has been prepared by ABx Group Limited ACN 139 494 885 ("ABx" or the "Company"). It should not be considered as an offer or invitation to subscribe for or purchase any securities in the Company or as an inducement to make an offer or invitation with respect to those securities. No agreement to subscribe for securities in the Company will be entered into on the basis of this presentation.

This presentation contains forecasts and forward looking information. Such forecasts and information are not a guarantee of future performance, involving unknown risks and uncertainties. Actual results and developments will almost certainly differ materially from those expressed or implied. ABx has not audited or investigated the accuracy or completeness of the information, statements and opinions contained in this presentation. Accordingly, to the maximum extent permitted by applicable laws, ABx makes no representation and can give no assurance, guarantee or warranty, express or other implied, as to, and take no responsibility and assume no liability for, the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission, from any information, statement or opinion contained in this presentation.

You should not act or refrain from acting in reliance on this presentation material. This overview of ABx does not purport to be all inclusive or to contain all information which its recipients may require in order to make an informed assessment of the Company's prospects. You should conduct your own investigation and perform your own analysis in order to make an informed assessment of the company's prospects. You should also conduct your own investigation and perform your own analysis in order to satisfy yourself as to the accuracy and completeness of the information, statements and opinions contained in this presentation and making any investment decision.

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.

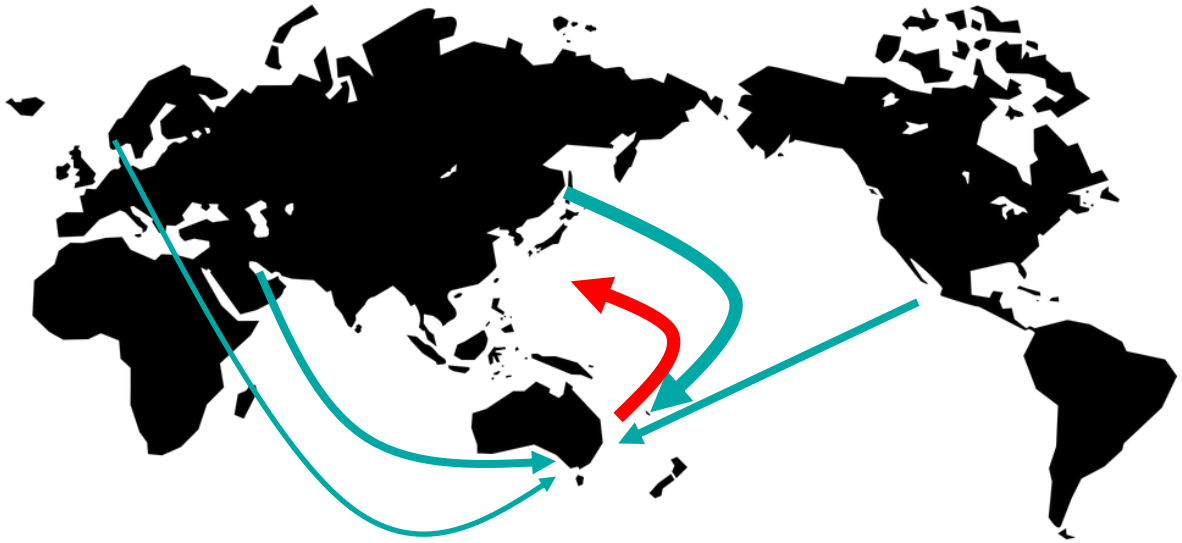
Agenda

- Strategy
- Technical Progress
- Technical Plan
- Commercialisation

Aluminium fluoride and aluminium smelter waste

Aluminium fluoride (AlF_3): essential for aluminium smelting

- 1.2 million tonnes produced globally per year worth US$1.5 billion (US$1,000-1,800 per tonne)
- 50% produced in China, mainly for Chinese smelters
- Australia imports 100% of requirements, mostly from China



Current imports/exports

- Traditionally produced from high-cost aluminium hydroxide and fluorspar
- Achievable specification – product purity risk is low
- Mature market – dozens of customers globally

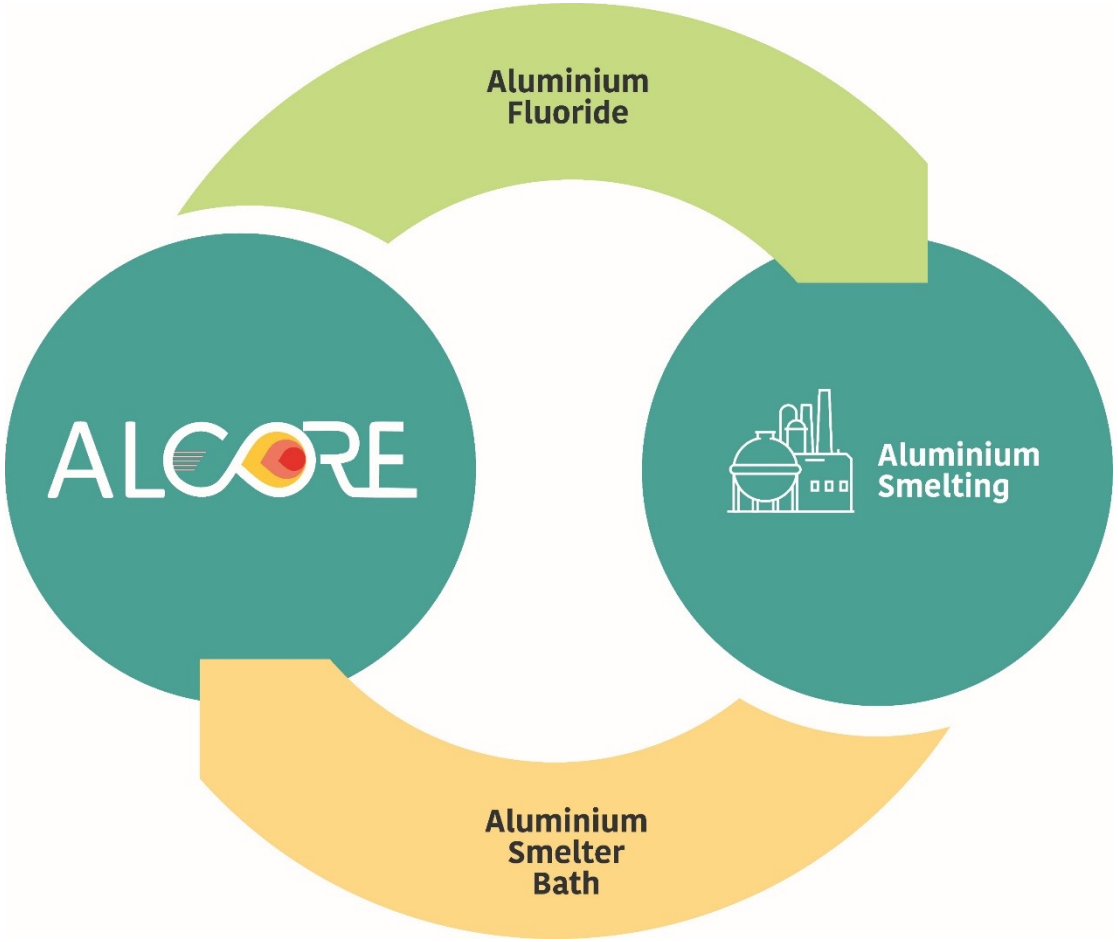
'Tapped bath': an aluminium smelter waste

- Fluorine is lost from smelter in 'tapped bath'
- Only attractive market is new smelter construction; none in Australia
- Global market for tapped bath has moved into oversupply
- Tapped bath is a low-cost source of fluorine

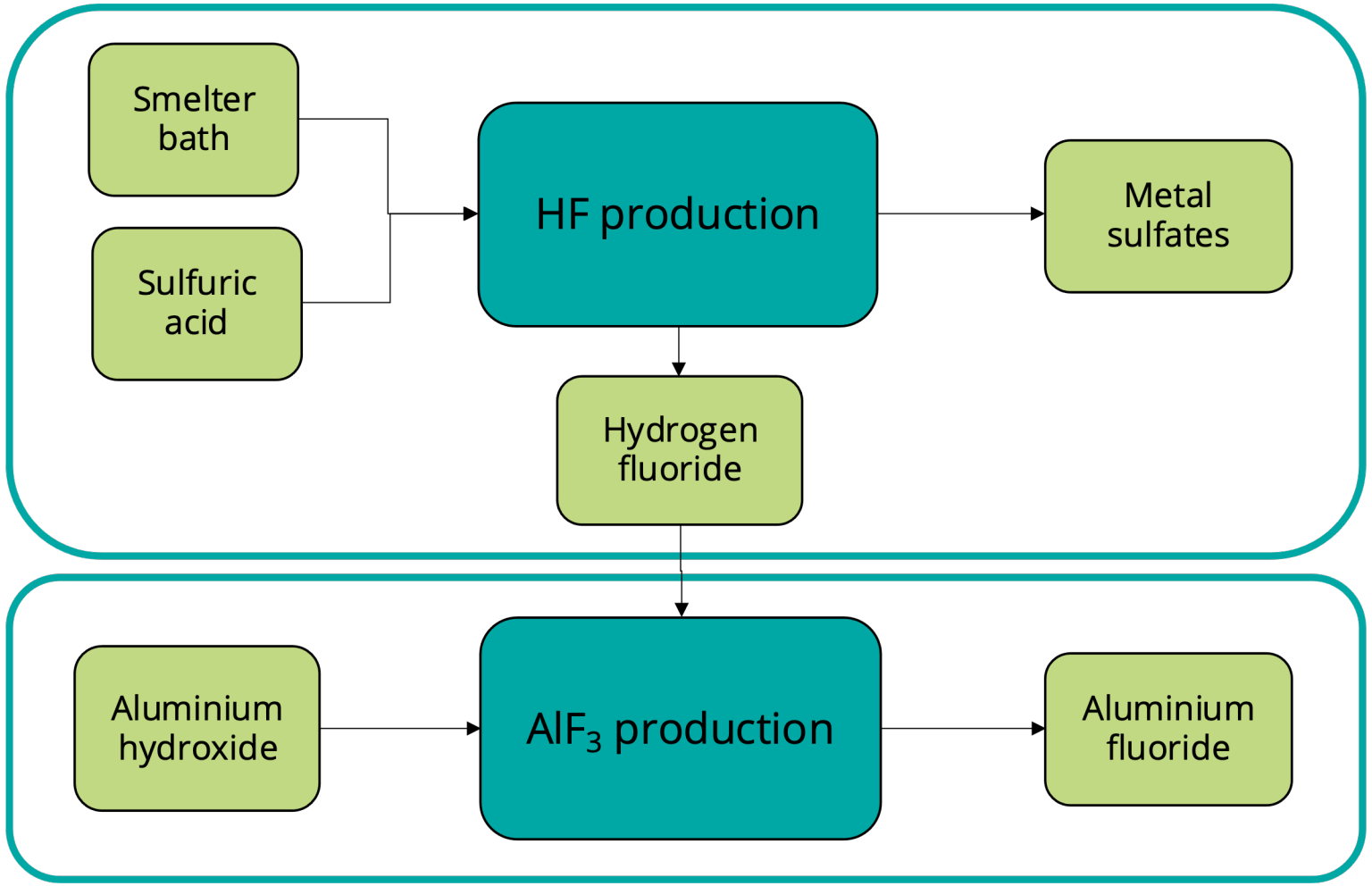
Aluminium fluoride from aluminium smelter waste

Exemplary illustration of circular economy

- ABx's 83%-owned refining technology subsidiary
- Developing processes to produce aluminium fluoride using:
  - Fluorine from tapped bath
  - Aluminium from dross (an aluminium smelter waste) or bauxite



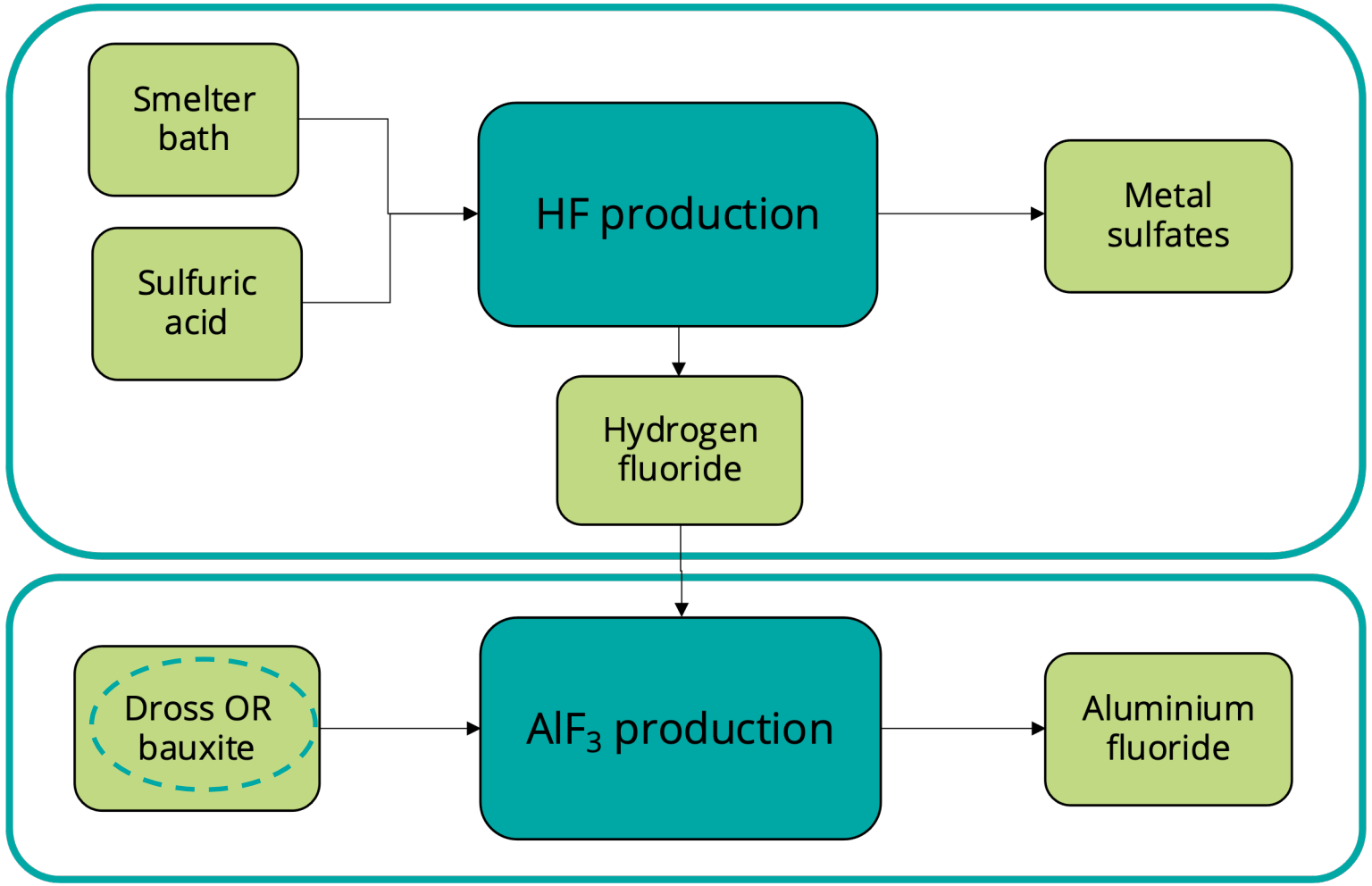
Alcore process flowsheet (lower risk option)



Developed by Alcore

Existing commercial process

Alcore process flowsheet (lower cost option)



Developed by Alcore

Developed by Alcore

Customer and supplier engagement

Aluminium smelters

Intensive engagement with Australian and international smelters:

- Commercial discussions on purchase of aluminium fluoride, and supply of bath and aluminium hydroxide
- Endorsement for grant applications
- Assessment of aluminium fluoride product quality
- Supply of bath and aluminium hydroxide for testing

Other customers

- Engagement with customers for metal sulfates
- Assessment of metal sulfate product quality

Other suppliers

- Engagement with suppliers of dross and sulfuric acid
- Supply of dross for testing

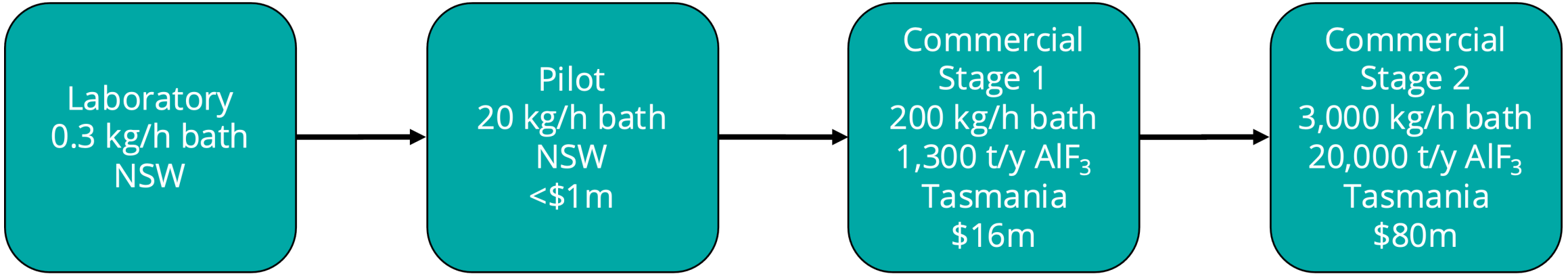
Process economics

- Based on long term aluminium fluoride prices and exchange rates, and estimated costs
- For 20,000 t/y aluminium fluoride
- Attractive margins under all scenarios

Aluminium source	Scenario	AlF_3 price (US$/t)	FX rate USD:AUD	AlF_3 price (A$/t)	Operating cost (A$/t AlF_3)	Operating margin (A$/t AlF_3)	EBITDA (A$m)
Aluminium hydroxide	Baseline	$1,220	0.75	$1,630	$1,250	$1,130	$23m
Dross	Baseline	$1,220	0.75	$1,630	$1,050	$1,330	$27m
Aluminium hydroxide	Optimistic	$1,400	0.70	$2,000	$930	$1,880	$38m
Dross	Optimistic	$1,400	0.70	$2,000	$770	$2,040	$41m

Process scale-up

- Rigorous scale-up to reduce technical risk
- First aluminium fluoride plant planned for Bell Bay, Tasmania, near existing hydro-powered aluminium smelter



Received $7.5m grant

Agenda

- Strategy
- Technical Progress
- Technical Plan
- Commercialisation

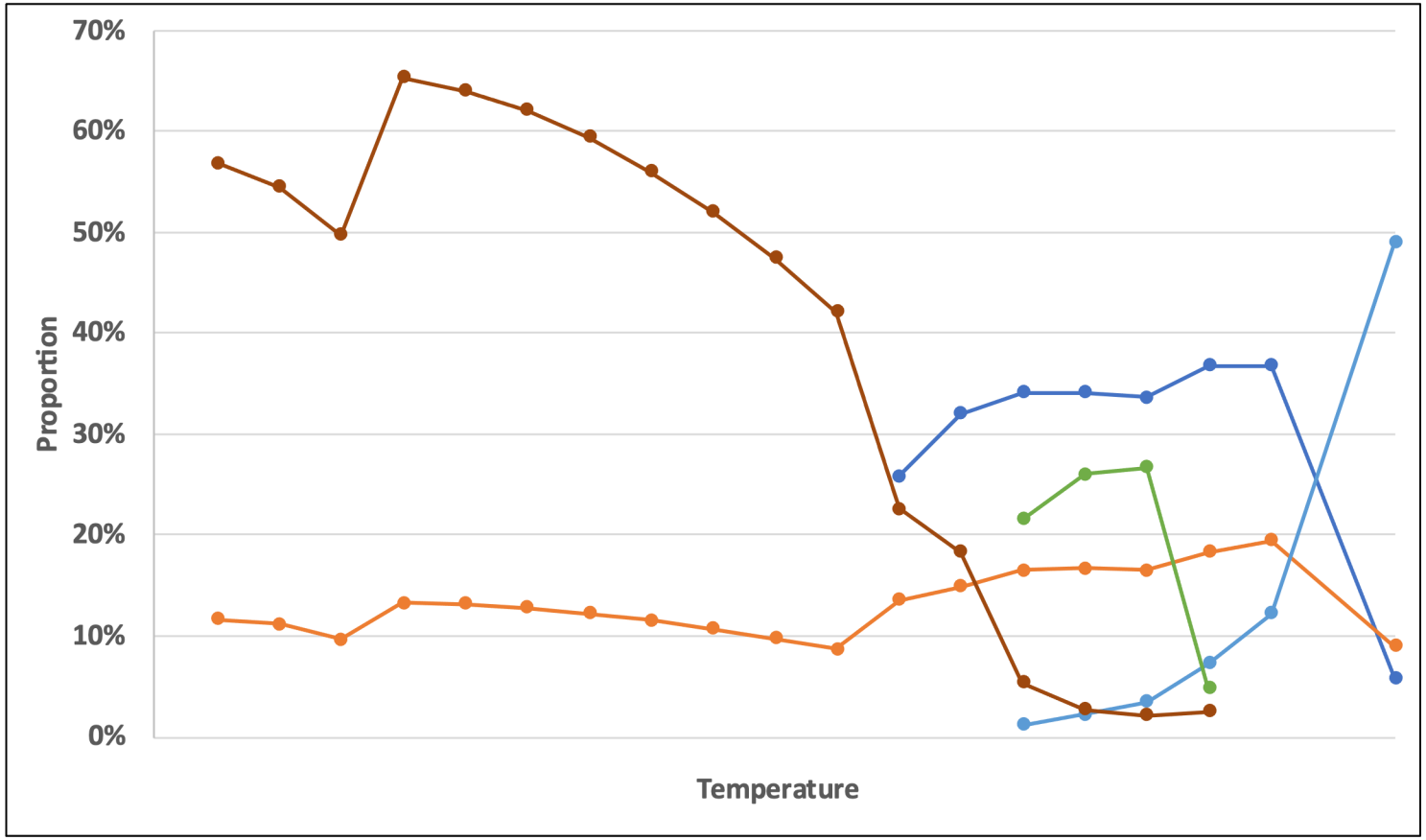
Technical progress

- Critical processing steps have been demonstrated in laboratory

Objective	Number of experiments	Outcomes	Actions
Hydrogen fluoride from bath	50	HF quality satisfactory Moderate HF yield	Construct improved reactor
AlF_3 from aluminium hydroxide	75	AlF_3 equivalent to commercial AlF_3	None required
AlF_3 from dross	50	AlF_3 impurities slightly higher than commercial AlF_3 Moderate AlF_3 yield	Further experiments
AlF_3 from bauxite	45	Appreciable impurities (e.g. iron)	Pause

Modelling

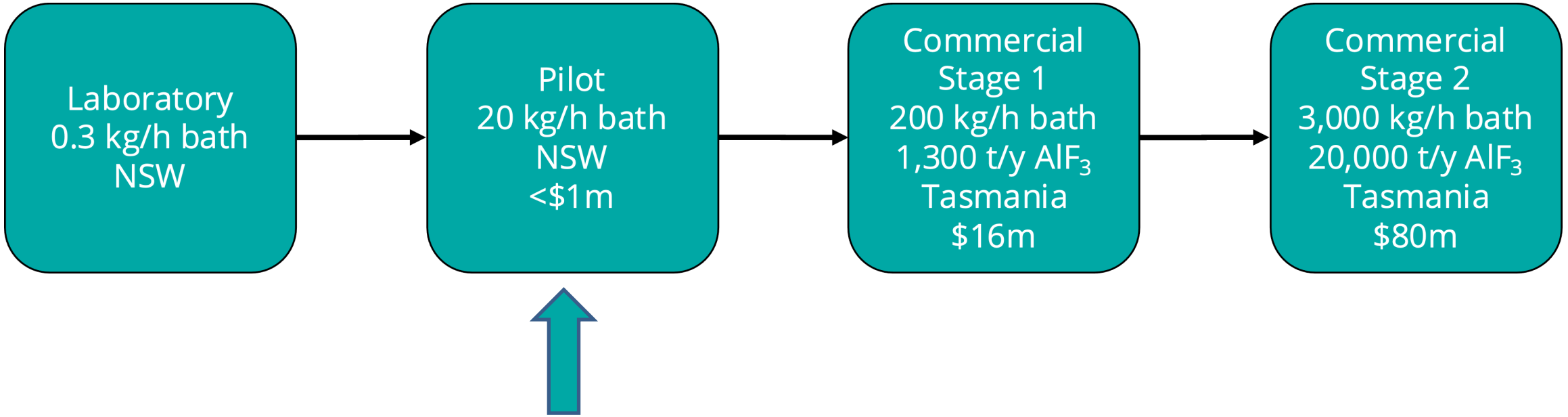
- Thermodynamic modelling conducted by international process engineers
- Consistent with experimental laboratory results
- Provides guidance to optimum reaction conditions, which will be investigated experimentally



Agenda

- Strategy
- Technical Progress
- Technical Plan
- Commercialisation

Process development strategy



- Large enough to provide reasonable scale up factor and validated engineering data
- Small enough to provide sufficient flexibility and space allowing improvements

Process Optimisation

Chemistry

- Reaction kinetics and thermodynamics
- Optimised reaction conditions
- Product distribution, separation, and purification

Engineering

- Transfer from batch to continuous process
- Process behavior and operation data
- Material handling and process safety
- Process optimisation and improvements

Project Management Philosophy

Strategically, always considering alternative choices and making best decisions to minimise cost, time, and risks of the OVERALL project

Laboratory Rotary Kiln

Investigate range of controlled process conditions

- Stainless steel reactor tube
- Up to 1000 °C
- Capable of rotation and tilt
- Vacuum and gas product capture system
- Easy to maintain and troubleshoot
- Custom modifications can be made
- Low-cost operation and rapid turnaround

Oleum Production Plant

What is oleum?

- Sulfuric acid with additional dissolved SO_3

Why use oleum?

- Standard concentrated sulfuric acid can cause corrosion issues and lower yield

Why produce oleum on site?

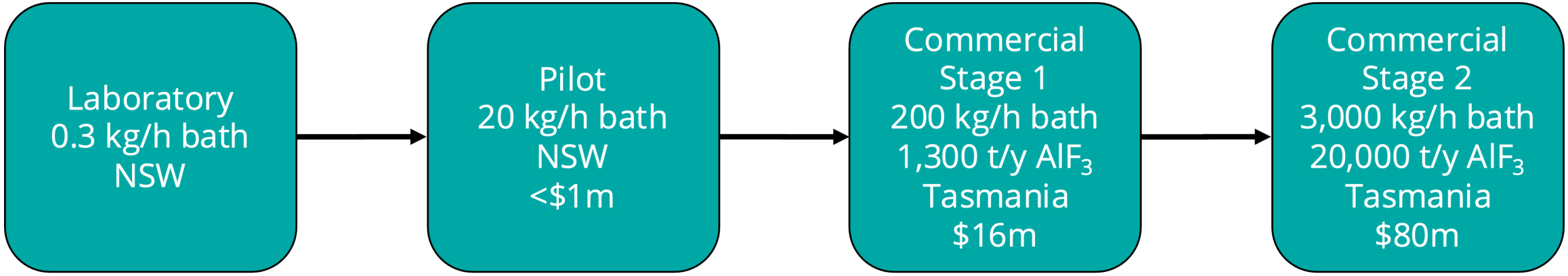
- Oleum not produced in Australia, and difficult to import
- To obtain insights into process performance
- To develop Alcore operational experience

Agenda

- Strategy
- Technical Progress
- Technical Plan
- Commercialisation

Alcore aluminium fluoride plants

- First aluminium fluoride plant planned for Bell Bay, Tasmania, near existing hydro-powered aluminium smelter. Currently assessing specific site locations
- Partner with leading international engineering companies
- High potential for plants in other major aluminium smelting regions



Received $7.5m grant

ALCORE Progress and schedule

PHASE 1 2018-19

ESTABLISHMENT

Create Alcore. ✔
Construct high technology laboratory ✔

PHASE 2 2019-21

PROOF OF CONCEPT

Demonstrate novel chemistry for transforming industrial waste into valuable chemicals. ✔

PHASE 3 2021-22

PILOTING

Establish pilot plant facility.

Finalise commercial plant design.

PHASE 4 2022-24

COMMERCIAL

Construct commercial plant.

Commence production.

PHASE 5 2025

GROWTH

Increase production.

Commence exports.

Utilise additional industrial wastes in process.

Pilot

Commercial

ABx Group

ABx Group Limited
L5 52 Phillip Street
Sydney 2000
Australia
Phone: +61 2 9251 7177
E: corporate@abxgroup.com.au

Julie Young
Marketing & Investor Relations Manager
E: jyoung@abxgroup.com.au