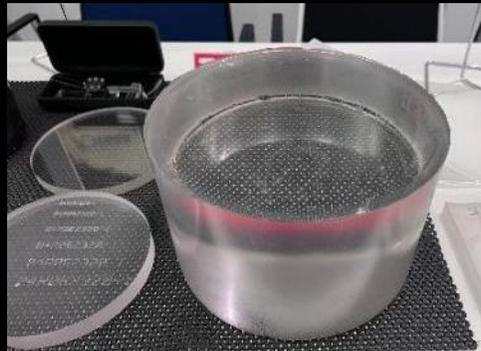


Alpha HPA



**ESTABLISHING A GLOBAL LEADING SUPPLIER OF HIGH PURITY ALUMINIUM MATERIALS TO  
HIGH TECHNOLOGY GROWTH SECTORS**

**ASX: [A4N](#)**

## CAUTIONARY STATEMENT

The Definitive Feasibility Study (DFS) referred to in this Presentation has been undertaken to assess the technical and financial viability of the HPA First project. The DFS is based on the material assumptions about the availability of funding and the pricing received for Alpha. While the Company considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the outcomes indicated by this DFS will be achieved. To achieve the range of outcomes indicated in the DFS, additional funding will be required. Investors should note that there is no certainty that the Company will be able to raise the amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares. It is also possible that the Company could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the HPA First project. If it does, this could materially reduce the Company's proportionate ownership of the HPA First project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the DFS.

## FORWARD LOOKING STATEMENTS

This presentation contains certain forward-looking statements with respect to the DFS, financial condition, results of operations, and business of the Company and certain plans and objectives of the management of the Company that are based on the Company's assumptions, expectations, estimates and projections as of the date on which the statements were made. Generally, forward-looking statements can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. These forward-looking statements involve known and unknown risks, uncertainties and other factors which are subject to change without notice and may involve significant elements of subjective judgement and assumptions as to future events which may or may not occur. Forward-looking statements are provided as a general guide only and there can be no assurance that actual outcomes will not differ materially from these statements. Neither the Company, nor any other person, give any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. In particular, those forward-looking statements are subject to significant uncertainties and contingencies, many of which are outside the control of the Company.

A number of important factors could cause actual results or performance to differ materially from the forward looking statements. Although the Company attempts and has attempted to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements or events not to be as anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Investors should consider the forward looking statements light of those disclosures and are cautioned not to place undue reliance on forward looking statements. The Company disclaims any intent or obligations to or revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.



# ALPHA HPA: INTRODUCTION

We are a technology led, speciality chemicals company

We make **ultra-high purity aluminium products** with a  
worlds first process which are:

**CRITICAL RAW MATERIALS FOR  
HIGH-TECHNOLOGY GROWTH SECTORS**

**HIGH PURITY - HIGH MARGIN - LOW CARBON**

Alpha is commercialising in 2 Stages as the

**HPA FIRST PROJECT**

**STAGE 1 – IN PRODUCTION**

**STAGE 2 – IN CONSTRUCTION**

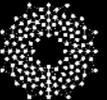




- **STAGE 1: IN PRODUCTION**
- **STAGE 2: IN CONSTRUCTION**

**HPA First Project Site  
Gladstone State Development Area  
100% RENEWABLE ENERGY**

# 4 **HPA FIRST PROJECT: GLADSTONE QLD**



Alpha HPA

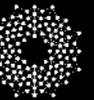


# STAGE 1: IN PRODUCTION



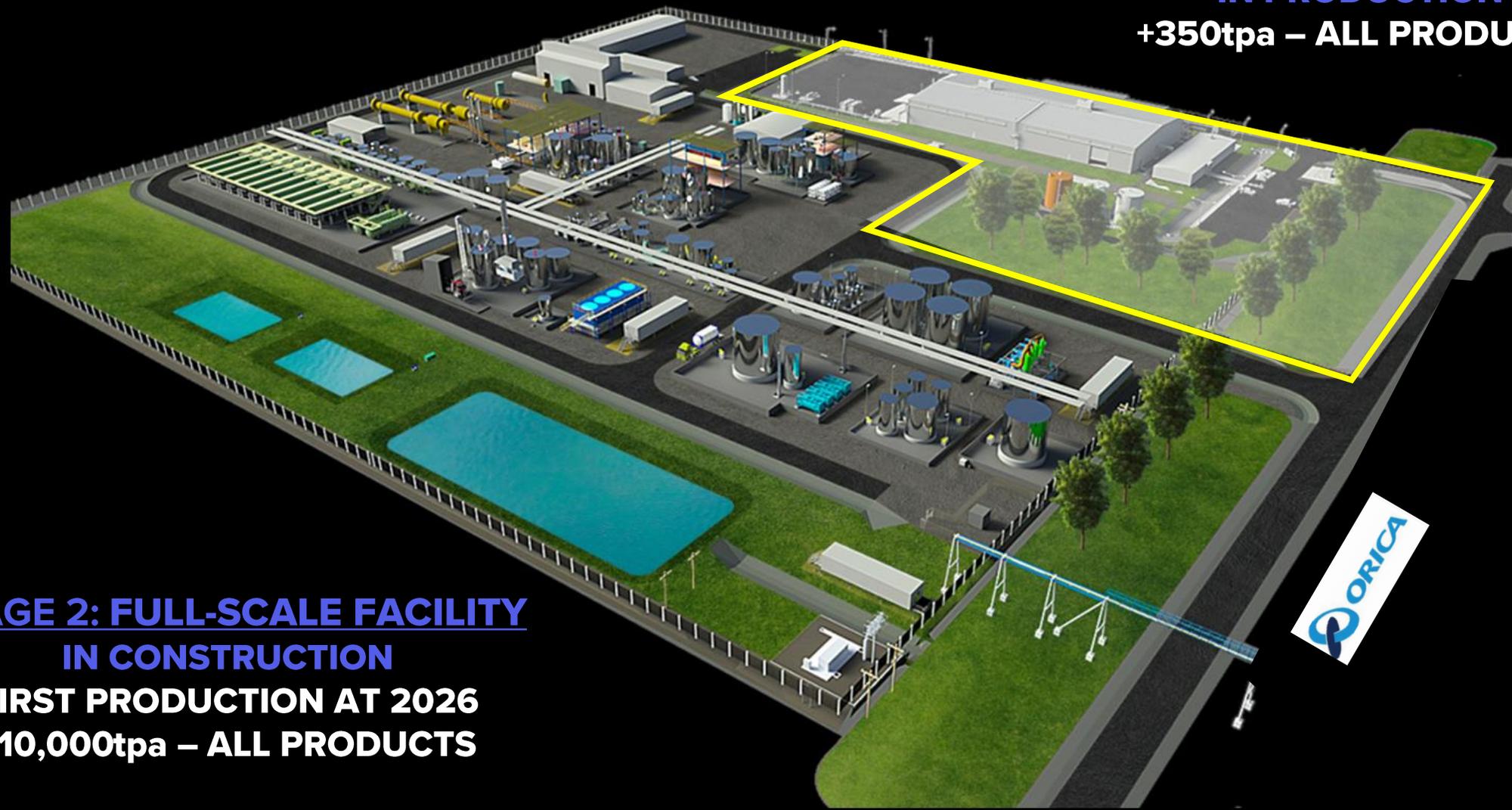


# STAGE 1: HPA CIRCUITS



# PROJECT LAYOUT:

**STAGE 1:**  
**IN PRODUCTION**  
**+350tpa – ALL PRODUCTS**

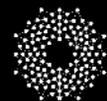


**STAGE 2: FULL-SCALE FACILITY**  
**IN CONSTRUCTION**  
**FIRST PRODUCTION AT 2026**  
**+10,000tpa – ALL PRODUCTS**



Stage 2 Earthworks – September 2024

# STAGE 2 : CONSTRUCTION COMMENCED



Alpha HPA

# COMPREHENSIVE GOVERNMENT SUPPORT

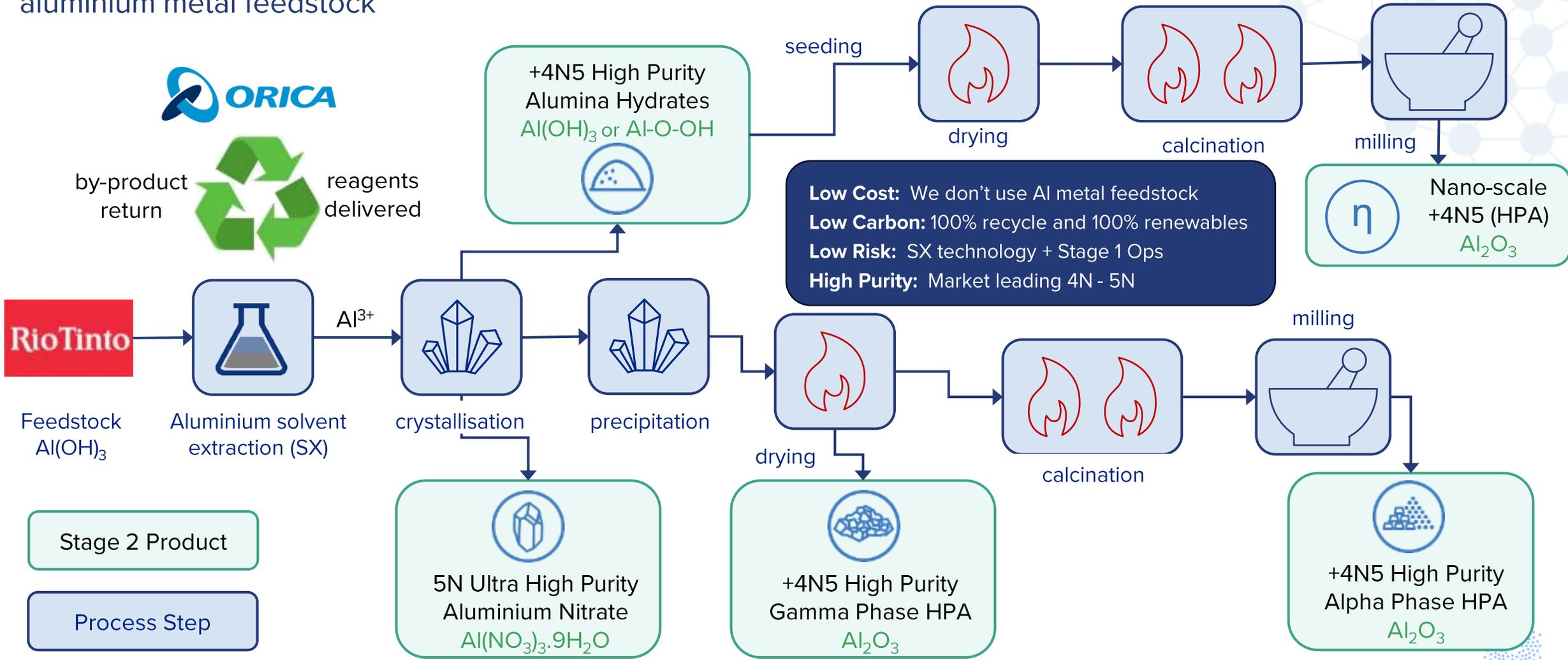


Alpha staff hosting Prime Minister of Australia Anthony Albanese, Federal Minister of Resources Madeleine King, Queensland Premier Steven Miles, and Queensland Minister for Regional Development & Water Glenn Butcher

 Queensland Government	\$21.7m IPP Grant
 Australian Government	\$45M MMI-C Grant
 	\$320M Loan facility + \$80M cost overrun facility

# OUR PROCESS AND TECHNOLOGY

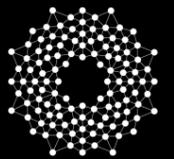
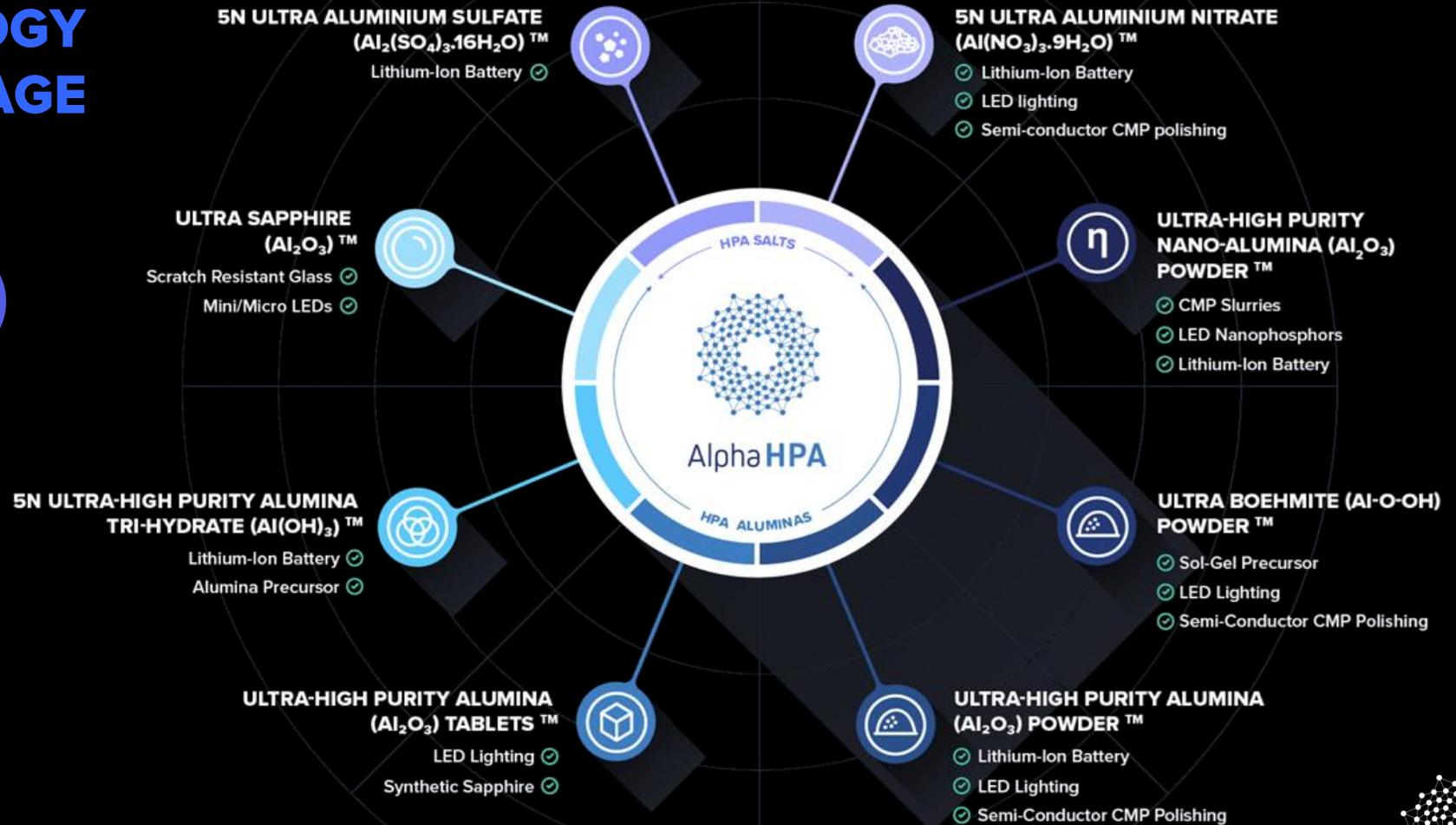
Low cost, low energy process - **highly cost/purity/carbon disruptive to incumbent processes** which utilise aluminium metal feedstock



# OUR PRODUCTS

## HIGH TECHNOLOGY SECTOR COVERAGE

Direct Product Enquiries:  
[dbogaert@alphaHPA.com.au](mailto:dbogaert@alphaHPA.com.au)



Alpha HPA



We don't use aluminium metal as feedstock



Major reduction in process cost and carbon profile compared to incumbent process



We are the first global manufacturer of large volume, aluminium nitrates at world leading high purity (5N+)



Enables key lithium-ion battery safety technology



Enables ultra-high purity alumina and alumina tri-hydrate production (ATH or boehmite)



We recycle ~100% of our large volume reagents as a by-product



Reduction in operating cost and environmental footprint



Highly flexible process with multiple product capability



Product mix optimised to meet customer demand

# OUR PROCESS ADVANTAGE

# ULTRA COAT PROCESS

Rapid, low-cost, high-purity aluminium-hydroxide coatings

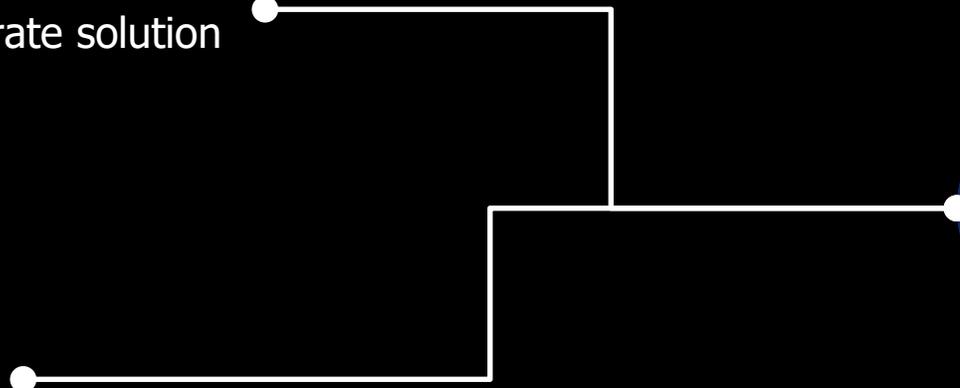
High-purity wet chemical coating across a range of li-ion battery surfaces



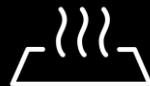
Alpha's proprietary 5N purity  
Aluminium Nitrate solution



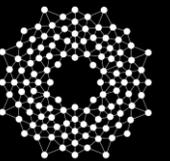
Alkaline



4N+ purity boehmite Al-O-OH or  
Al(OH)<sub>3</sub> coating



Drying 110°C – 800 °C (dependent on final phase)

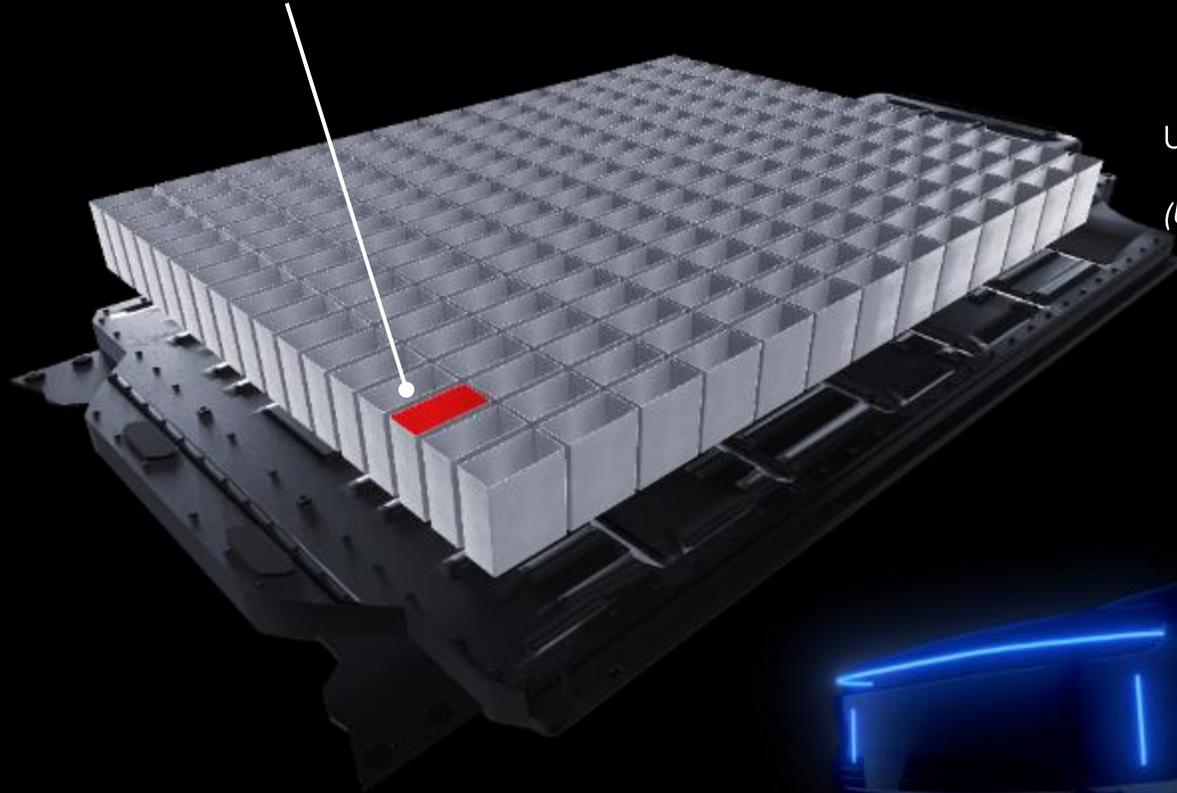


Alpha HPA

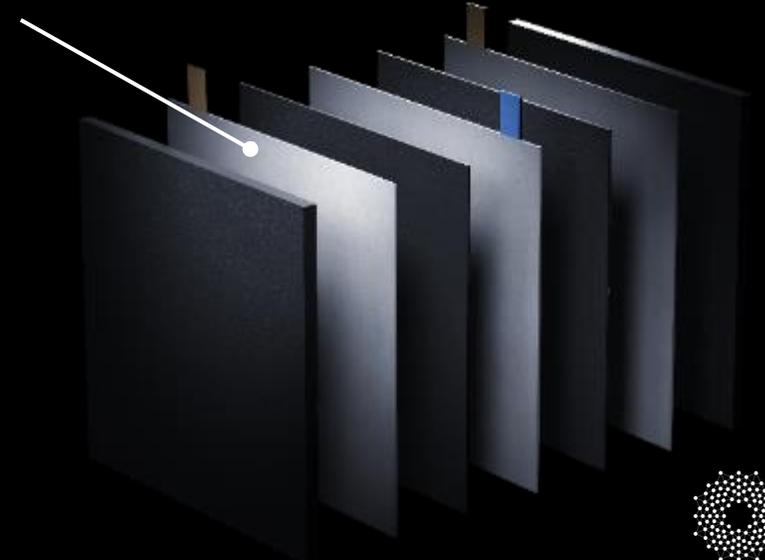
# WE MAKE BATTERIES SAFER

## ALPHA'S HIGH PURITY MATERIALS UNLOCK KEY Li-ION BATTERY SAFETY TECHNOLOGY

Zero propagation from battery pack with high purity  
(Al-O-OH) boehmite coated cell casings  
*(Utilises Alpha Al-Nitrate)*



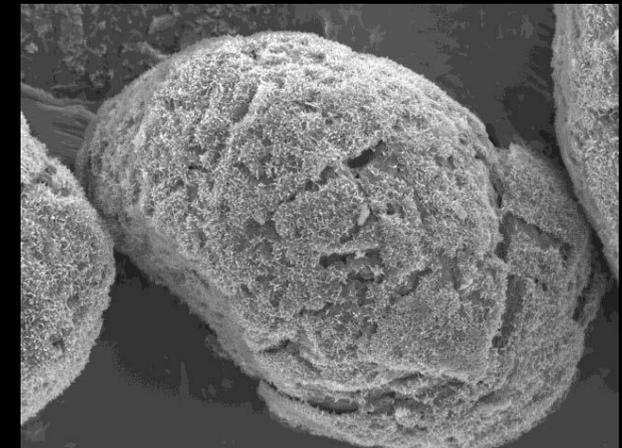
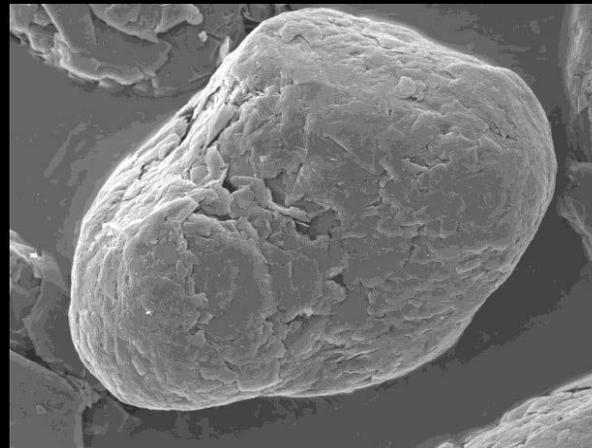
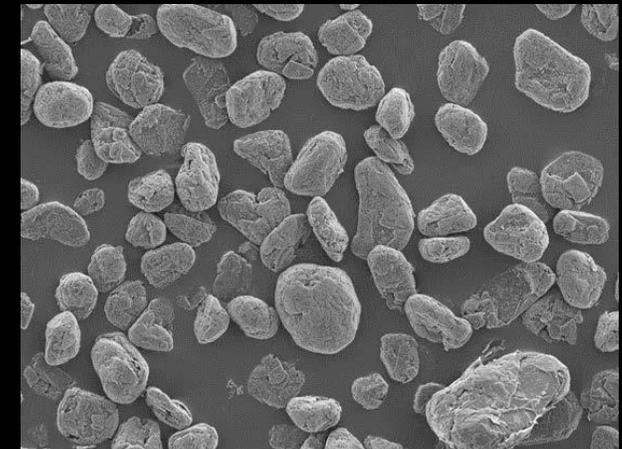
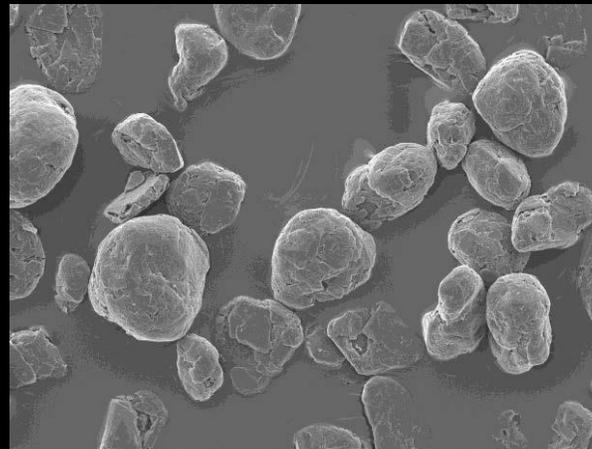
Up to 100% reduction in thermal runaway with coatings on  
graphite anode materials  
*(Utilises Alpha Al-Nitrate and high purity alumina hydrates)*



# ULTRA COAT PROCESS

## COATED GRAPHITE AAM

- Material electrochemical benefits
- **100% reduction in thermal runaway under nail penetration**

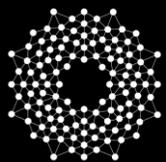


### UNCOATED

Raw, uncoated graphite AAM particles.

### COATED

Ultra fine (10-20nm) Al-O-OH coated anode particles.



Alpha HPA

# BATTERY CELL CASE COATINGS

Al-hydroxide coated cell casings propagation control of thermal runaway within the battery pack.



Rapid, high purity Al-hydroxide coating  
(for OEM – 40% global supply)



Alpha HPA

Front View



Rear View



UNCOATED ALUMINIUM  
15 seconds under butane flame



ULTRA-COATED ALUMINIUM  
Layer integrity intact after 9 minutes under butane flame

# SUPPLYING HIGH POWER SEMICONDUCTORS

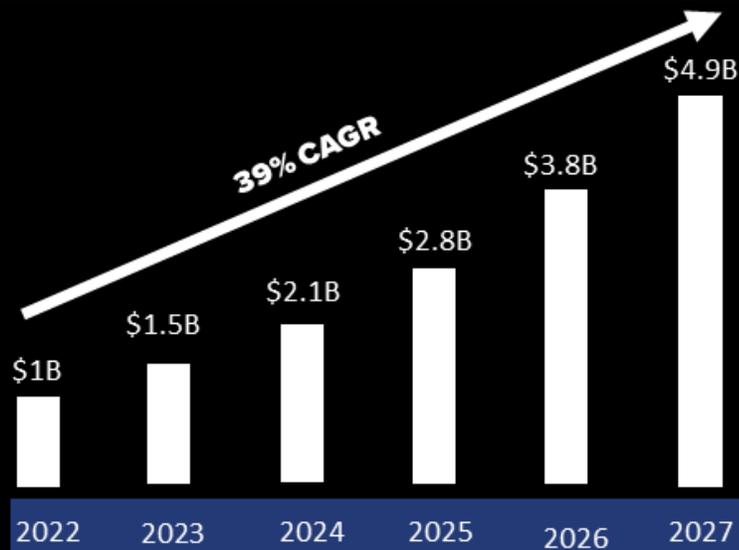
## HPA and HPA precursors for:

- CMP polishing
- Thermal interface packaging

- First sales established
- Semiconductor sector LOI in place for up to 1,000tpa HPA

HPA demand linked to high power semiconductors, particularly silicon-carbide (SiC)

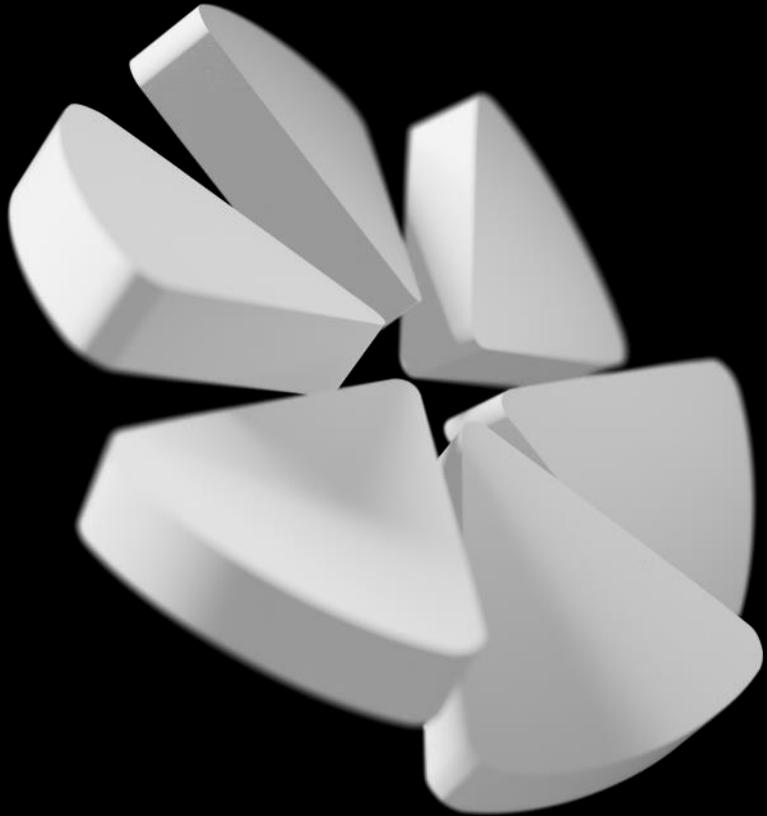
Value of SiC Semiconductors in EV's (US\$M)



Source: Wolfspeed Investor Day 2022 Presentation



# SUPPORTING NEXT-GENERATION LED TECHNOLOGY



Micro-LED

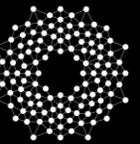


Mini-LED

Alpha's custom HPA tablets for sapphire glass supporting the next generation of LED semiconductor technology



Alpha **SAPPHIRE**

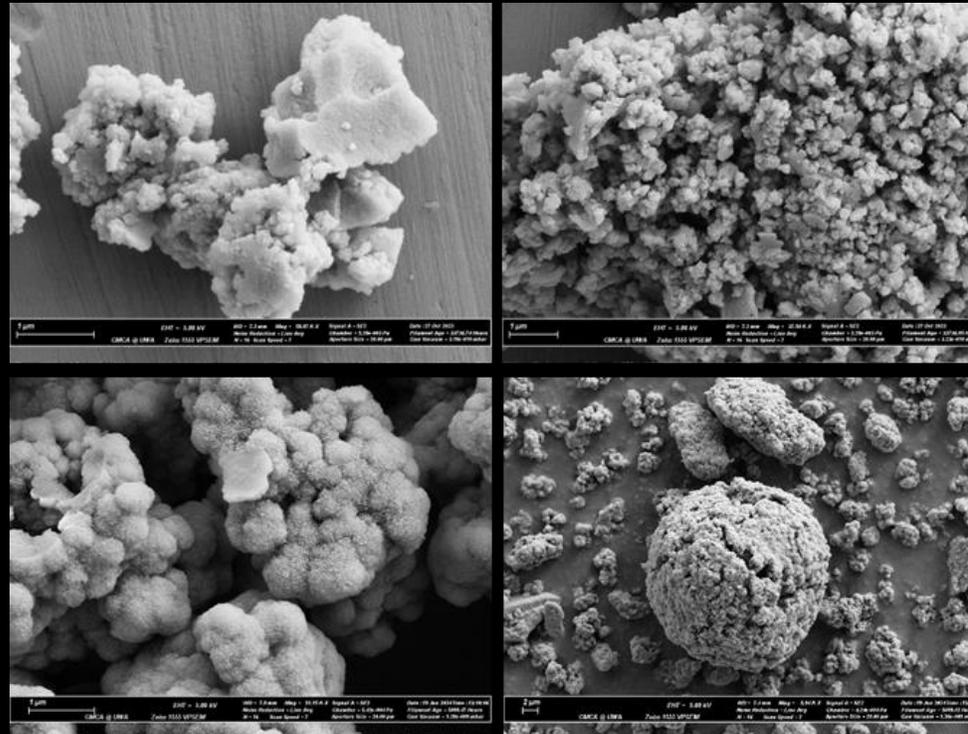


Alpha **HPA**

# NEW FRONTIERS – DLE SORBENTS

## Growing demand from Direct Lithium Extraction (DLE) sorbents

- Aluminium based sorbent made from high-purity aluminium hydroxide ( $\text{Al}(\text{OH})_3$  or 'ATH')
- Alpha has a unique ability to manufacture high purity ATH as 100% amorphous
- Amorphous ATH can generate DLE sorbents with up to 5x Lithium extraction \*\*



\*\* Source: Oak Ridge National Labs



# STAGE 2 DFS: STRONG FINANCIAL METRICS

Compelling HPA First Project Stage 2 financial metrics, ramping up to 87% throughput by FY28 and steady-state production in FY30

## HPA First Project Stage 2 Steady-state Financials

(does not include Alpha Sapphire)

Steady state (FY30) <sup>1</sup>	Units	Alpha HPA Price Discovery Case	Mid Case	Independent Pricing Case
CapEx (includes \$79M contingency)	A\$	\$553M	\$553M	\$553M
<b>Production volume</b>	<b>tpa</b>	<b>10,430</b>	<b>10,430</b>	<b>10,430</b>
Weighted average product price	A\$/kg	\$34.44	\$42.34	\$48.77
<b>Revenue</b>	<b>A\$</b>	<b>\$359M</b>	<b>\$442M</b>	<b>\$509M</b>
Unit cash costs (after by-product credits) <sup>2</sup>	A\$/kg	\$9.58	\$9.58	\$9.58
<b>EBITDA</b>	<b>A\$</b>	<b>\$255M</b>	<b>\$336M</b>	<b>\$403M</b>
<b>Pre-tax free cash flows</b>	<b>A\$</b>	<b>\$251M</b>	<b>\$333M</b>	<b>\$399M</b>
HPAeq volume	tpa	6,850	6,850	6,850
HPAeq price <sup>3</sup>	A\$/kg	\$52.44	\$64.47	\$74.26

**A\$359M – A\$509M**

Annual Revenue

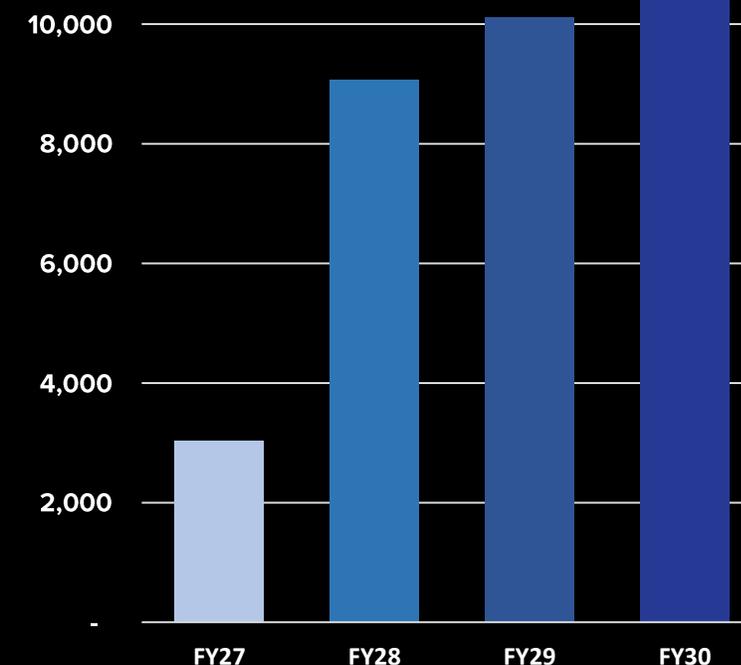
**~71% - 79%**

EBITDA Margin

**A\$251M – A\$399**

Pre-tax free cash flows

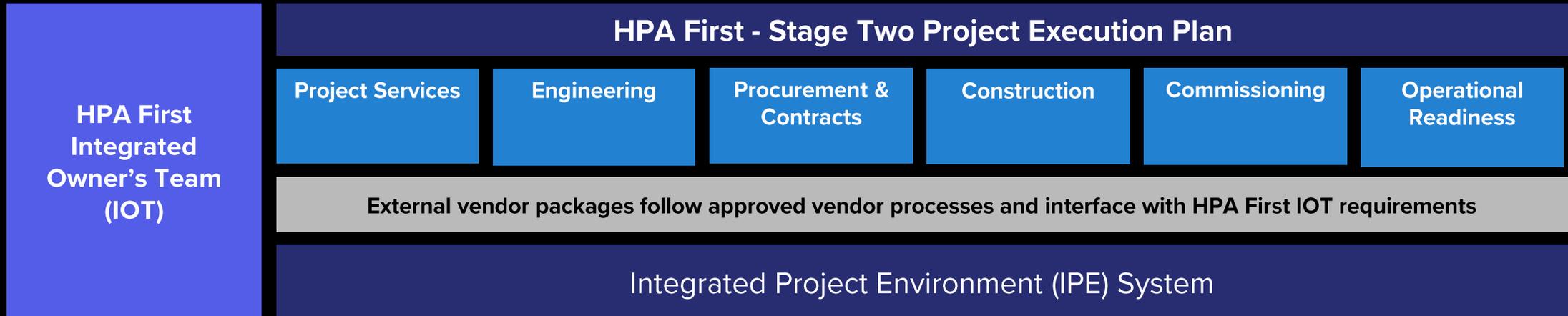
**First Project Stage 2**  
**Production volume ramp up (tpa)**



Note: 1. Revenue grows to A\$359m – A\$509m and EBITDA grows to A\$255m – A\$403m by FY30 reflecting 100% utilisation. EBITDA assumed to be post Payroll tax and royalties. Range based on the Product Pricing Scenarios Alpha HPA Price Discovery Case and Independent Pricing Case as disclosed in the HPA First Project Stage 2 Commercialisation announcement on 20 May 2024. 2. Operating Cost estimate does not include any potential impact of the Budget measures relating to critical minerals tax credits delivered as part of the Federal Budget on Tuesday 14 May 2024. 3. The sale of Al-Nitrates (high purity aluminium salt), which have lower aluminium content than high purity aluminas but a close to equivalent sales value by unit weight, provides a lift in HPAeq price received versus the HPA weighted average product price.



# STAGE 2- DELIVERY INTEGRATED OWNERS TEAM (IOT)

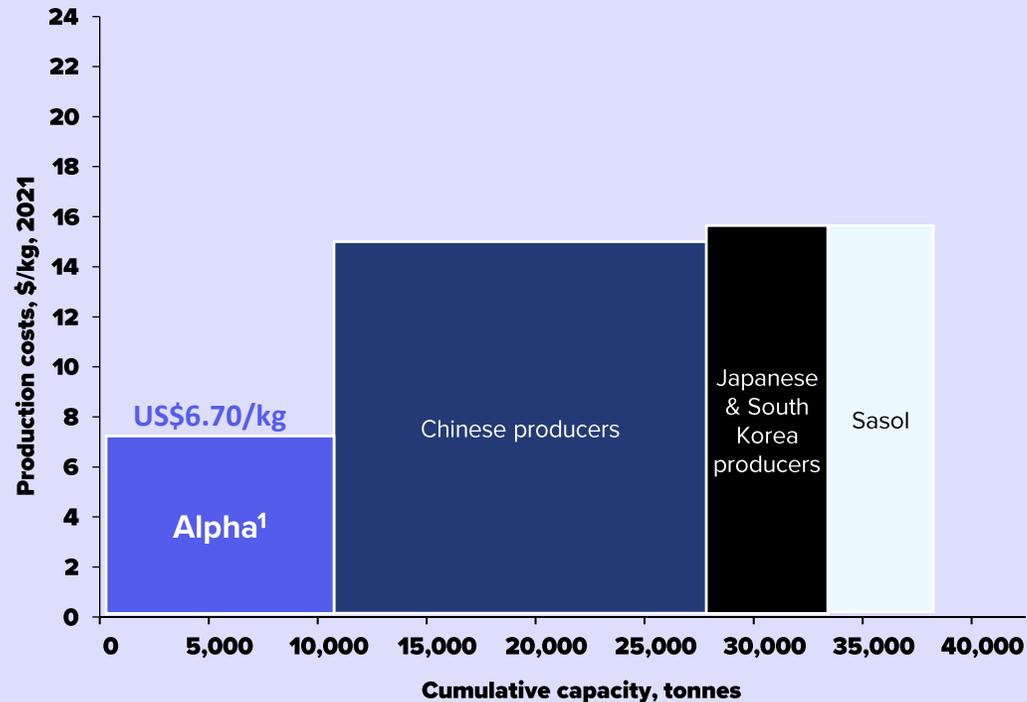


- The Project is being undertaken and delivered by Alpha HPA through the Integrated Owners Team (IOT)
- The IOT is resourced through a “best for project approach” and drawing on professional engineering and specialist service providers:
  - Prudentia / Sedgman engineering
  - Specialist Project Management Consultants
- IOT execution model considered optimized for:
  - Cost and schedule ownership, and
  - IP protection

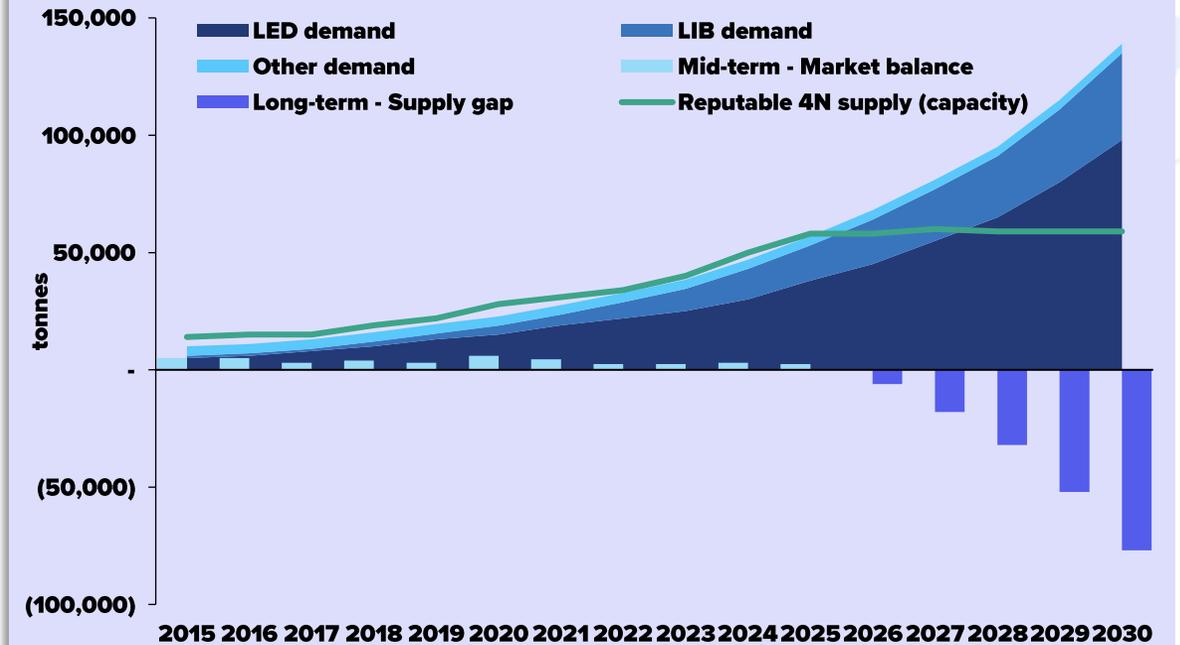
# COST PROFILE

Alpha's low energy and low carbon production process supports low cost, below incumbent peers

**HPA cost curve, current operations, 2021, US\$/kg<sup>1</sup>**



**4N+ HPA production capacity is growing with demand<sup>1</sup>**



Note: 1. CRU 2022, company reports. Alpha steady state production from FY30, after by-product credits. HPA Market Study in Support of BFS: Dates 07/01/2022 (Prepared for Alpha HPA).

# MARKET OUTREACH AND PRICING

- Extensive 4+ year global market outreach
- Detailed, technically driven understanding of market and applications
- Pricing obtained by interviews, sales, refined quotations and customer LOIs
- Comprehensive database of pricing available for Alpha's materials
- Alpha in product qualification testing for ~25,000tpa product demand
- B2B pricing protected from any index volatility
- **Pre-commercial sales orders building since FID, +3,000kg @ ~ US\$27/kg**

**USA**

- Semiconductor
- Li-ion battery
- LED lighting
- Specialty Ceramics

Demand +5,000tpa  
Counterparties: +20



**EU**

- Li-ion battery
- LED lighting
- Catalysts
- Specialty Ceramics

Demand +15,000tpa  
Counterparties: +20

**Japan**

- Semiconductor
- Li-ion battery
- Specialty Ceramics

Demand +2,000tpa  
Counterparties: +10



**China**

- Li-ion battery

Demand +10,000tpa  
Counterparties: 4



**South Korea**

- Semiconductor
- Li-ion battery

Demand +1,000tpa  
Counterparties: +4

## Product Pricing (US\$/kg)

Product	Alpha HPA Market Discovery		Independent Consultants		
	Vol Weighted Avg*	HPA Eq**	CM Group (CY27)	GLG	HPA Eq**
5N Purity Aluminium Nitrate	18.5	123.3	n/a	20 - 30	125.0
4N5+ Purity Alpha Phase Alumina	32.0	32.0	39.3	n/a	39.3
4N5+ Purity Alumina for pucks	25.0	25.0	35.0	n/a	35.0
4N5+ Purity Gamma Phase Alumina	20.3	20.3	27.5	n/a	27.5
4N5+ Purity Alumina Trihydrate	15.0	23.1	19.4	n/a	29.8
4N5+ Purity Nano-Alumina	43.0	43.0	50.0	n/a	50.0

Note: \*Demand Vol Weighted Average: Average prices weighed by volumes indicated from customers and potential end-users, and/or sales achieved. \*\* HPA Eq: Is calculated from Demand Vol Weighted Average.

# PRODUCT MARKETING

Strong demand from customers driven by underlying sector growth, decarbonisation and supply chain de-risking

## MARKET ENGAGEMENT HIGHLIGHTS



**Comprehensive market outreach with over 200 potential end users across the Li-ion, LED semiconductor and specialty materials applications sectors**



**Extensive, multi-year commercial market engagement with over 220 test samples despatched to over 125 end users**



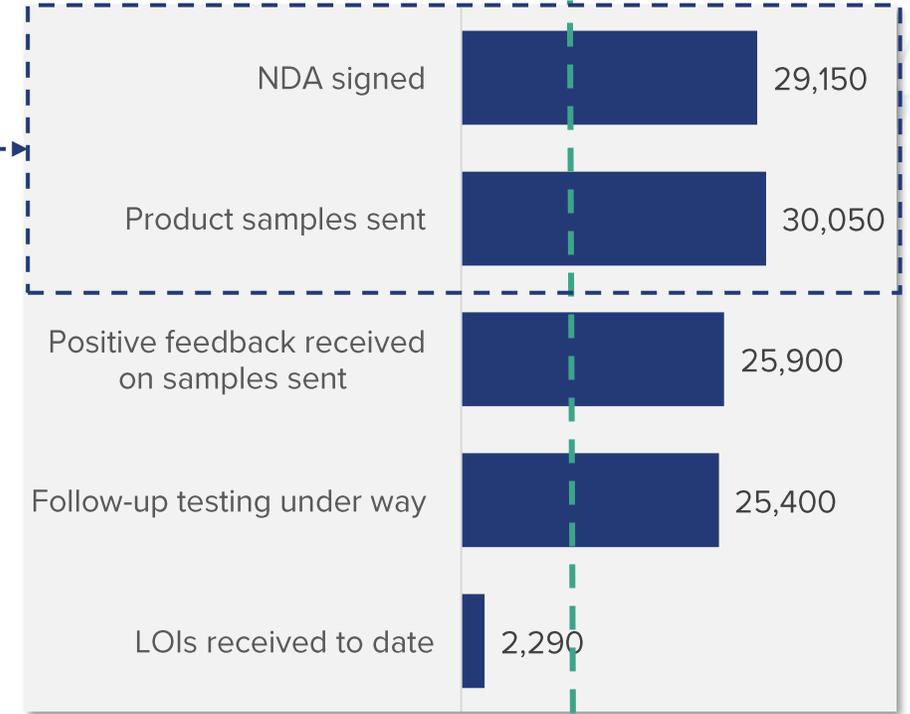
**Gladstone Stage 1 facilities servicing over 4 tonnes of product test orders for 20 separate end-users (as at May-24)**



**Customer LOIs in place for ~22% of Stage 2 Project volumes (2,290tpa<sup>1</sup>) to date**

Active engagement and qualification sampling with end-users representing ~300% coverage of Stage 2 project production capacity

## VOLUME INDICATIONS ACROSS KEY ENGAGEMENT PHASE (TPA)

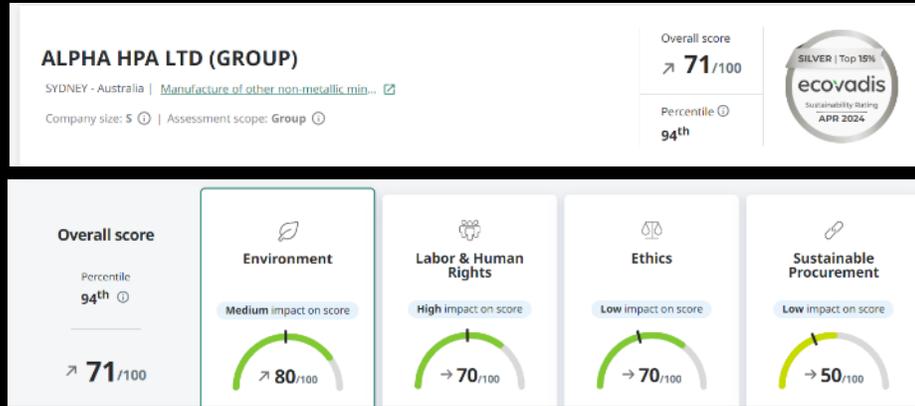


Stage 2: 10,430tpa Capacity

Note: 1. Up to 2,290tpa volume indication from LOIs signed (6 end-users to date).

# ESG: INDEPENDENT CERTIFICATION

## SUSTAINABILITY RATING



## SUSTAINABILITY

## ISO CERTIFICATION



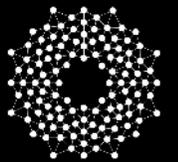
## QUALITY



## ENVIRONMENTAL MGMT



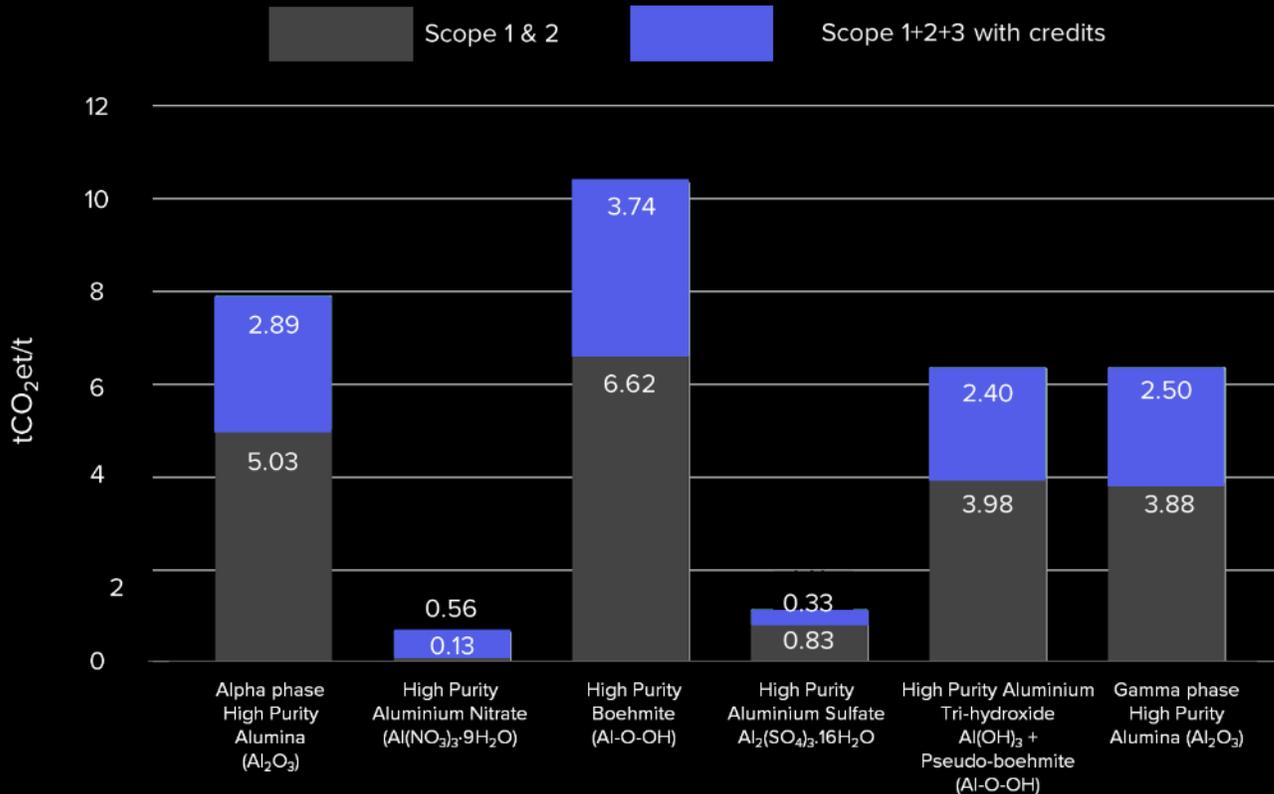
## WORK, HEALTH & SAFETY



Alpha HPA

# WORLD LEADING EMISSIONS

50-70% lower CO<sub>2</sub> emissions over incumbent (alkoxide) process

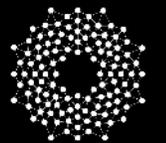


~71% lower total emissions in feedstock and production process combined compared to the incumbent process

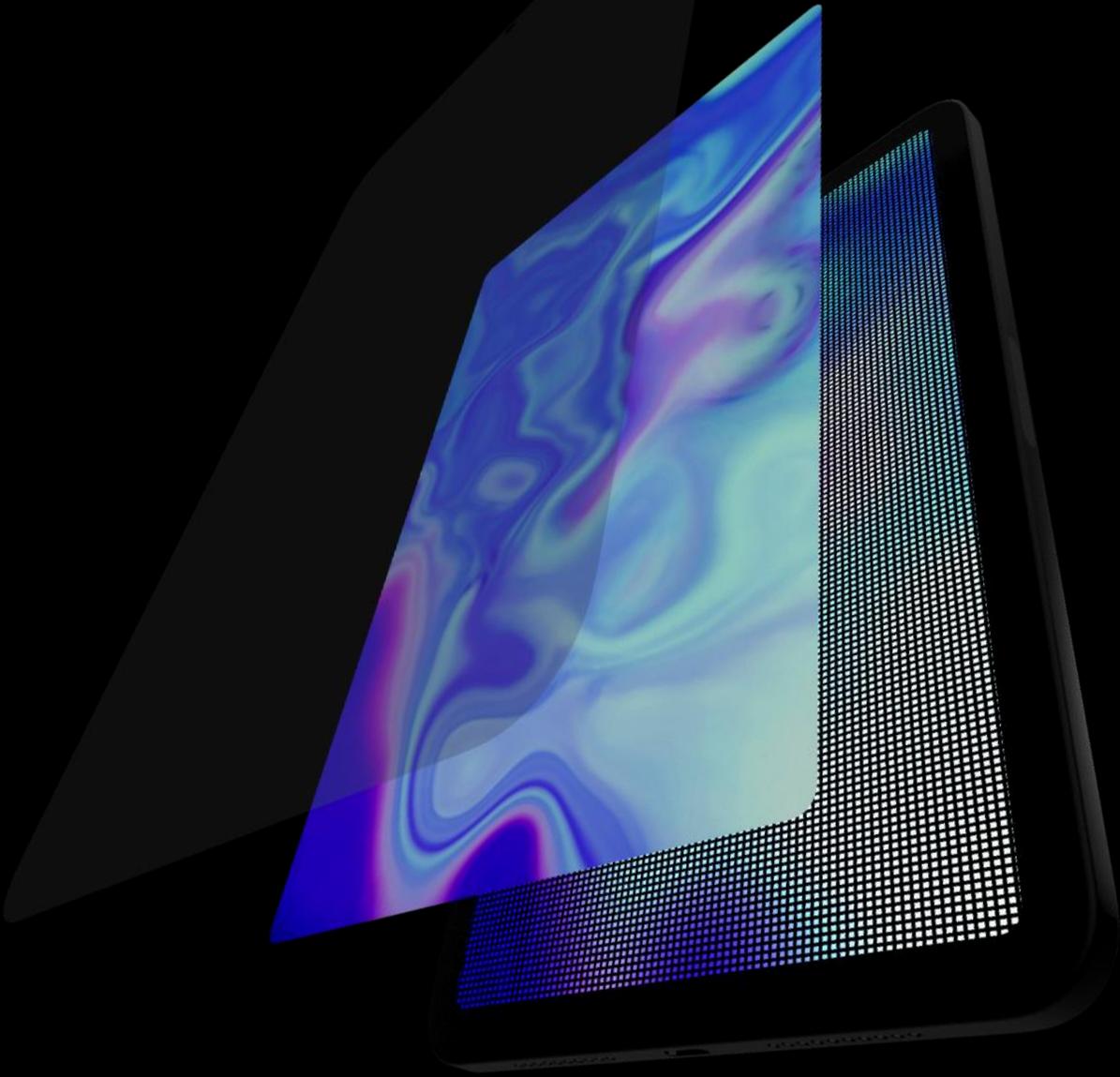
## EMISSIONS REDUCTIONS

1. We do not use Al metal as feedstock
2. We recycle our reagents
3. We use 100% renewable energy

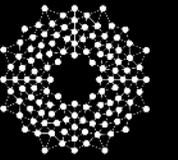
Independent emissions analysis by  Carbon Chain



Alpha HPA

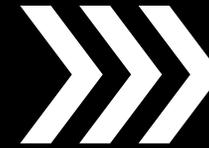
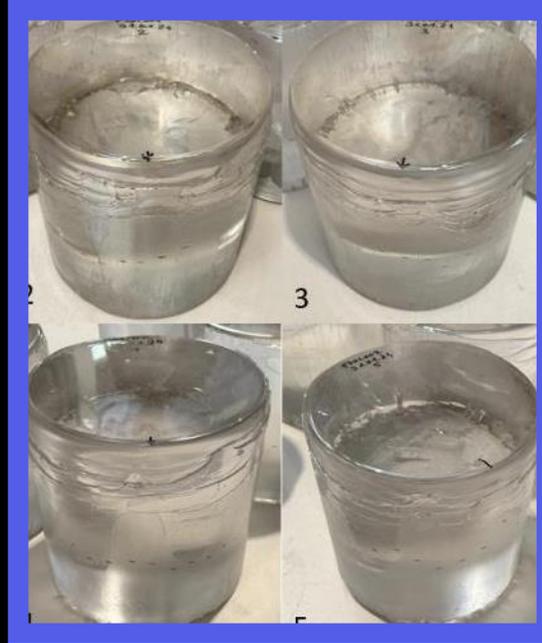
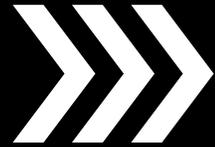
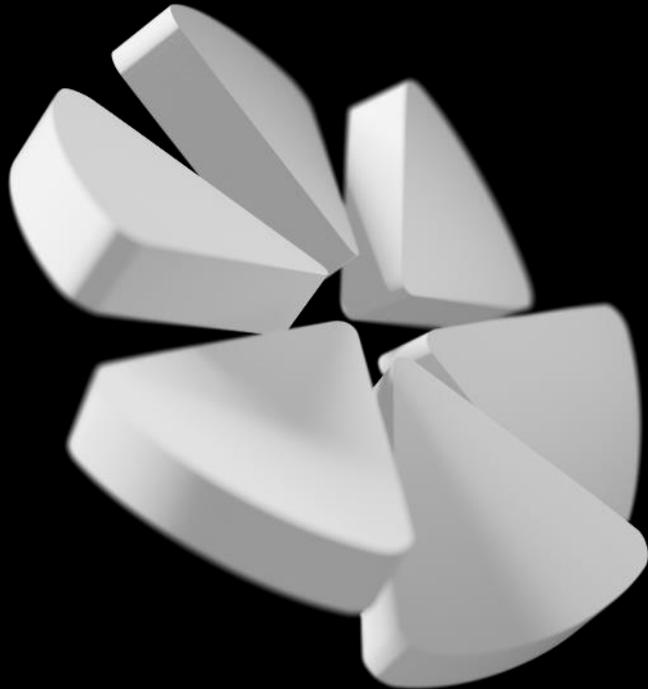


Alpha **SAPPHIRE**



Alpha**HPA**

# ALPHA SAPPHIRE: ADDING DOWNSTREAM VALUE TO HPA



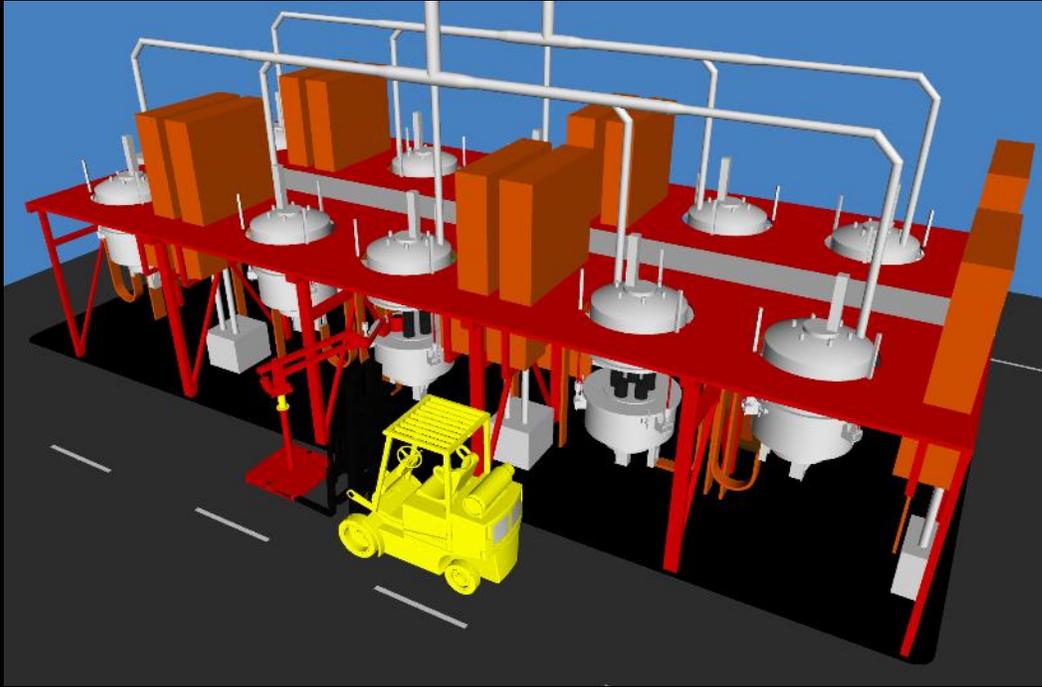
Alpha **SAPPHIRE**



Alpha **HPA**

- Targeting **mini & micro-LED** and **sapphire optics** markets
- **September 2023:** \$30M QIC funding to secure sapphire business for QLD
- **November 2023:** \$40M equity financing to match QIC
- 50 growth units are at steady state operation post FY25, and once the 100 growth units are in steady state operation post FY26.

# ALPHA SAPPHIRE: UNIQUE SECTOR OPPORTUNITY

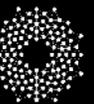


- **First Sapphire Growth Units now fully installed – first sapphire early May**

- **Technology Disruption:** Access to new Ebner-Fametec Technology
- **Supply Crunch:** End-user desire to de-link from Russia-China production
- **Demand Pull:** Major new demand from micro-LED adoption



Alpha **SAPPHIRE**



Alpha **HPA**

# ORICA STRATEGIC INVESTMENT

2018

Aug-21

Nov-22

Nov-23

May-24

Commence  
Technical  
Diligence

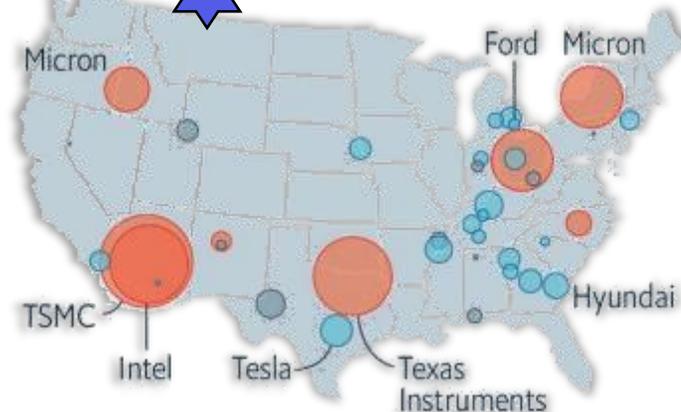
Definitive  
Commercial  
Agreements

5% Strategic  
Investment &  
North American  
MoU

Supported  
Alpha Sapphire  
Raising A\$40M

Supported  
FID Stage 2 Raising  
A\$180M

## NORTH AMERICA INVESTMENT LANDSCAPE



\*Source: White House

## TECHNICAL AND COMMERCIAL VALIDATION VIA ORICA DUE DILIGENCE AND INVESTMENT



- ASX 100 Company Orica Ltd (ASX: ORI) acquired a 5% strategic interest in Alpha HPA in November 2022
- Orica and Alpha have worked together on the HPA First Project since 2018
- The investment builds upon binding arrangements to supply chemical reagents and offtake by-products at the HPA First Project, Gladstone
- Represents significant external endorsement of the capability, safety and operability of the process
- MoU signed to assess high purity aluminium products plant in North America (Alberta)

# CORPORATE SNAPSHOT

## TRADING INFORMATION

ASX CODE	A4N
Share Price (04/11/2024)	~\$1.01c
52-week trading range	\$0.77 – \$1.18
Issued Shares	1,134M

## CAPITAL STRUCTURE

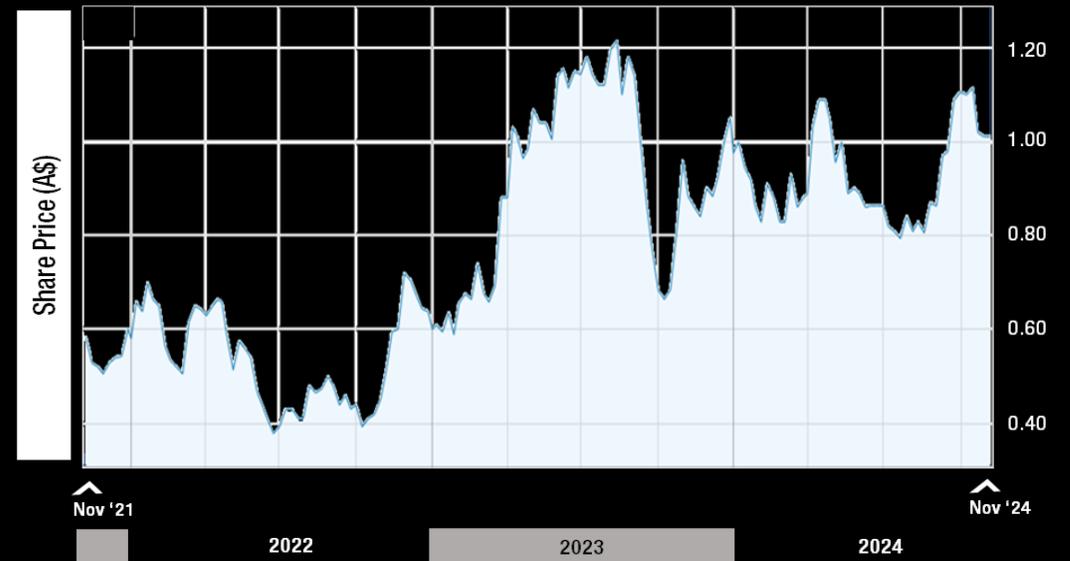
Issued Shares	1,134M
Unlisted options (@90c)	8.8M (expire 30 April 2025)
Unlisted options (@90c)	3M (expire 31 Aug 2025)
Performance Rights	5.58M

Market Cap ~\$1.15B

Est Cash (30/09/2024) ~\$184.5M

Enterprise Value \$961M

## SHARE PRICE PERFORMANCE – 3 YEARS



## SHAREHOLDERS

### TOP 20

	56.0%
Regal Funds	8.0%
Permgold P/L (N. Seckold)	6.0%
Orica Investments	5.1%
Australian Super	4.97%

# Thank You

**Rimas Kairaitis**  
Managing Director

[rkairaitis@alphahpa.com.au](mailto:rkairaitis@alphahpa.com.au)  
+61 408 414 474

**Robert Williamson**  
Director and COO

[rwilliamson@alphahpa.com.au](mailto:rwilliamson@alphahpa.com.au)  
+61 407 125 176

**Rob Lord**  
Investor Relations

[rlord@alphahpa.com.au](mailto:rlord@alphahpa.com.au)  
+61 400 008 553

**Cameron Peacock**  
Business Development

[cpeacock@alphahpa.com.au](mailto:cpeacock@alphahpa.com.au)  
+61 439 908 732

[alphahpa.com.au](http://alphahpa.com.au)

