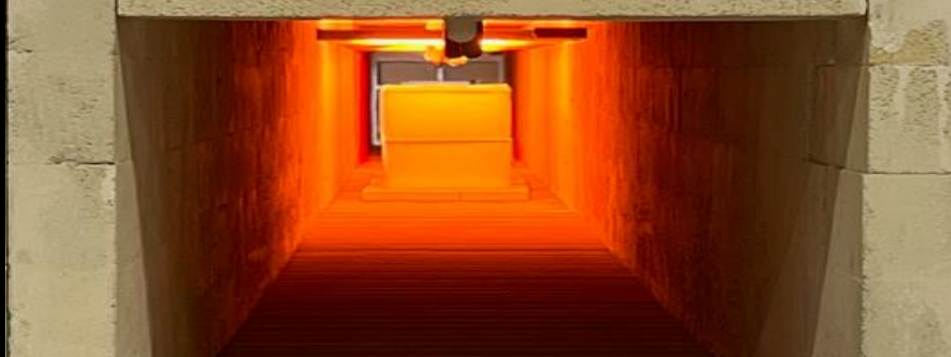


Alpha HPA



AGM PRESENTATION – NOVEMBER 2024

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.





Gladstone, QLD

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

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

HPA FIRST PROJECT: **GLADSTONE QLD**



2024 HIGHLIGHTS

**CREDIT APPROVED A\$400M
AUST. GOVT. LOAN FACILITIES**

**FULLY UNDERWRITTEN
INSTITUTIONAL PLACEMENT OF
A\$175M***

+ \$5.25M Share Purchase Plan (SPP)

**F.I.D AND COMMENCEMENT OF
STAGE 2 CONSTRUCTION**

Groundbreaking on Australia's first high purity aluminium manufacturing facility

**CONTINUED EXPANSION OF
PRODUCT MARKET OUTREACH**

170 test sample order since June 2024

Customer LOI's for 23% of Stage 2

5 further LOI's issued in draft

**ESTABLISHMENT OF AUSTRALIA FIRST
SYNTHETIC SAPPHIRE GROWTH**

**KEY TECHNOLOGY ADVANTAGES
ESTABLISHED**

Li-on battery safety

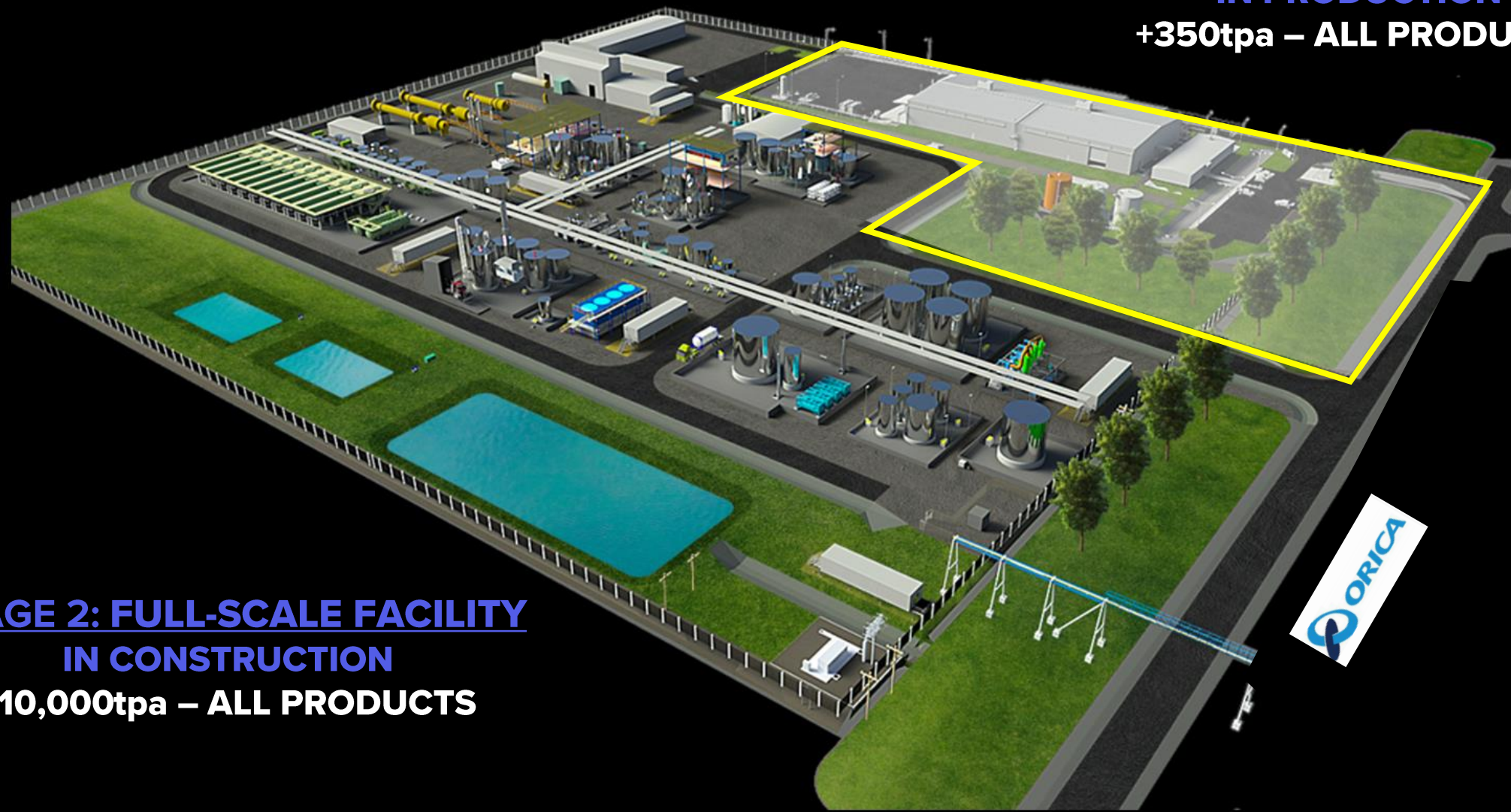
Semi-conductor packaging

Direct Lithium Extraction (DLE)

* Before Costs

PROJECT LAYOUT:

STAGE 1:
IN PRODUCTION
+350tpa – ALL PRODUCTS



STAGE 2: FULL-SCALE FACILITY
IN CONSTRUCTION
+10,000tpa – ALL PRODUCTS

COMPREHENSIVE GOVERNMENT SUPPORT



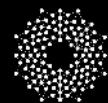
Alpha staff hosting Prime Minister of Australia Anthony Albanese, Federal Minister of Resources Madeleine King, Queensland Premier Steven Miles, and Queensland Minister for Regional Development & Water Glenn Butcher

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



Stage 2 Earthworks – September 2024

STAGE 2 : CONSTRUCTION COMMENCED



Alpha HPA

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

A\$359M – A\$509M

Annual Revenue

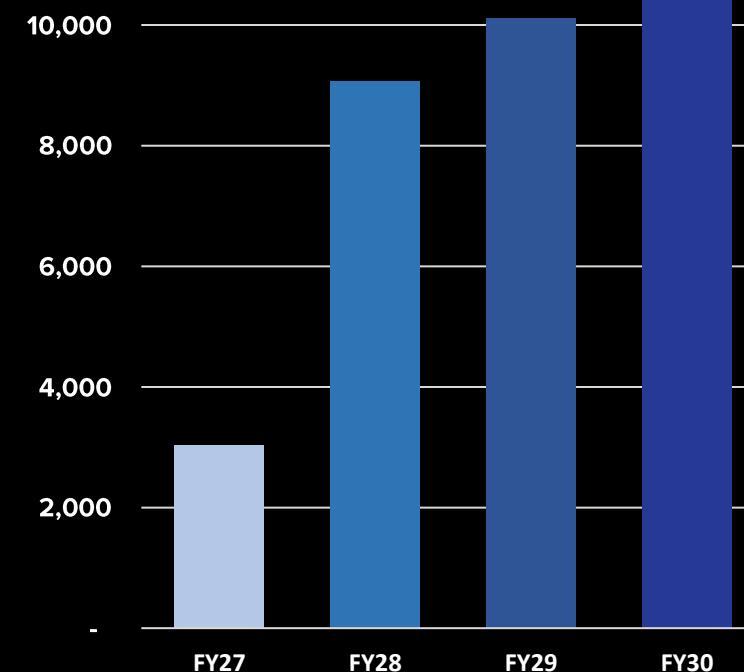
~71% - 79%

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.



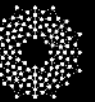
STAGE 1: IN PRODUCTION



Alpha HPA



STAGE 1: HPA CIRCUITS





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



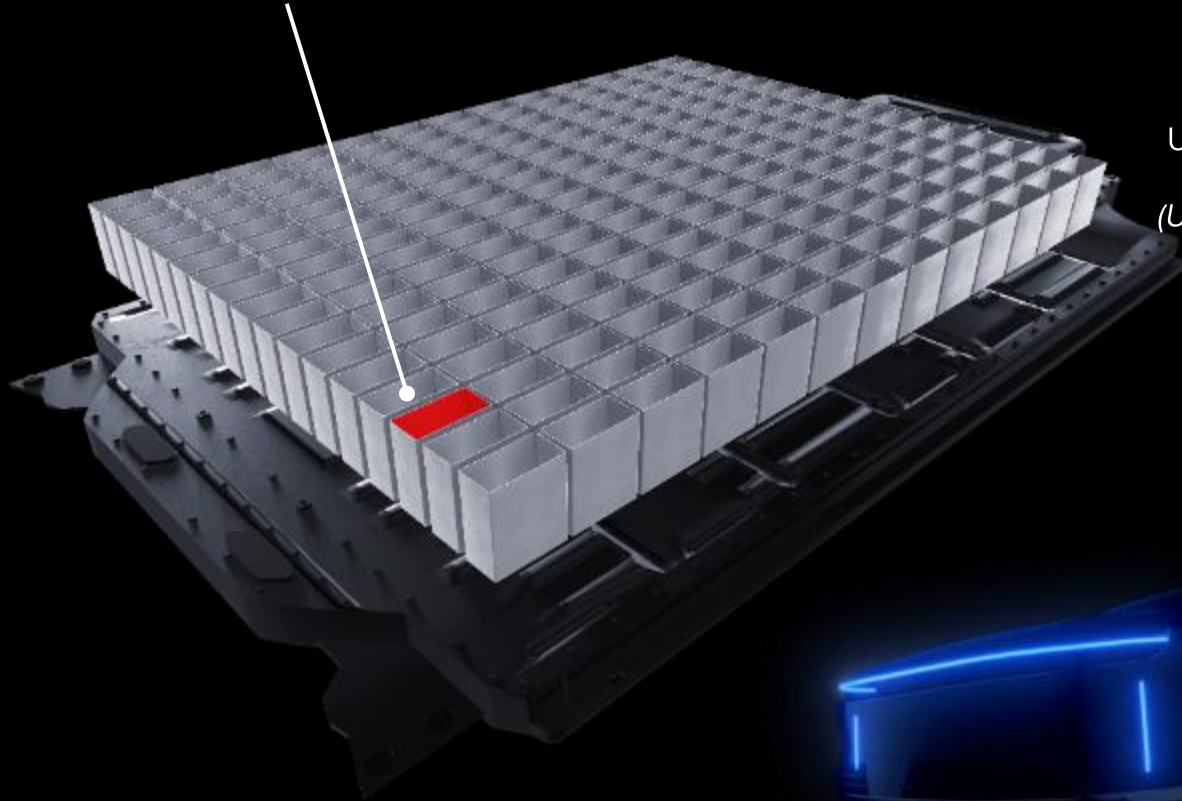
Product mix optimised to meet customer demand

OUR PROCESS ADVANTAGE

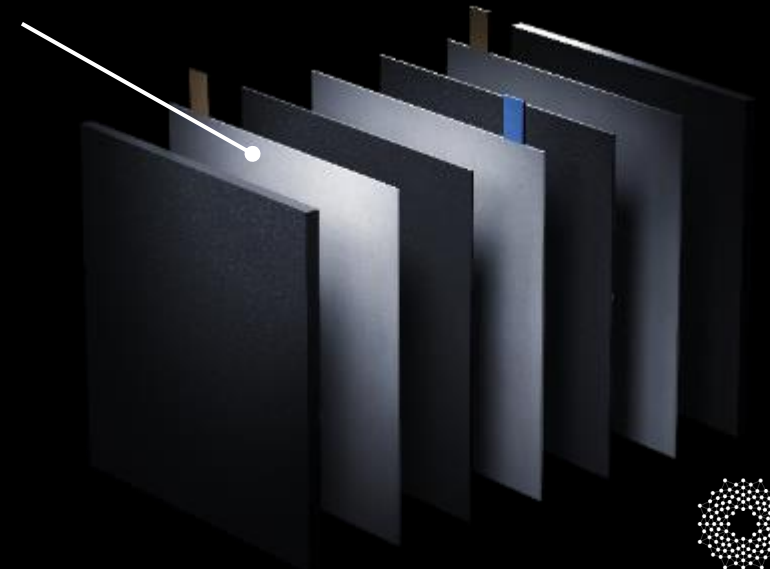
WE MAKE BATTERIES SAFER

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's Al-Nitrate and high purity alumina hydrates)



SUPPLYING HIGH POWER SEMICONDUCTORS

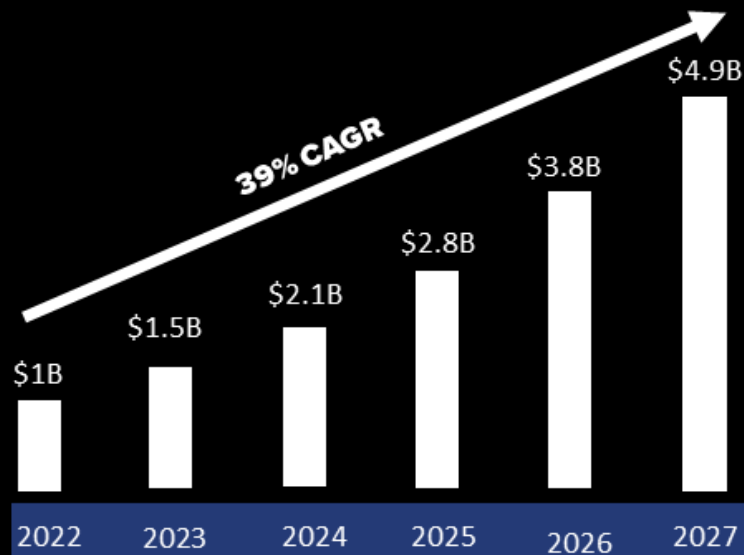
HPA and HPA precursors for:

- CMP polishing
- Thermal interface packaging

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

HPA demand linked to high power semiconductors, particularly silicon-carbide (SiC) and GaN-on-sapphire

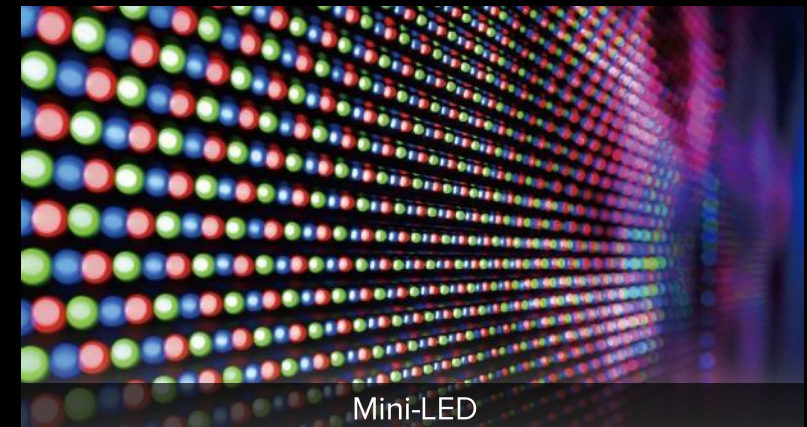
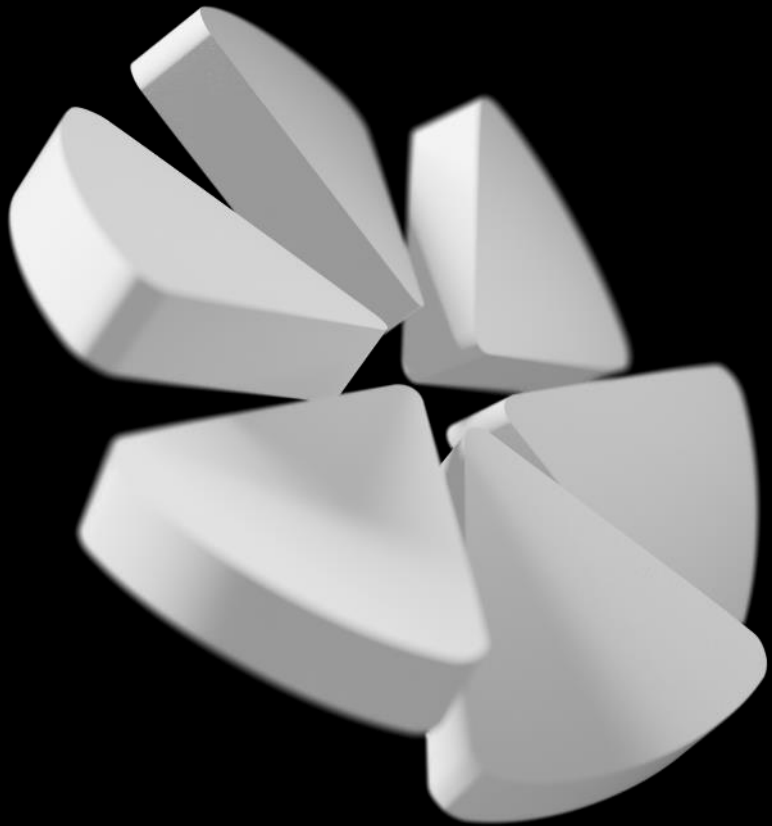
Value of SiC Semiconductors in EV's (US\$M)



Source: Wolfspeed Investor Day 2022 Presentation



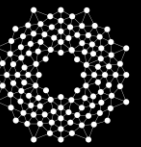
SUPPORTING NEXT-GENERATION LED TECHNOLOGY



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



Alpha **SAPPHIRE**

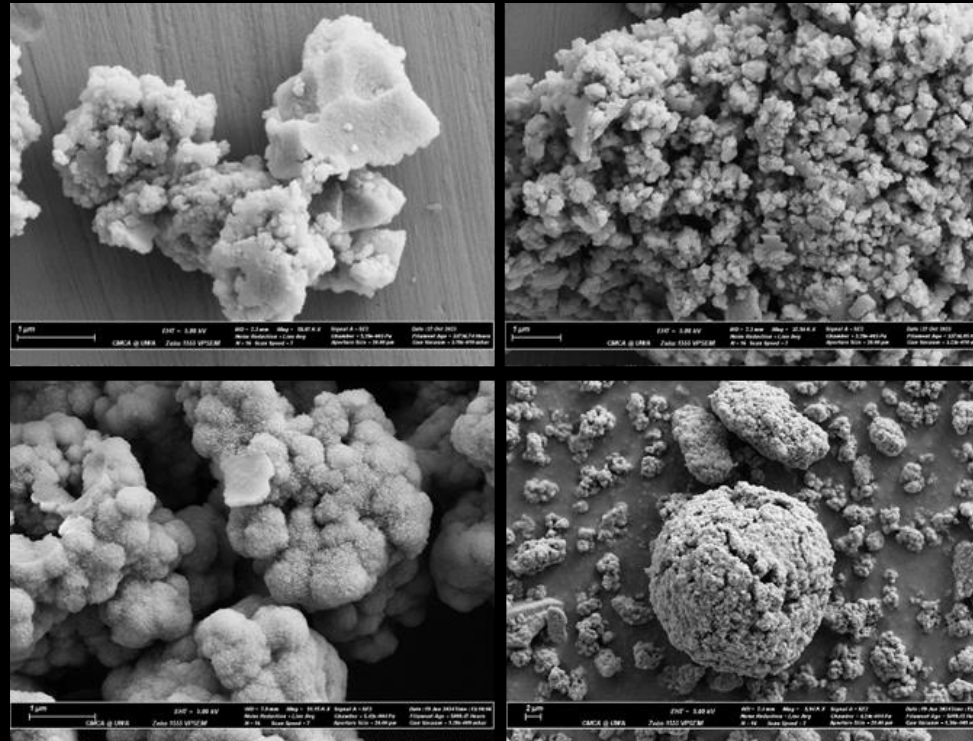


Alpha **HPA**

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

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
- **Alpha focused on new market applications where we hold a product and/or process advantages**

USA

- Semiconductor
- Li-ion battery
- DLE Sorbents
- Specialty Ceramics

Demand +10,000tpa
Counterparties: +20



EU

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

Demand +10,000tpa
Counterparties: +15

Japan

- Semiconductor
- Li-ion battery
- Specialty Ceramics

Demand +2,000tpa
Counterparties: +10



China

- Li-ion battery

Demand +10,000tpa
Counterparties: +15



South Korea

- Semiconductor
- Li-ion battery
- Medical

Demand +1,500tpa
Counterparties: +10



Product	Product Pricing (US\$/kg)				
	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.

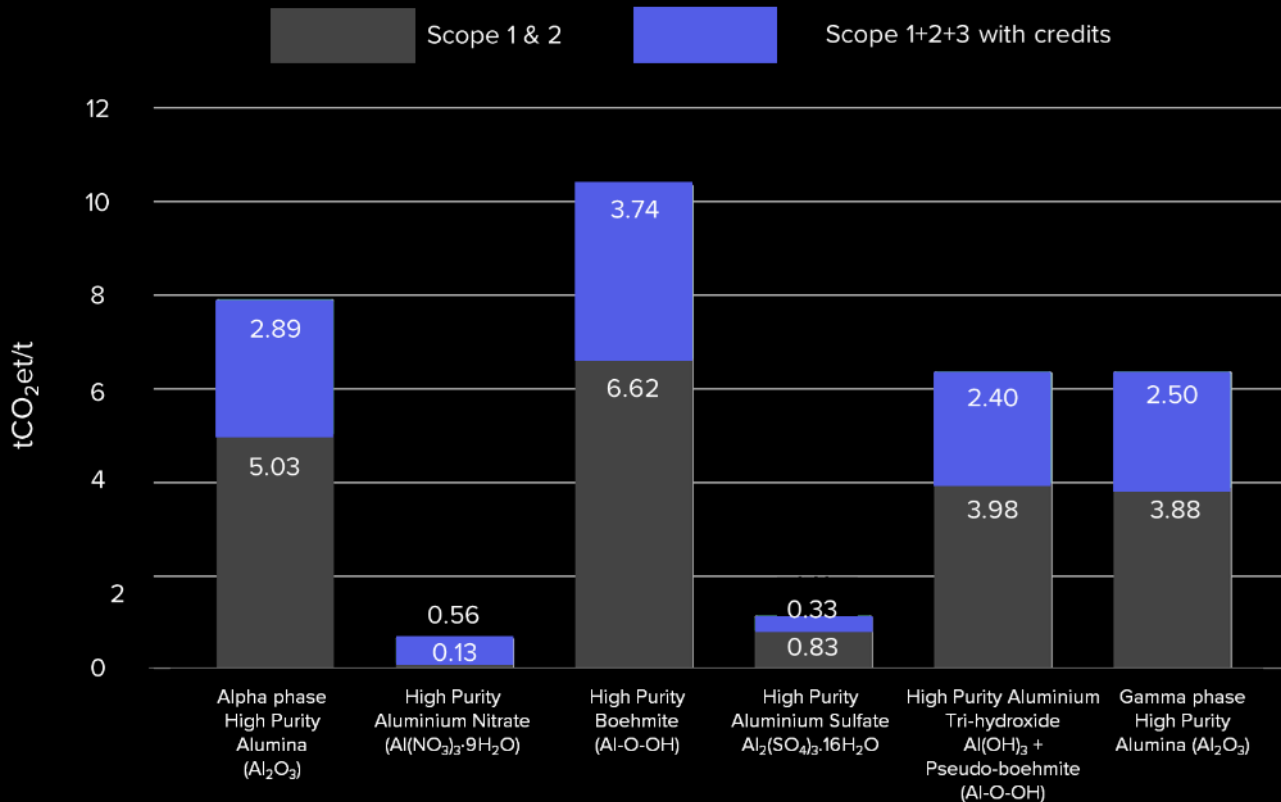
TEST ORDERS AND SMALL SCALE SCALES VOLUMES BUILDING

- 170 test orders received since FID (May 2024)
- Steady conversion of market engagement to small scale sales is a critical qualification stage-set to finalising larger volume orders and offtakes
- 19 sales orders serviced since FID, +1,310kg @ ~ US\$33/kg
- >3,000kg of sales and test orders under manufacture



WORLD LEADING EMISSIONS


50-70% lower CO₂ emissions over incumbent (alkoxide) process

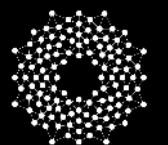


~71% lower total emissions in feedstock and production process combined compared to the incumbent process

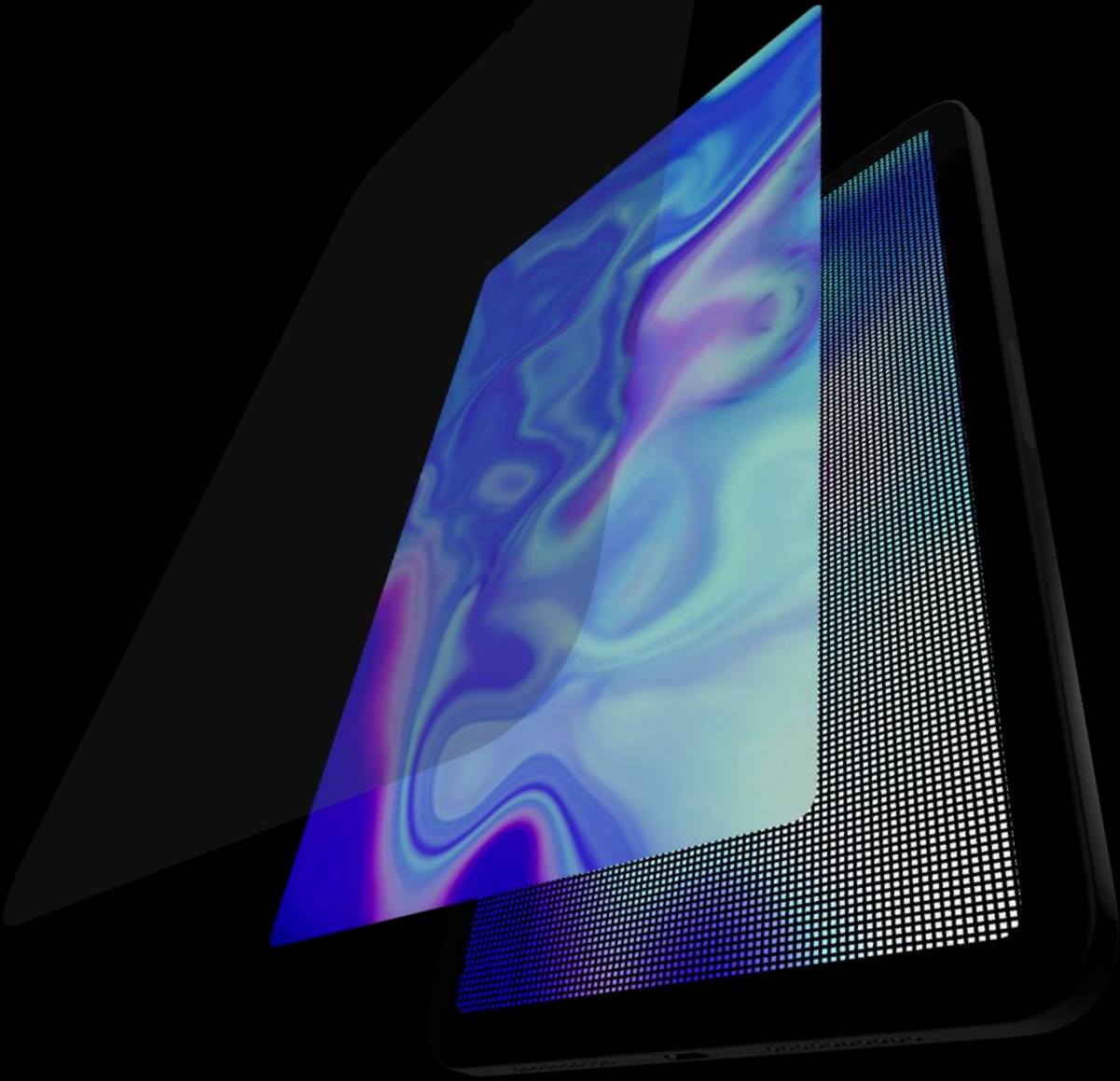
EMISSIONS REDUCTIONS

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

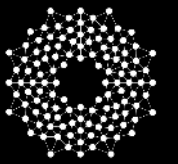
Independent emissions analysis by  Carbon Chain



Alpha HPA



Alpha **SAPPHIRE**



Alpha**HPA**

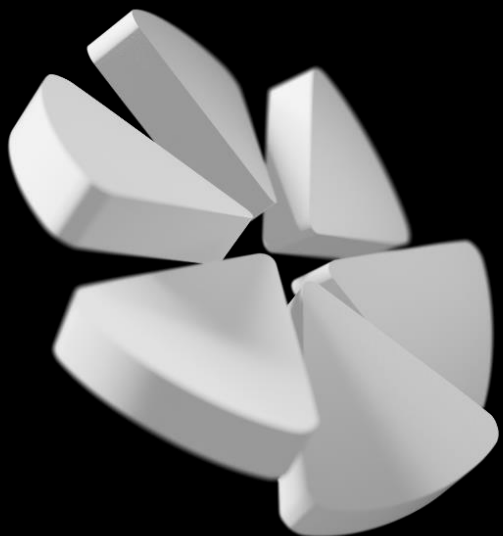


Alpha **SAPPHIRE**

2024 HIGHLIGHTS

- First 2 growth units installed
- First sapphire growth established
- Maiden sales commenced into sapphire optics
- Qualification commenced for 3 x semiconductor OEMs

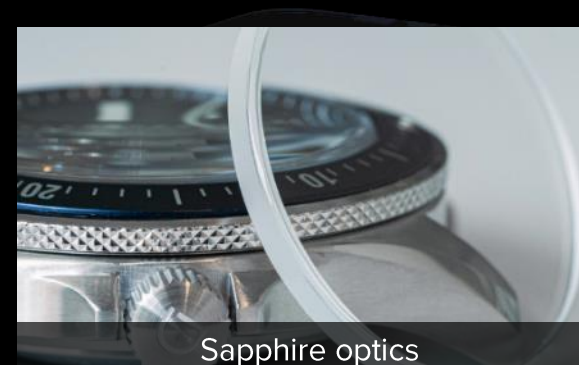
ALPHA SAPPHIRE: MARKET OBSERVATIONS



Densified HPA tablets



Wafer blanks



Sapphire optics

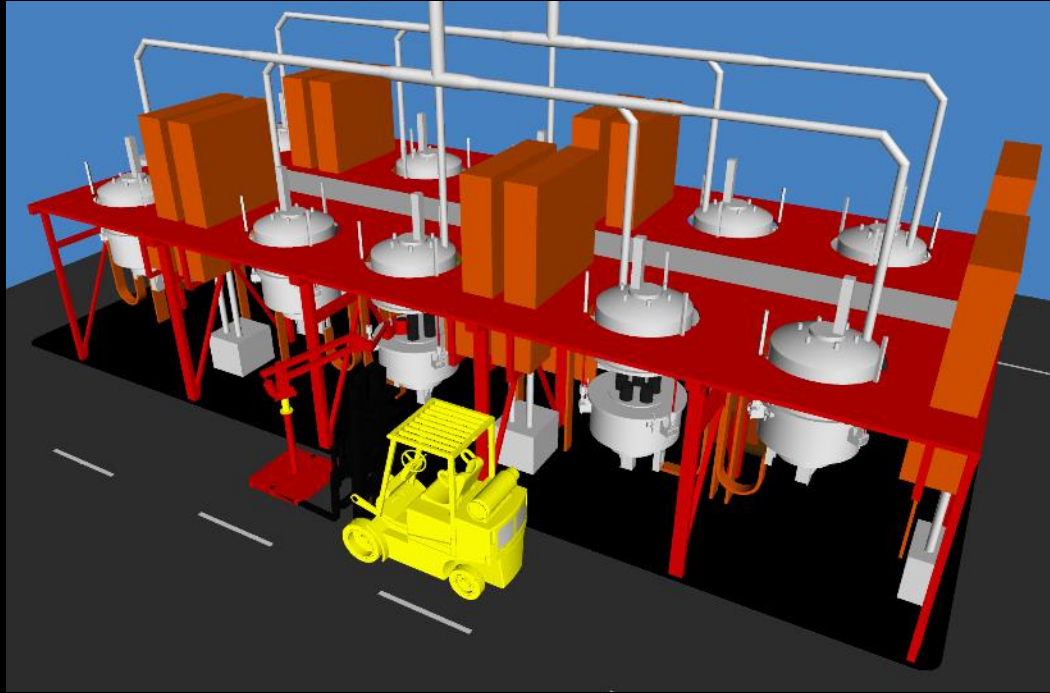


LED

- Large scale adoption of mini and micro-LED display technologies delayed
- Adoption of GaN-on-sapphire semiconductors accelerating
- Our ability to grow wide format (8") sapphire growth remains a key technology advantage
- High 'ESG' sapphire desired



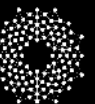
ALPHA SAPPHIRE: EXPANSION



- Feasibility of expansion from current Phase A to Phase B still under assessment
- CapEx estimation complete and under value review
- OpEx reduction estimates under review



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

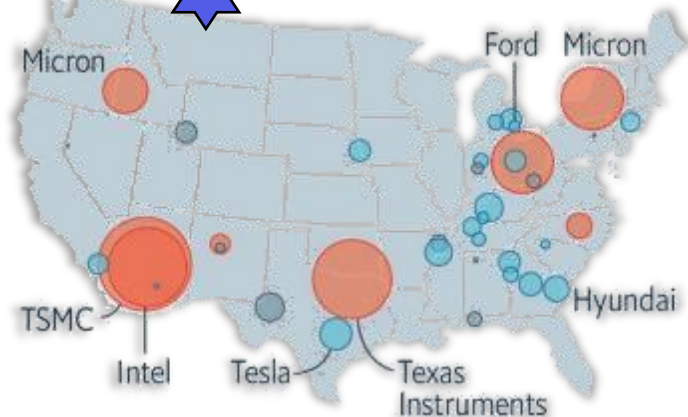


United States, manufacturing investments announced*, 2021-22, \$bn

- Semiconductor factories
- Electric vehicles & battery plants
- Other†



*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

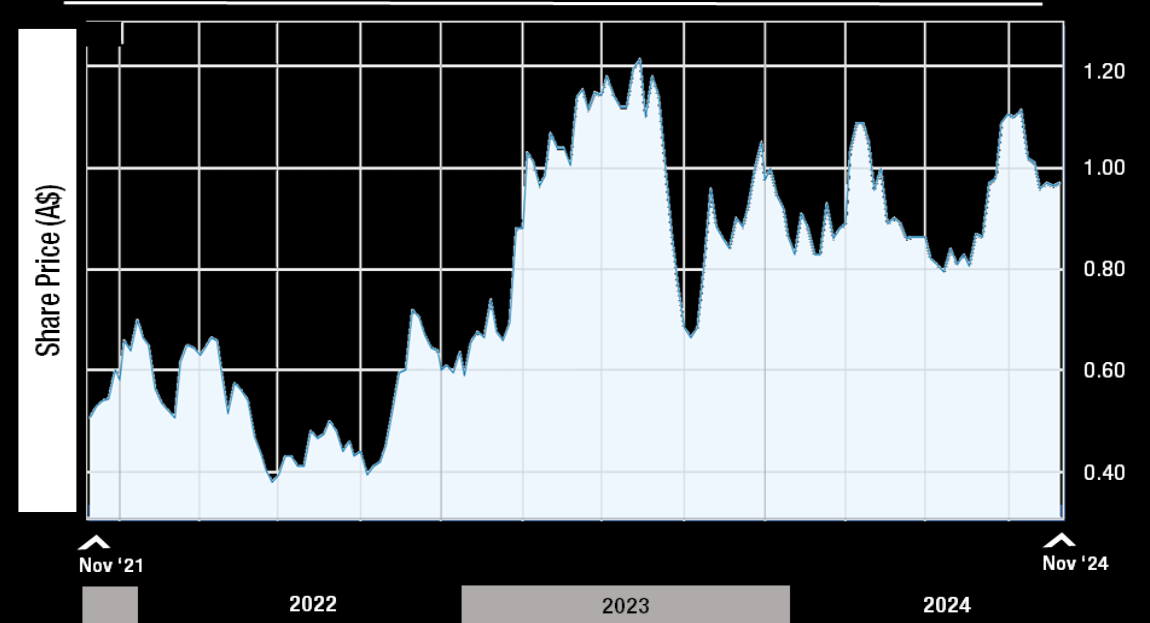
ASX CODE	A4N
Share Price (04/11/2024)	~\$0.97c
52-week trading range	\$0.77 – \$1.18

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	5.57M

Market Cap	~\$1.10B
Est Cash (25/11/2024)	~\$167.0M
Enterprise Value	\$936M

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

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