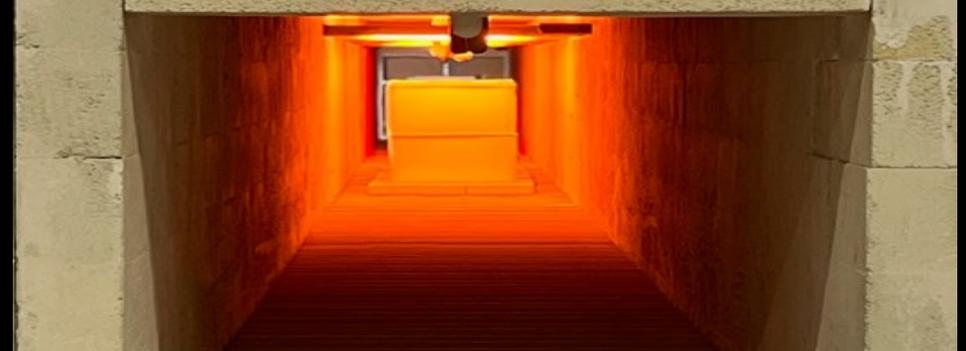


Alpha HPA



ULTRA PURE – LOW CARBON ALUMINIUM MATERIALS

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 HPA. 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 financial condition, results of operations, and business of the Company and certain plans and objectives of the management of the Company. 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. Investors should consider the forward looking statements contained in this DFS in light of those disclosures.

This presentation is for information purposes only. Neither this presentation nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sales of shares in any jurisdiction. The presentation may not be distributed in any jurisdiction except in accordance with the legal requirements applicable in such jurisdiction. Recipients should inform themselves of the restrictions that apply to their own jurisdiction as a failure to do so may result in a violation of securities laws in such jurisdiction. This presentation does not constitute investment advice and has been prepared without considering the recipients investment objectives, financial circumstances or particular needs and the opinions and recommendations in this presentation are not intended to represent recommendations of particular investments to particular persons. Recipients should seek professional advice when deciding if an investment is appropriate. All securities' transactions involve risks, which include (among others) the risk of adverse or unanticipated market, financial or political developments. To the fullest extent of the law, Alpha HPA Limited, its officers, employees, agents and advisors do not make any representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of any information, statements, opinion, estimates, forecasts or other representations contained in this presentation. No responsibility for any errors or omissions from the announcement arising out of negligence or otherwise is accepted.



ALPHA HPA: INTRODUCTION

We are a technology/industrial chemical company

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

CRITICAL RAW MATERIALS FOR DE-CARBONISATION

Our proprietary process delivers us the competitive edge

HIGH PURITY - HIGH MARGIN - LOW CARBON

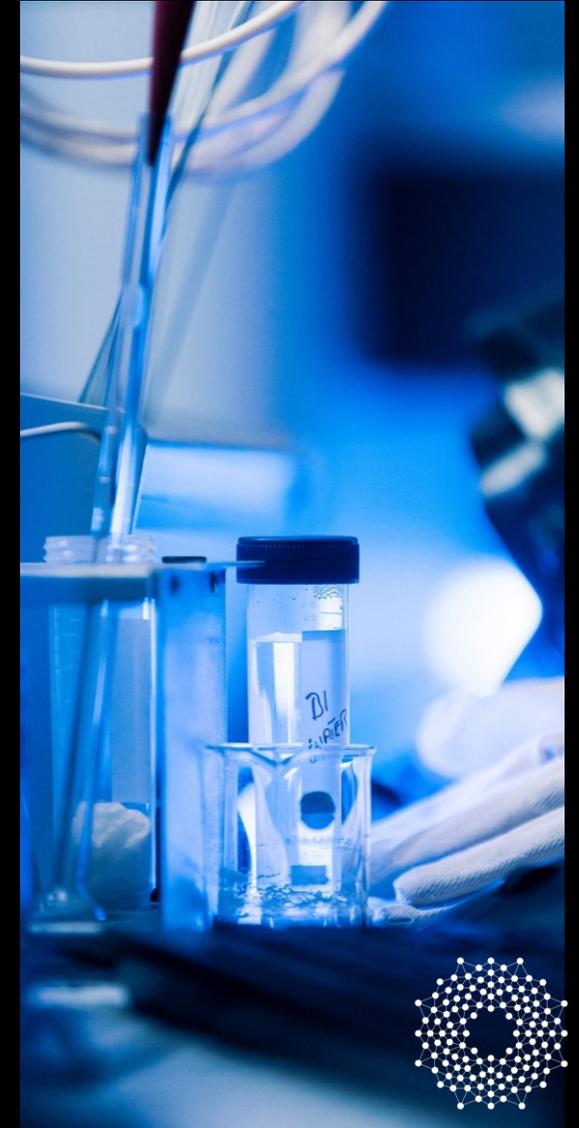
Alpha is commercialising in 2 Stages as the

HPA FIRST PROJECT

STAGE 1 – IN PRODUCTION

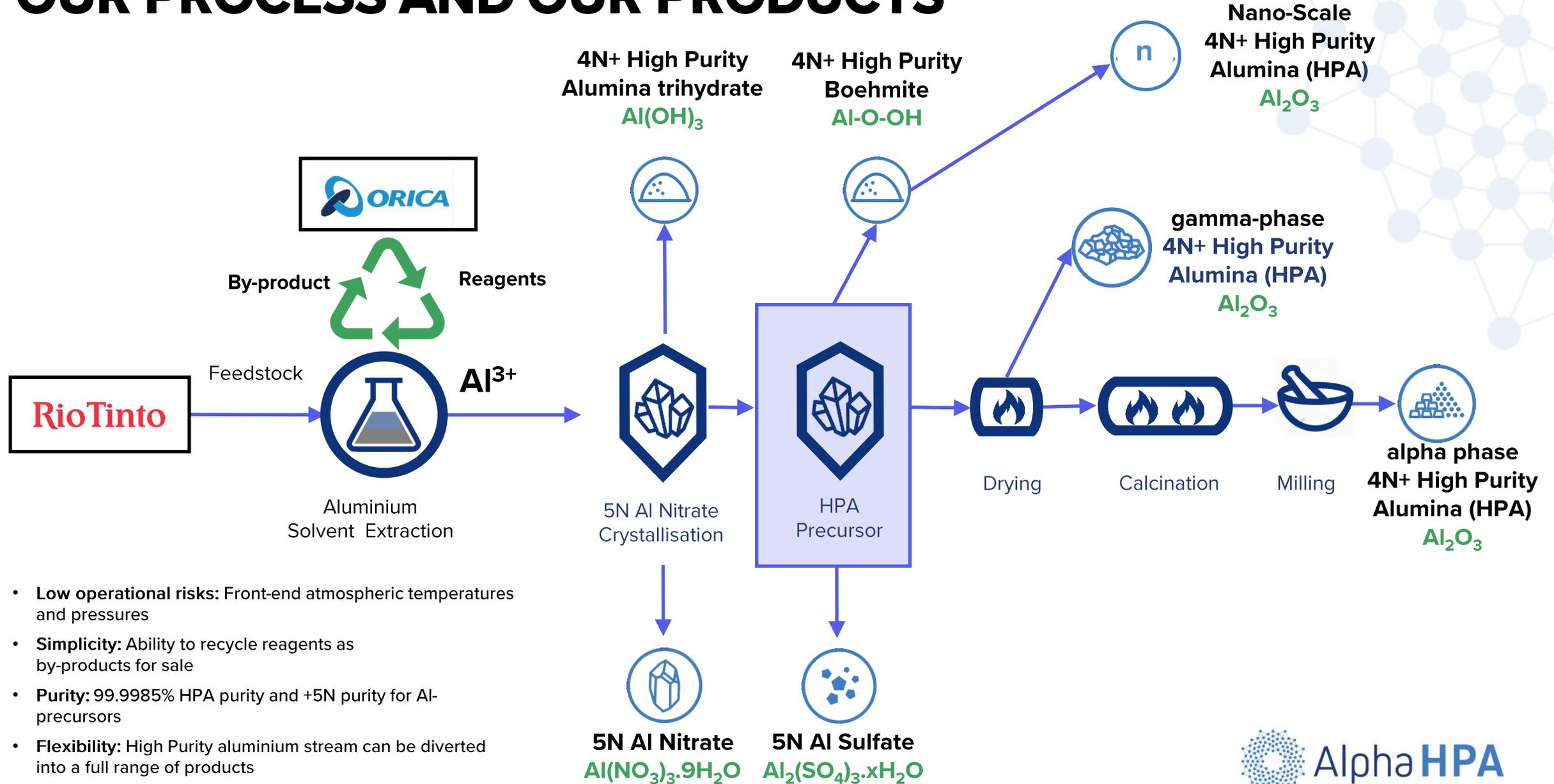
EXPANDING WITH A\$15.5M CMDP GRANT

STAGE 2 – MOVING TO F.I.D.



Alpha HPA

OUR PROCESS AND OUR PRODUCTS

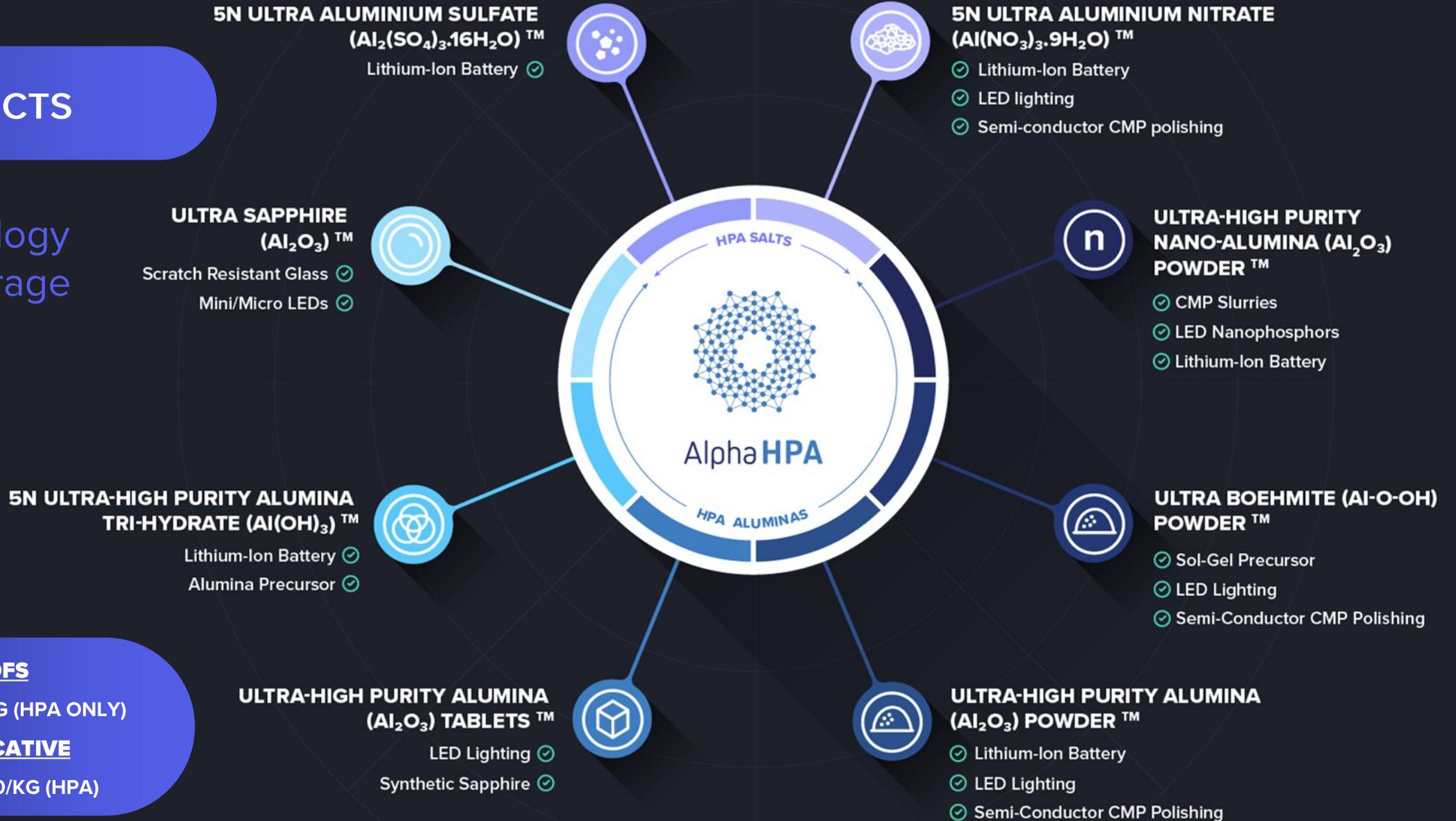


- **Low operational risks:** Front-end atmospheric temperatures and pressures
- **Simplicity:** Ability to recycle reagents as by-products for sale
- **Purity:** 99.9985% HPA purity and +5N purity for Al-precursors
- **Flexibility:** High Purity aluminium stream can be diverted into a full range of products



OUR PRODUCTS

high technology
sector coverage



2020 DFS

US\$15 – US\$25/KG (HPA ONLY)

2023 INDICATIVE

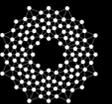
US\$20 – US\$30/KG (HPA)

- **STAGE 1: IN PRODUCTION**
- **STAGE 2: FINALISING F.I.D.**



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

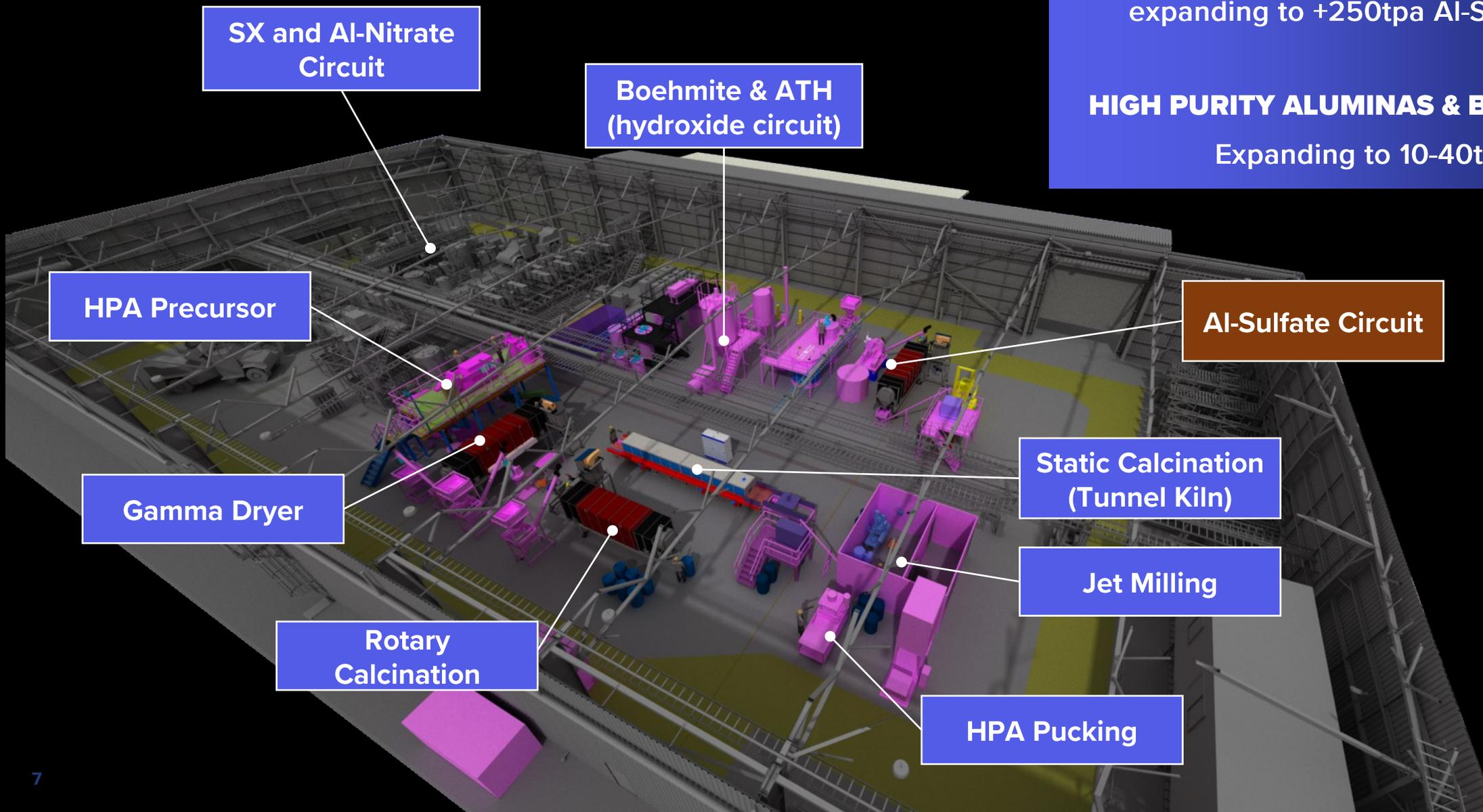
HPA FIRST PROJECT: GLADSTONE QLD



STAGE 1: EXPANSION

AL-NITRATES & AL-SULFATES
+350tpa Al Nitrates – in production
expanding to +250tpa Al-Sulfates

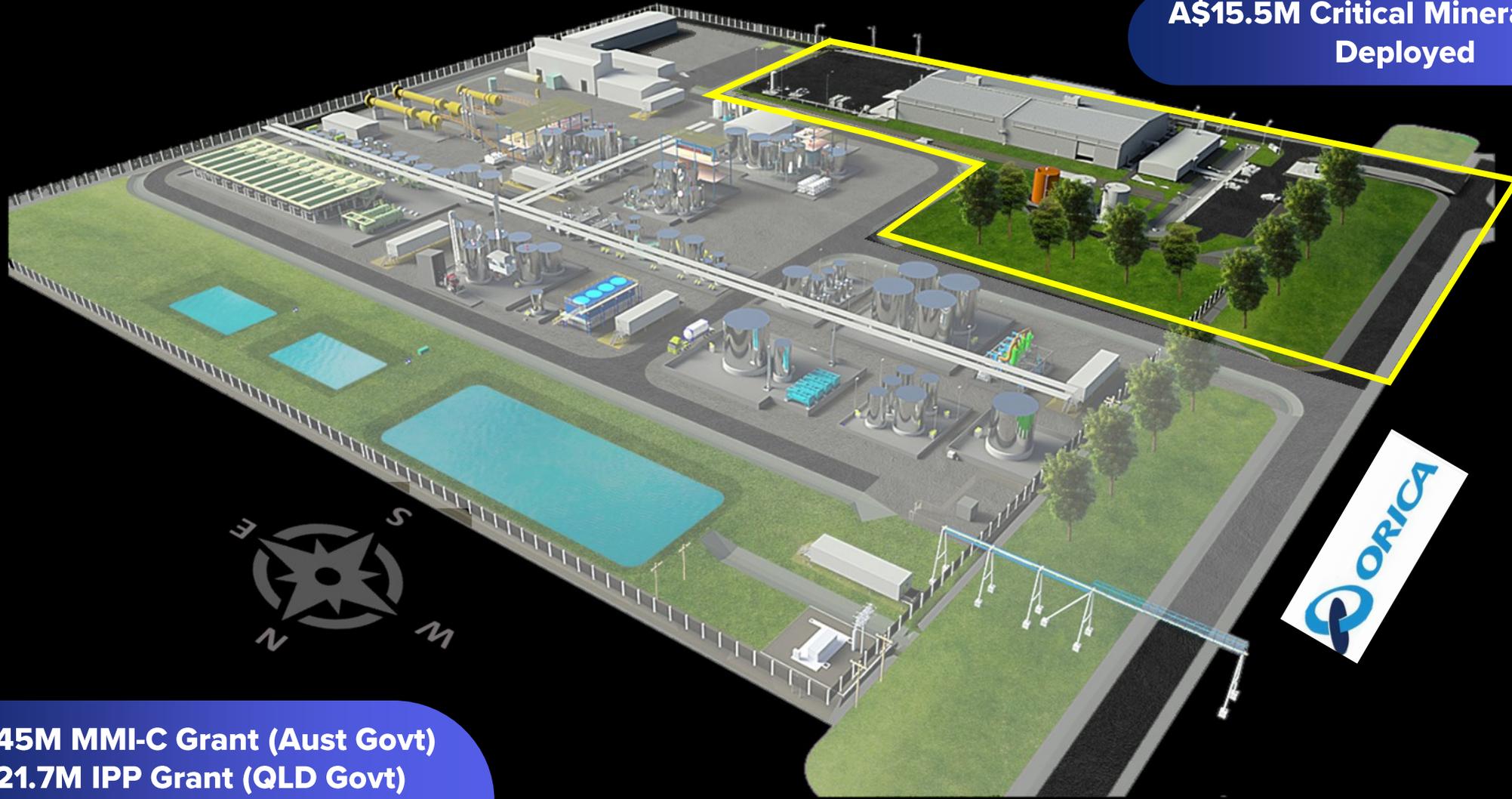
HIGH PURITY ALUMINAS & BOEHMITE
Expanding to 10-40tpa



PROJECT LAYOUT:

STAGE 1: IN PRODUCTION
+350tpa – ALL PRODUCTS

**A\$15.5M Critical Minerals Grant
Deployed**



- \$45M MMI-C Grant (Aust Govt)
- \$21.7M IPP Grant (QLD Govt)
- Letter of Support from EFA
- SAP approval from NAIF

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

PRODUCTS FOR DE-CARBONISING TECHNOLOGIES

Product demand linked to sector growth + decarbonisation + supply chain de-risking

E-MOBILITY



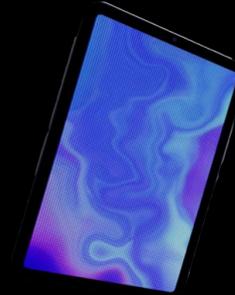
- ✓ HPA for Li-B cathode doping & coating
- ✓ Al-Nitrates for Li-B anodes/cathode coatings
- ✓ HPA for Li-B separators

SEMICONDUCTORS



- ✓ Bespoke HPA for thermal interface materials
- ✓ Al-Nitrates for CMP slurry
- ✓ Nano HPA and seeded HPA for CMP slurry (for SiC chips)

LED



- ✓ HPA for LED sapphire substrates
- ✓ HPA for LED phosphors
- ✓ Synthetic sapphire glass

LED-LIGHTING

The current technology driver of de-carbonisation



A COMPLETE SWITCH TO LED LIGHTING WORLD WIDE, WOULD PREVENT 1,400,000,000 TONNES OF CO₂ EMISSIONS

IN 2017, THE USE OF LEDS TO ILLUMINATE BUILDINGS AND OUTDOOR SPACES REDUCED CO₂ EMISSIONS BY NEARLY



- LOI with Ebner–Fametec to install up to 1,000 sapphire growth units
- LOI with Litec – LLL to supply HPA for LED phosphors

**ALPHA
FOCUS**

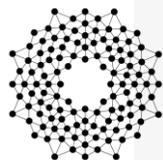
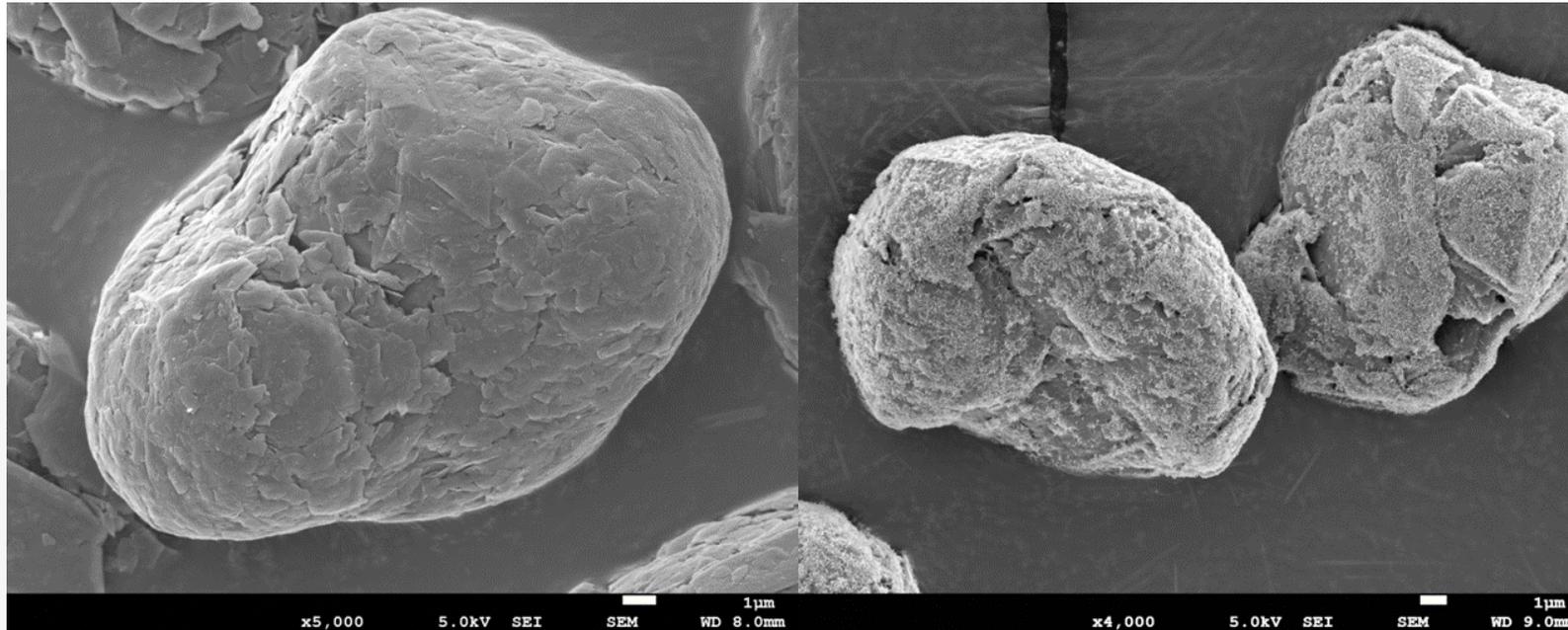
- ✓ HPA for LED sapphire substrates
- ✓ HPA for LED phosphors
- ✓ Synthetic sapphire glass



Alpha HPA

E-MOBILITY

The next major driver of de-carbonisation

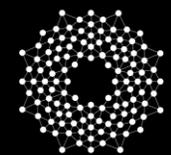


Alpha HPA

- Al-O-OH coatings on graphite anode materials – using Al-Nitrate
 - 5-10% capacity increase (zero first cycle loss)
 - 100% reduction in thermal runaway (battery fire) under trauma

ALPHA FOCUS

- ✓ AL-Nitrates as anode coating precursor
- ✓ HPA's for Li-B cathode doping
- ✓ HP precursors for Li-B cathode

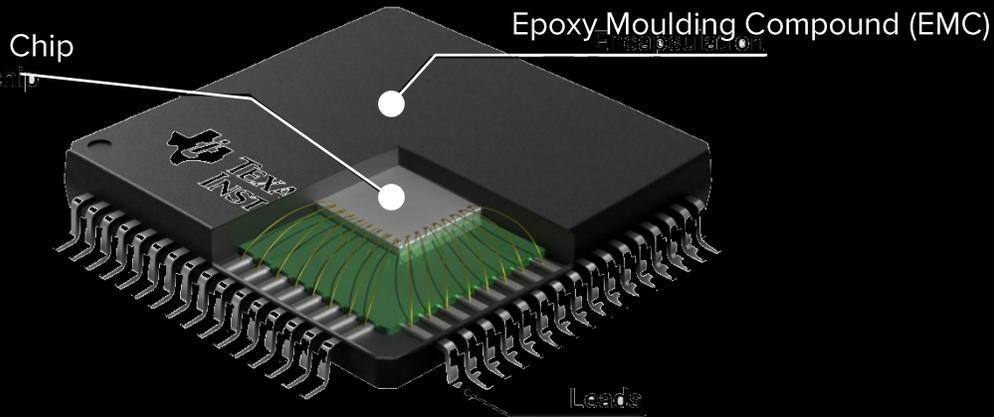


Alpha HPA

SEMI-CONDUCTORS

Global Supply Chains Re-Shoring/Friend-Shoring

HPA USED IN THERMAL INTERFACE FILLERS
WITHIN EPOXY MOULDING COMPOUNDS (EMC).
ALUMINA-EMC DEMAND DIRECTLY LINKED TO
SILICON CARBIDE (Si-C) CHIP DEMAND



**CMP IS AN ESTIMATED 7% OF THE
TOTAL FRONT END SEMI-CONDUCTOR
SECTOR BY VALUE***

*Source: Semiconductor Industry Association (SIA)

THE USA CHIPS+ ACT

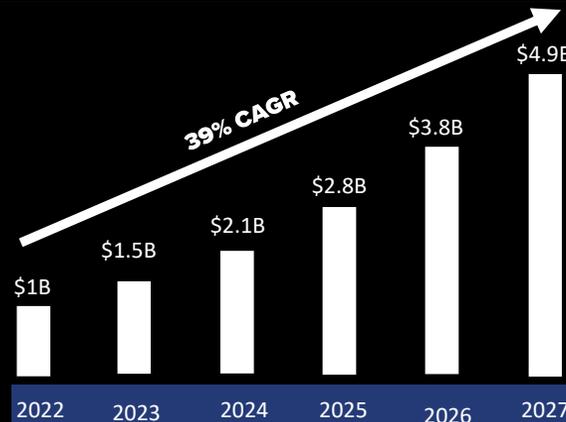
WILL INJECT

US\$130B

 in

the next **5** years to re-shore US
capability

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

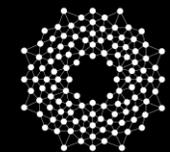


Source: Wolfspeed

**LOI to supply up to 1,000tpa to South Korean
semiconductor sector**

ALPHA FOCUS

- ✓ HPA for Semiconductor packaging
- ✓ Al-Nitrates for CMP slurry
- ✓ Nano HPA and seeded HPA for CMP slurry (for SiC chips)



Alpha HPA



STAGE 1: IN PRODUCTION





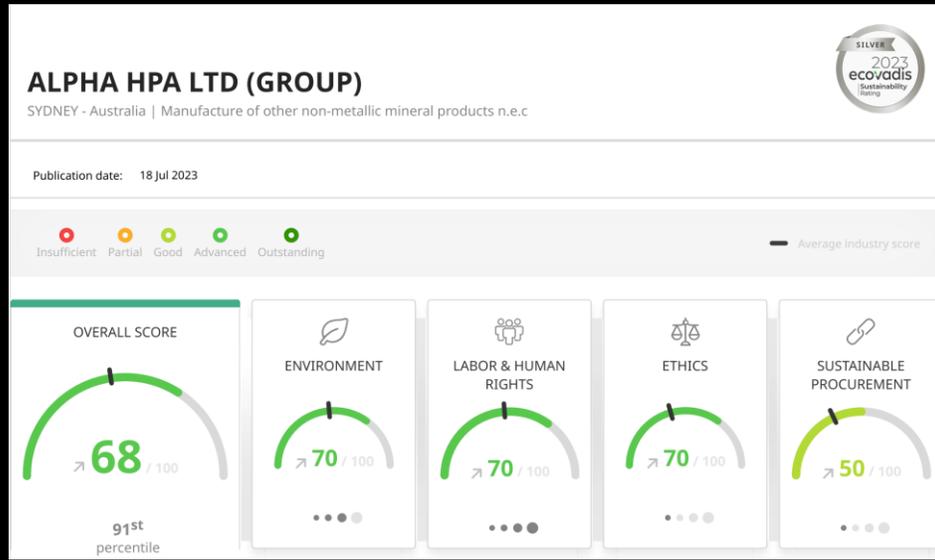
STAGE 1: HPA CIRCUITS



Alpha HPA

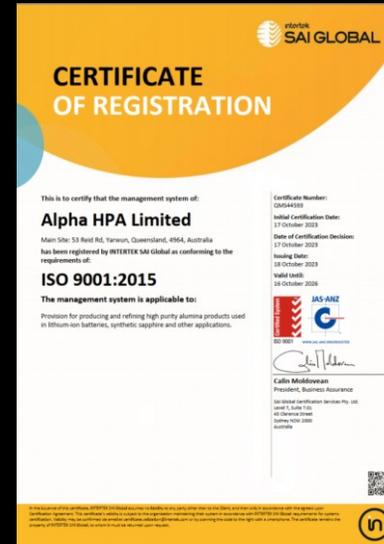
ESG: INDEPENDENT CERTIFICATION

SUSTAINABILITY RATING

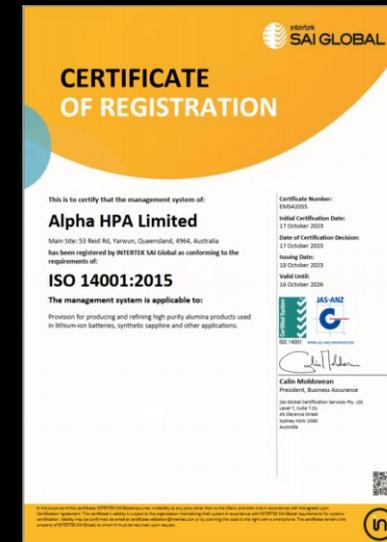


SUSTAINABILITY

ISO CERTIFICATION



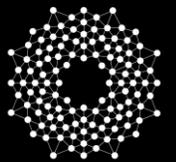
QUALITY



ENVIRONMENTAL MGMT



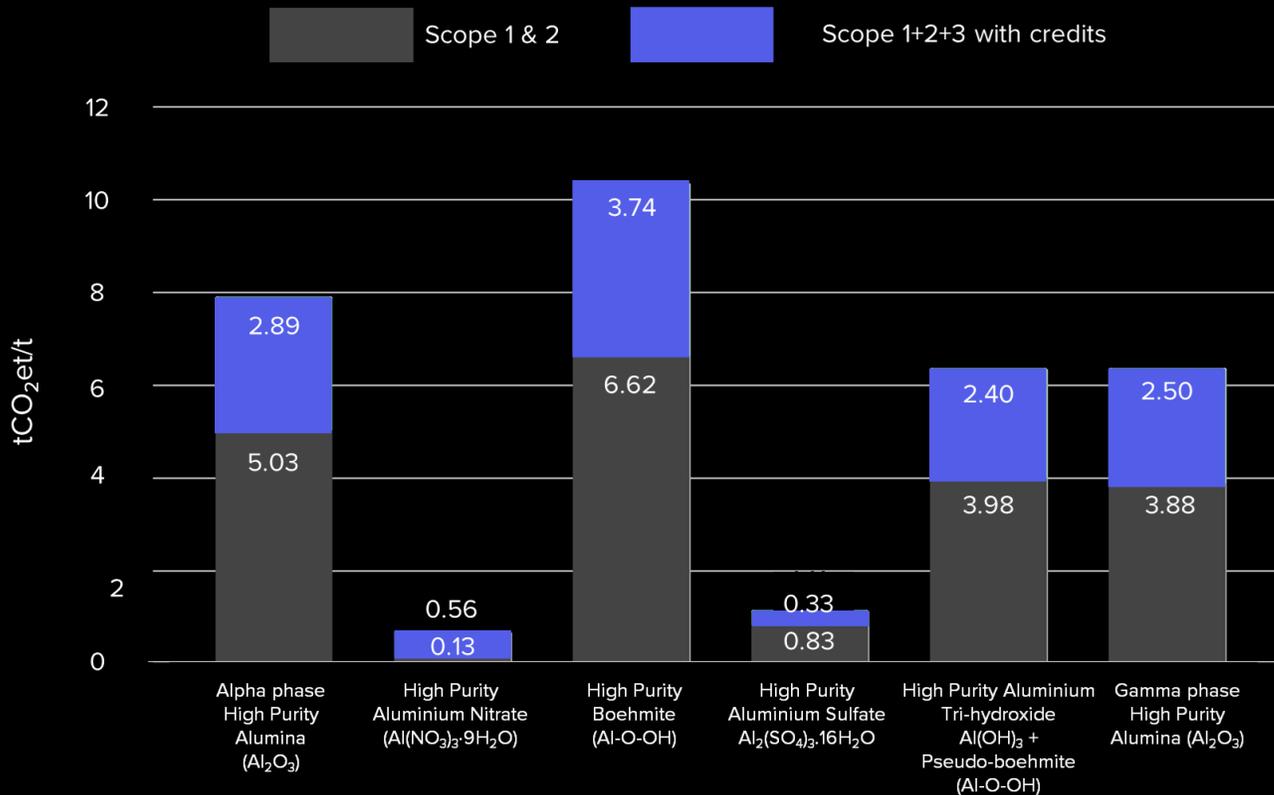
WORK, HEALTH & SAFETY



Alpha HPA

WORLD LEADING EMISSIONS

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

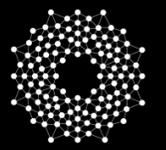


~71% lower total emissions in feedstock and production process combined compared to the incumbent process

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

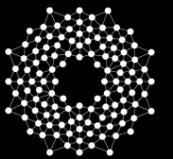


Alpha HPA

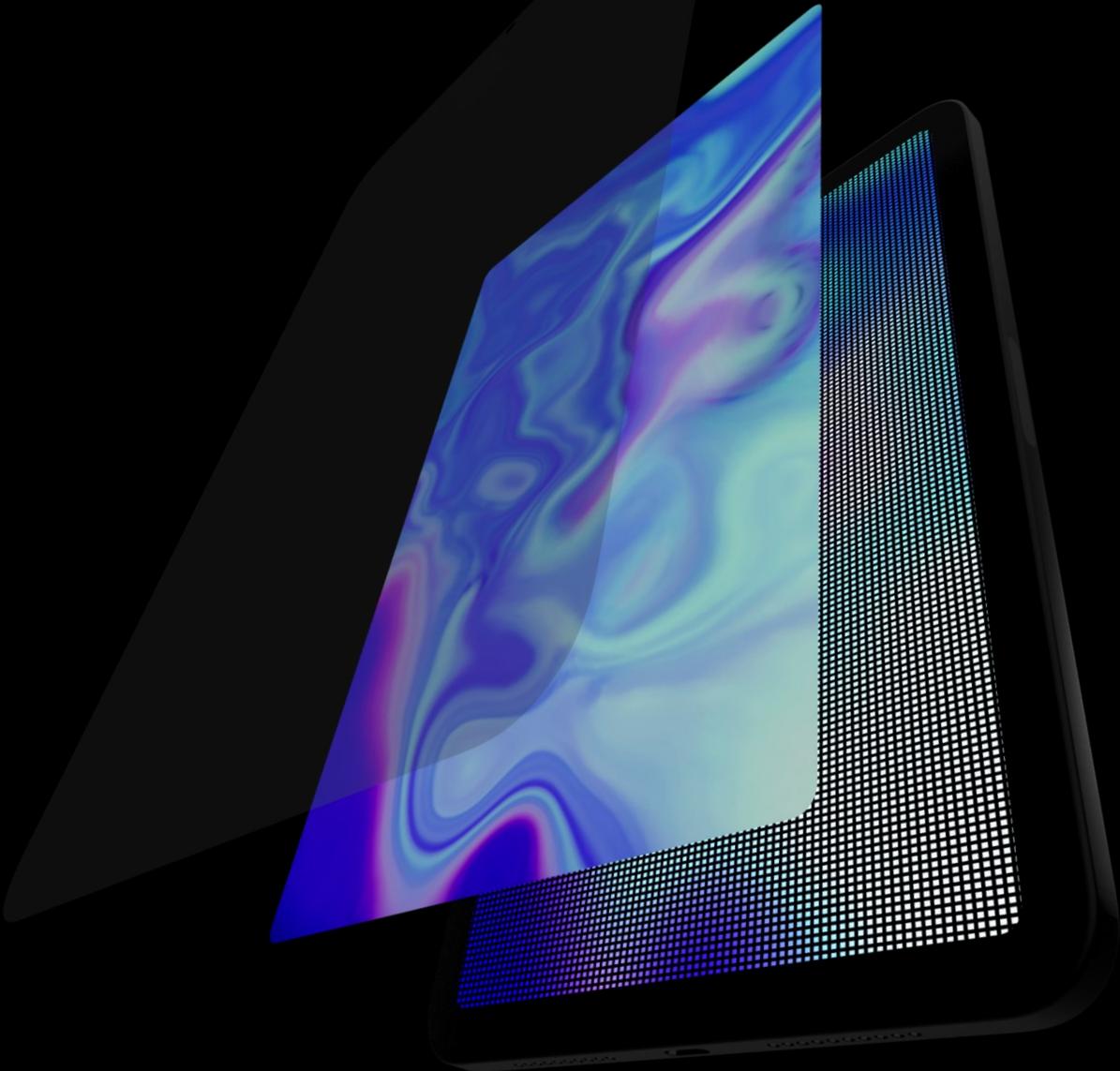
Alpha Sapphire Update



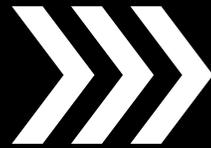
Alpha **SAPPHIRE**



Alpha **HPA**



ALPHA SAPPHIRE: ADDING DOWNSTREAM VALUE TO HPA



- **March 2023:** Agreements with Ebner-Fametec for entry into sapphire glass production
- **June 2023:** Expanded agreements for up to 1,000 growth units
- Unique supply/demand dynamics, favourable to new market entry
- Estimated **10x net revenue uplift** per alumina unit
- **September 2023:** \$30M QIC funding to secure sapphire business for QLD
- **November 2023:** \$40M equity financing to match QIC – First 50 units fully funded

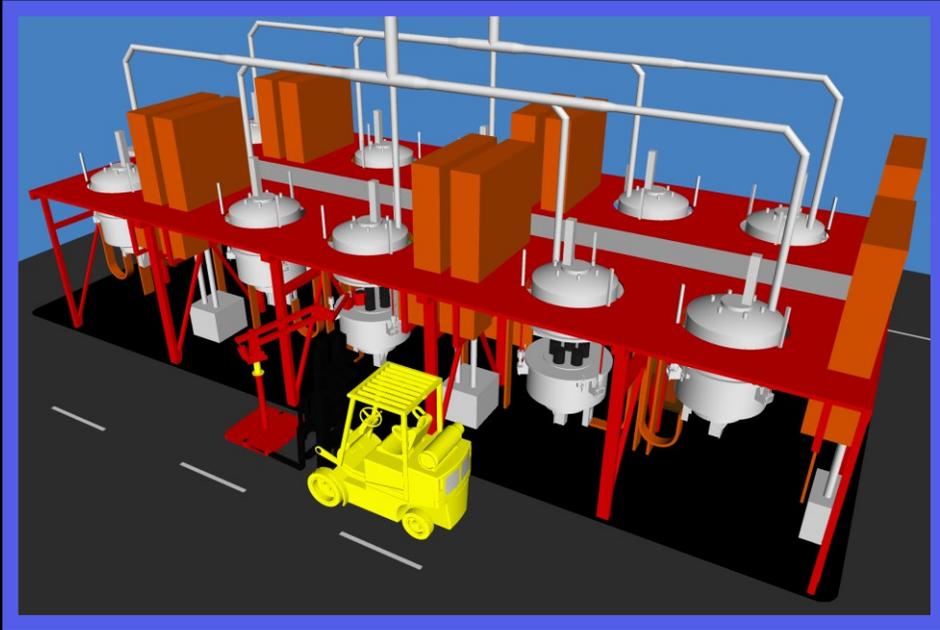


Alpha **SAPPHIRE**



Alpha **HPA**

ALPHA SAPPHIRE: UNIQUE SECTOR OPPORTUNITY



- **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**

ALPHA SAPPHIRE: FIRST 2 UNITS UNDER INSTALLATION



Alpha **SAPPHIRE**



- **Sapphire Growth Utilities**
 - Inert gases installed
 - Cooling tower installed
- **Sapphire Unit Framework** - underway
- **Sapphire grower shells** - delivered



Alpha **HPA**

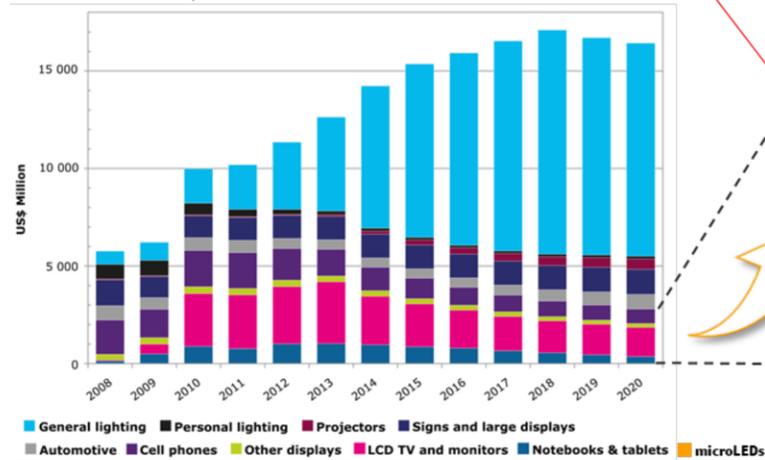
Micro LEDs: THE LED MARKET MULTIPLIER

- Market analysts have forecast the adoption of micro-LEDs since 2015
- The recent confirmation that Apple is now making the move is considered highly significant, with the potential to double existing LED market
- <https://appleinsider.com/articles/23/01/15/apple-plans-microled-displays-in-everything-after-2024-apple-watch-ultra-update>
- <https://www.bloomberg.com/news/articles/2023-01-11/apple-to-begin-making-in-house-screens-in-2024-in-shift-away-from-samsung?sref=mNNF3hqD>
- <https://www.electrooptics.com/analysis-opinion/microleds-prepare-take-flight>

MicroLED Market

*MicroLEDs set to double the size of the entire LED market: +17 Billion USD by 2025**

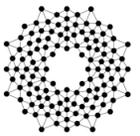
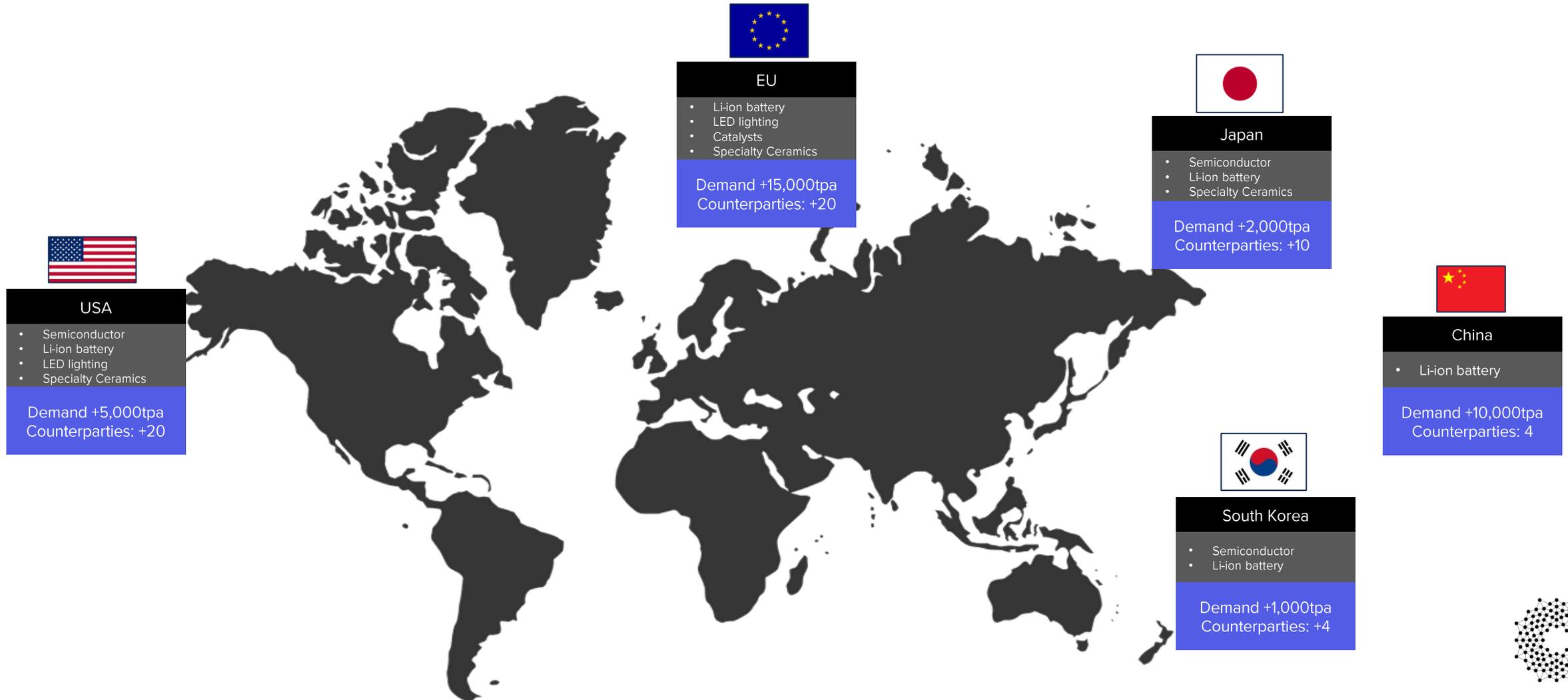
Source: MarketWatch, Inc.



- Apple LuxVue (Acquired)
- Facebook mLED, InfiniLED, plessey (Acquired)
- Intel Aledia (Equity Invest.)
- Google g1o (Equity Invest.)

OUR PRODUCTS - GEOGRAPHIC DEMAND

- Summary of geographical spread of demand interest and number of counterparties in qualification



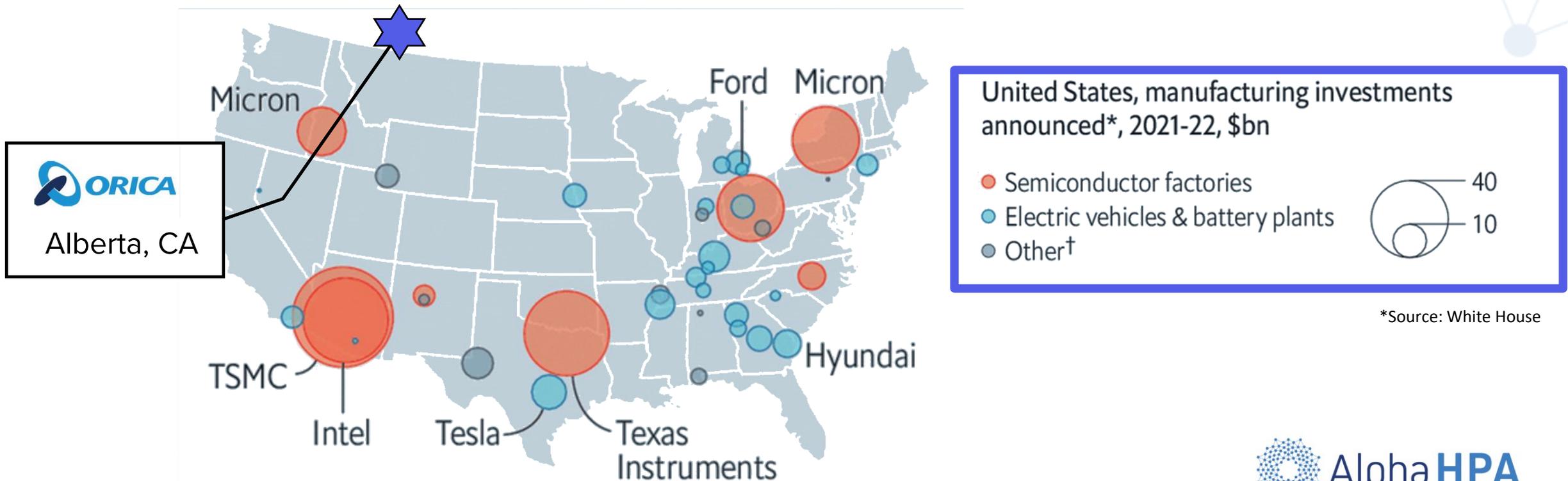
OUR CUSTOMERS AND PARTNERS:

- Existing customers, marketing agents and key business partnerships



ORICA STRATEGIC INVESTMENT:

- ASX 100 Company Orica Ltd (ASX: ORI) acquired a 5% strategic interest in Alpha HPA (Nov 2022)
- Orica and Alpha have worked together on the HPA First Project since 2019
- The investment builds upon binding arrangements to supply chemical reagents and offtake by-products at the HPA First Project, Gladstone
- 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

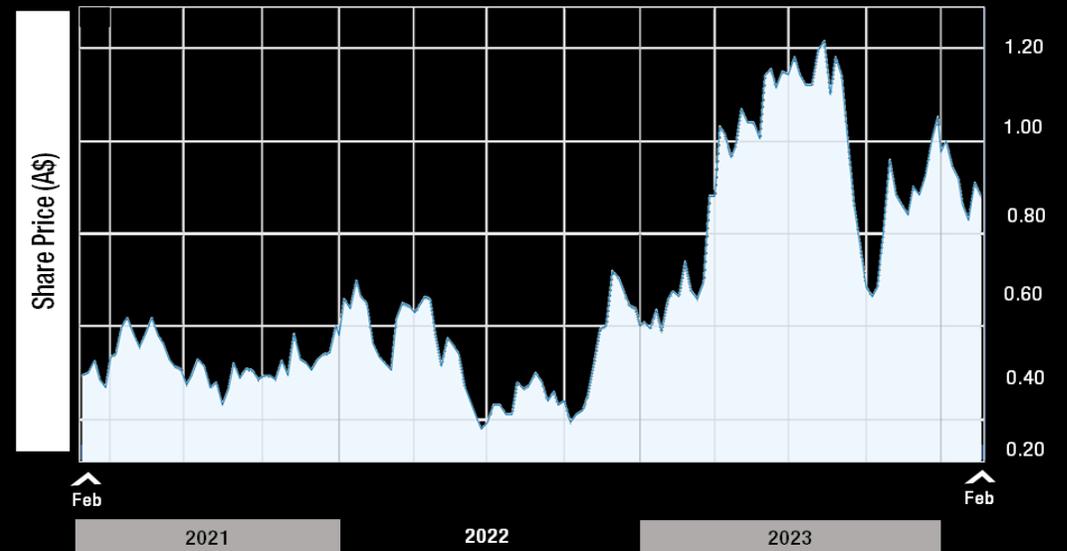
TRADING INFORMATION

ASX CODE	A4N
Share Price (23/02/2024)	~\$0.88c
52-week trading range	\$0.56 – \$1.22
Issued Shares	933.8M

CAPITAL STRUCTURE

Issued Shares	933.8M
Unlisted options (@90c)	8.8M (expire 30 April 2025)
Unlisted options (@90c)	3M (expire 31 Aug 2025)
Market Cap	~\$822M
Est Cash (31/12/2023)	~\$36M – No Debt
Enterprise Value	\$786M

SHARE PRICE PERFORMANCE – 3 YEARS



SHAREHOLDERS

TOP 20

	60.7%
Regal Funds	8.50%
Permgold P/L (N. Seckold)	7.2%
Orica Investments	5.1%
Australian Super	3%

Thank You

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