

AMAERO INTERNATIONAL LIMITED (ASX:3DA)

Investor Update | 14 August 2024

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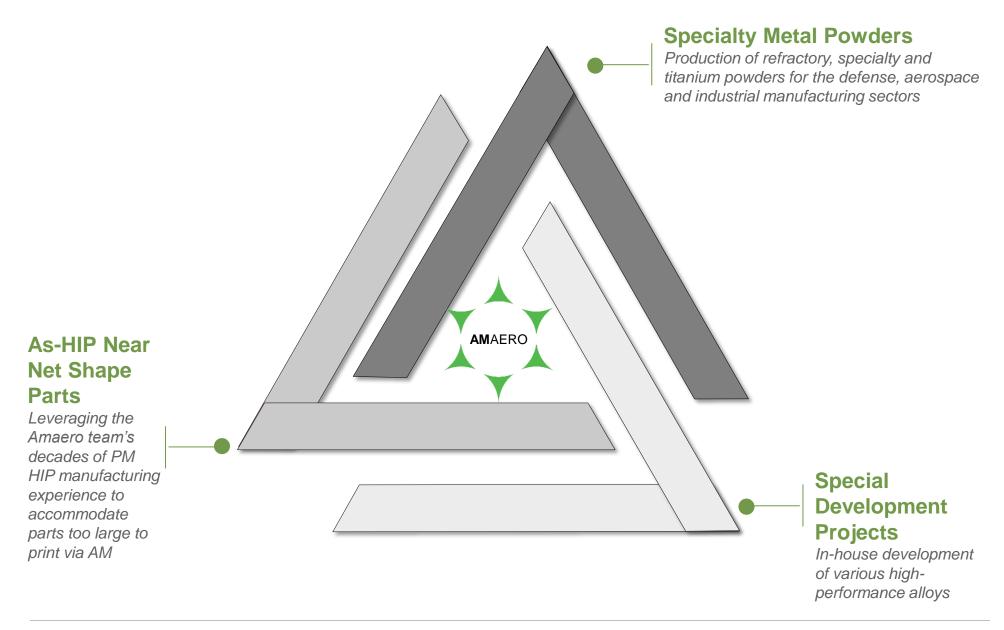
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1 Amaero and Strategic Positioning

Amaero is a producer of high-value refractory, specialty and titanium alloy powder for additive and advanced manufacturing of mission-critical components utilized by the defense, space and aviation industries

## Three Pillars of Amaero's Business



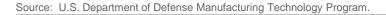
## Amaero Addresses Critical Gap in the Supply Chain



There is long-standing law on manufacturing-related content of an Acquisition Strategy (AS)...[that] mandates that Major Defense Acquisition Programs (MDAP) include...[m]ethods to encourage investment by U.S. domestic sources in advanced manufacturing technology production equipment



Manufacturing Readiness Level (MRL) Deskbook; Version 2022



and processes..."

## Amaero's Strategic Direction



U.S. Domestic Manufacturer

Established corporate and manufacturing headquarters in Tennessee



# Experienced Leadership Attracted seasoned technical and operating team



Specialty Focus

Expertise in specialty alloy powder production

# XIX Amaero Locates Manufacturing and Corporate Headquarters in Tennessee





10-year agreement with Tennessee Valley Authority provides



Source: U.S. Bureau of Labor Statistics.

Note: Company assumed USD to AUD exchange rate of 1.54.



## X2X Chief Executive and Board

**Hank Holland** Chairman & Chief Executive Officer



Lieutenant General (Retired) H.R. McMaster Special Advisor to Chairman and CEO



#### **Background**

Mr. Holland serves as Managing Partner of Pegasus Growth Capital, where he oversees deal origination, transaction structure and investment execution, and leads the strategy and general management of the fund. With 35 years of experience in investment, finance and capital market management across public and private markets, he has successfully sourced, structured and led investments in early-stage growth businesses. In addition to Amaero, Holland has led successful investments in other portfolio companies, including LogicSource, Inc.

Pegasus Growth Capital has led three capital raises for Amaero and owns approximately 35% of the fully paid ordinary shares. On a fully converted, fully diluted basis, Pegasus ownership is approximately 42%.

Holland has previously held senior roles at First Republic Investment Management, Merrill Lynch and Sanford C. Bernstein. He holds a B.S. in Civil Engineering from Southern Methodist University and a Master's in Agriculture from Colorado State University.

#### **Background**

Mr. McMaster will advise Mr. Holland on strategic and commercial matters, as well as engage on behalf of Amaero with U.S. government, DoD, DoD-funded research and defense prime contractors.

Upon graduating from the U.S. Military Academy in 1984, McMaster served as a commissioned officer for 34 years. He retired as a lieutenant general in June 2018 after serving as the 25th assistant to the U.S. President for the Department of National Security Affairs. From 2014-2017, McMaster designed the future army as the director of Army Capabilities Integration Center and the deputy commanding general of the U.S. Army Training and Doctrine Command.

McMaster is the Fouad and Michelle Ajami Senior Fellow at the Hoover Institution, Stanford University, the Bernard and Susan Liautaud Fellow at Freeman Spogli Institute and lecturer at Stanford University's Graduate School of Business. He is a distinguished visiting fellow at Arizona State University. He holds a PhD in military history from University of North Carolina at Chapel Hill.

#### **Board of Directors**

**Eric Bono** Executive Director



**Omer Granit** Non-Executive Director



Robert Latta Non-Executive Director



Erik Levv Non-Executive Director



Jamie Levv Non-Executive Director



Lucy Robb Vuicic Non-Executive Director





# Technical, Operational and Commercial Leadership



**Eric Bono** President & Chief Technical Officer



**Ron Aman** Vice President of Manufacturing



**Fred Yolton** Technical Fellow Powder Metallurgy & Materials Engineering



**Dave Schmidt** Director of Computational Analysis



**Chris Scanlon** Chief Financial Officer



Jay Chandran **Chief Operating** Officer



**Steve Kachur Chief Commercial** Officer

Experience











Experience











Experience





Experience





Experience









Experience















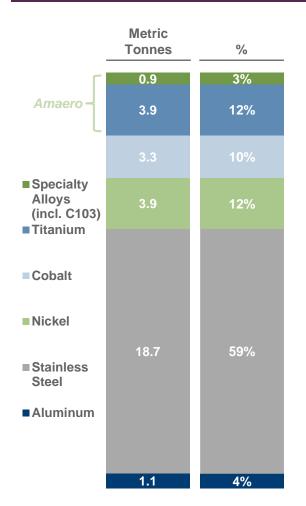




## X3X Specialty Is Our Focus — Unlocking New, High-Value Market Opportunities

#### **Estimated Manufacturing Powder Demand in U.S. by Weight**

(Metric tonnes in thousands, % of market)



Material	Feedstock Price	Est. Powder Price
Nb C103 <sup>(1)</sup>	A\$1,390 – A\$1,850	
Titanium <sup>(1)</sup>	A\$52 – A\$62	A\$215 – A\$280
Cobalt	A\$100 – A\$123	A\$177 – A\$200
Nickel	A\$46 – A\$77	A\$100 – A\$123
Stainless Steel	A\$15 – A\$20	A\$46 – A\$77
Aluminum	A\$8 – A\$20	A\$23 – A\$46



- Positioning as the largest and most responsive U.S. domestic producer of specialty AM powder
- C103 powder prices are ~20x greater than Ti-64 powder prices; Ti-64 prices are ~5x greater than stainless



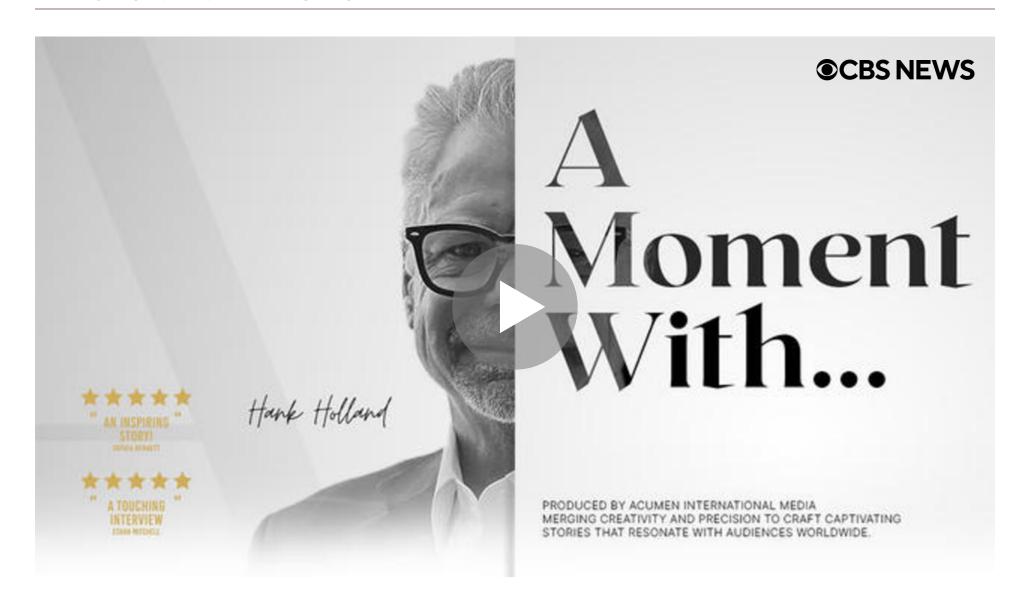




Source: Fairmont Consulting Group Analysis dated 23 January 2024, with reference to Metal Powder Industries Foundation and SmarTech analysis. Note: All figures in AUD. Company assumed USD to AUD exchange rate of 1.54. The provided figures are updated from those in the Company's Investor Update Presentation dated 13 February 2024, which were sourced from Fairmont Consulting Group analysis.

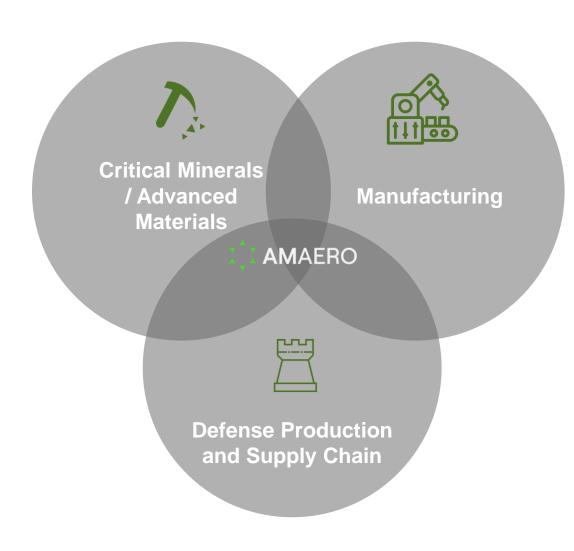


<sup>(1)</sup> Reflective of Amaero's recent commercial discussions.



2 Make More in America Again

## Make More in America Again



- We are witnessing a generational industrial opportunity in reshoring critical industrial base capabilities to the U.S.
- Amaero operates at the fulcrum of the reshoring opportunity — building secure, vertically integrated defense and industrial supply chains
- Essential supply chain capability for manufacturing readiness determinants



SpaceX Falcon 9 Rockets, Business Insider



## Reviving the Arsenal of Democracy



I want to make it clear that it is **the purpose of the nation to build now with all possible speed** every machine, every
arsenal, every factory that we need to manufacture our defense
material. We have the men, the skill, the wealth, and above all,
the will...**We must be the great arsenal of democracy.**"

U.S. President
 Franklin D.
 Roosevelt in a Radio
 Broadcast on the Threat
 to National Security

#### Issue

While the U.S. is still a global technology leader, there has been a **shift from leadership in machine tools toward leadership in services and software**. Globalization led to **outsourcing and offshoring** of production and a **deep integration of manufacturing supply chains** across the globe.

U.S. metal-casting capacity shows that from **6,150 foundries** operating in 1955, **only 1,750** are producing today Overall output of steel castings dropped from about **2 million** tons in 1974 to about **1.2 million tons** in 2016

U.S. industrial base's

limits are already
being tested as the
Russian invasion of
Ukraine coincides
with fears of a
Chinese attack on
Taiwan

Since the 1990s, the number of aerospace and defense prime contractors has shrunk from 51 to just 5; today, 90% of missiles come from 3 sources





## Shortage of Domestic Casting and Forging

#### Commentary

- Market void exists for domestic casting and forging activities
- U.S. DoD has prioritized casting and forging as one of four focus areas posing a pressing threat to national security
- National investment into casting, forging and plate production





The materials in our weapons systems affect platform resilience, sustainability, and affordability...Castings and forgings are critical to achieving and maintaining the capabilities we need; however, the supply chain for cast and forge components for the Defense Industrial Base has shrunk by 80 percent."

- Dr. Matthew Draper, Technical Director of Metallurgy and Manufacturing, Office of the Under Secretary of Defense for Acquisition and Sustainment – Innovation Capability and Modernization Office



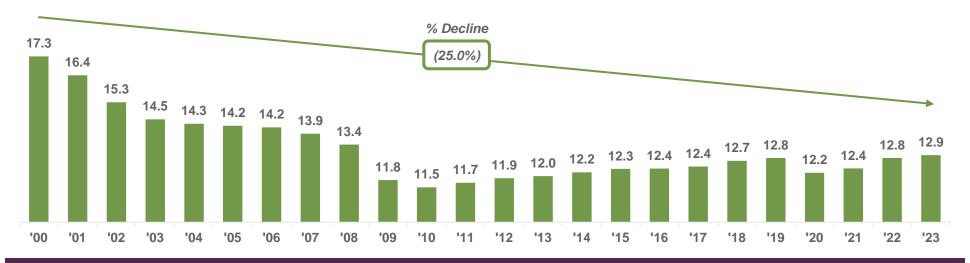
Alfred University Casting Center, NY



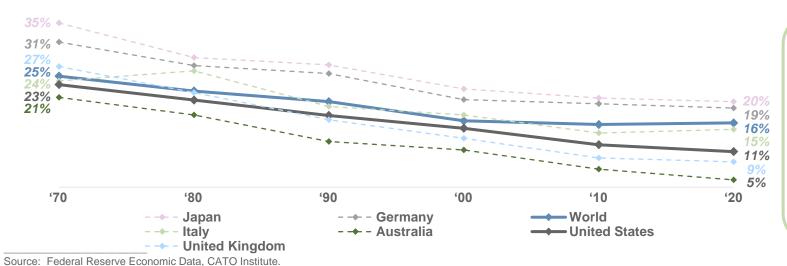
## Manufacturing Has Significantly Fallen in Recent Decades

#### Decline in U.S. Manufacturing Jobs — Jan. 2000-Dec. 2023

(In millions)



## Manufacturing Continues to Account for Lower Share of Gross Domestic Product (GDP)

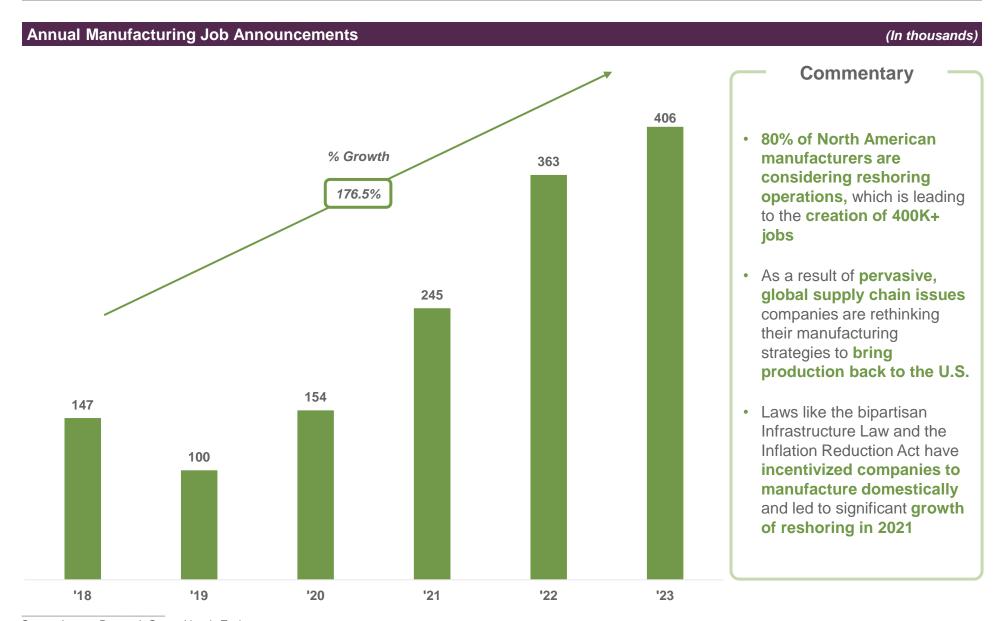


### Commentary

U.S. manufacturing as a percent of GDP has significantly reduced in the past half-century, globally and when compared to other Western nations



## Strong Bipartisan Support to Re-establish Manufacturing Economy



## The Case for Additive Manufacturing

#### **Benefits of Design for AM**



#### **Multiscale Structure Design**

Enables the realization of parts with multiscale complexities and provides significant design freedom to use cellular structures or lattice structures



#### **Design for Mass Customization**

Allows for the direct fabrication of parts from a product's digital model, significantly reducing the cost and lead time for producing customized products



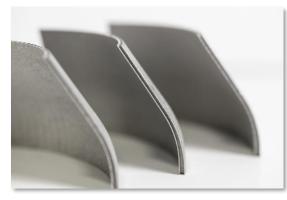
#### **Parts Consolidation**

Drastically reduces the amount of parts needed as complex parts are often consolidated



In 2017, GE Aviation revealed that it had used DfAM to create a helicopter engine with 16 parts instead of 900, including one segment that previously had 300 parts. The printed parts were about 40% lighter and 60% cheaper."

- Additive Manufacturing, GE Team Secretly Printed a Helicopter Engine, Replacing 900 Parts with 16



Nb C103, Castheon



Niobium C103, combined with the innovative capabilities of additive manufacturing, represents a significant advancement in material science and engineering. The synergy of this high-performance alloy with AM not only enhances the design and functionality of critical components but also provides cost savings and environmental benefits."

 Howco Group, Unleashing the Potential of Niobium C103 with Additive Manufacturing

Source: Additive Manufacturing, Castheon, Howco Group, Nano Dimension.



## Amaero High Value Specialty Focus Targets Buy-to-Fly Sensitive Applications

#### Commentary

- Buy-to-Fly ratios are an important driver of total part cost, particularly when the raw material is expensive
- Additive manufacturing can reduce traditional manufacturing buy-to-fly ratios of 40:1 for machining and 15:1 for forging to below 1.5:1
- Implementation of additive manufacturing results in significant design and manufacturing process efficiencies



Powder bed fusion (PBF) rocket nozzles, MetalAM



Metal powder used for AM applications, Kyocera SGS



In [traditional subtractive manufacturing], the buy-to-fly ratio is often high, indicating that a **significant portion of the material is removed during machining**...the buy-to-fly ratio is a relevant concern in industries like aerospace where its complex parts start as massive billets and much of the **material is removed to reach the desired specifications**"

 Kyocera SGS, Additive Manufacturing vs. CNC Subtractive Manufacturing



## High-Temperature Materials Essential to Generational Investment Cycle

#### **Hypersonics**



- Thermal protection systems
- First- and second-stage rocket nozzles
- The hypersonics market is rapidly evolving in order to develop and field offensive and defensive capabilities

#### **Strategic Missiles**



- First-, second-, and third-stage rocket nozzles
- Reentry
  vehicles
  subjected to
  extreme
  environments
  as they travel
  back through
  the atmosphere
- The U.S. is currently recapitalizing its ground-based strategic missile arsenal via the Sentinel program

#### **Space Launch**



- First- and second-stage rocket motor nozzles
- established in this market for second-stage rocket motor nozzle extender applications

#### **Satellites**

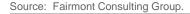




- Thruster nozzles of satellites
- These in-space propulsion systems have unique requirements in order to operate in the extreme environments of space



**High-Temperature Materials Requirement** 





3 Milestones

## Binding Offtake and Preferred Supplier Agreement



This is a very important milestone for Amaero. Amaero aspires to be the largest U.S. domestic producer of C103 and specialty alloy AM powders and to be the most responsive, agile producer. In order for additive manufacturing to achieve its potential, it's imperative that we stand up an alternative U.S. domestic supplier of C103 and specialty AM powder."



- Hank J. Holland, Amaero Chairman & CEO

- March 2024: Amaero announced it entered a binding offtake agreement for supply of C103 AM powder
- Counterparty is a leading, deeply resourced additive manufacturer of C103 and refractory alloys for defense and space industries
- Only after qualification is achieved, counterparty is required to take 2.25 tonnes of Amaero's C103 AM powder (expected in late CY2024 and CY2025)
- If qualification is achieved, agreement will run five years with additional opportunities for further supply of AM powder (beyond the initial 2.25 tonnes)



## Recent Progress and On the Horizon Milestones

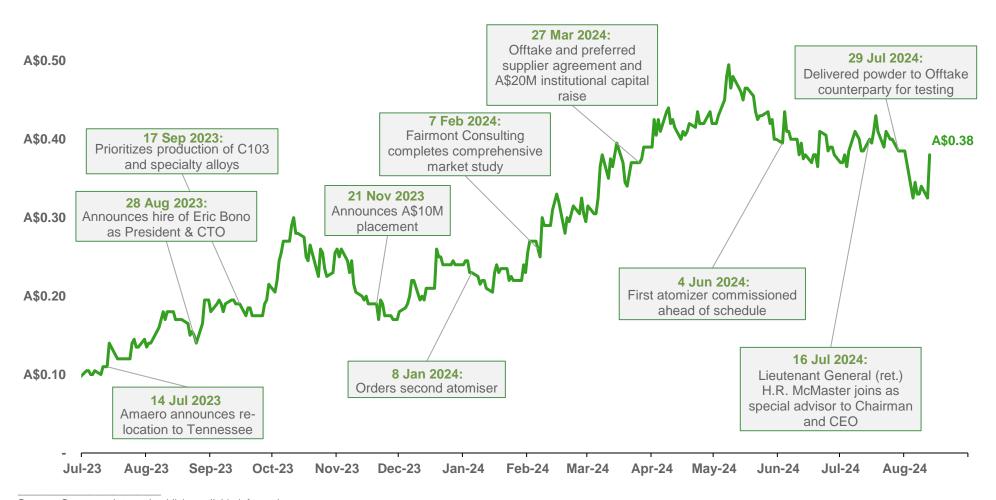
		Q4 FY2024		Q1 FY2025		Q2 FY2025				
	see	Α	M	J	J	Α	S	0	N	D
Offtake and	Preferred Supplier Agreement and A\$20M Institutional Capital Raise									
Key Milesto	nes									
1	Atomizer Commissioning		X Y	<b>X</b>	0000			10000000000000000000000000000000000000		
2	Delivery of C103 Powder for Testing				X,					
3	Completion of C103 Qualification by Offtake Counterparty									
					nennon			RODRO		
Expected M	lilestone Completion Date / Date Range									
Actual Mile	stone Completion Date									

## **Trading Summary**

#### 3DA Historical Share Performance, 1 July 2023 - 13 August 2024

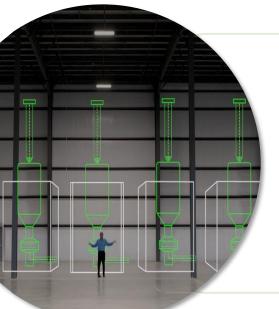
(Share prices in AUD)

\$0.28 (+262%) ↑ since 1 Jul 2023



Source: Company data and publicly available information.

## FY2025 Anticipated Milestones



- Ship C103 powder for testing
- Achieve C103 qualification; disclose offtake and preferred supplier agreement counterparty
- Order Atomizer #3
- Commence commercial sales of C103, specialty and titanium alloy powder; manufacture developmental refractory alloys
- Deliver multi-ton HIP-manufactured components and commence revenue scale
- Commission Atomizer #2
- Complete Phase 1, 2 and 3 improvements to Tennessee manufacturing and HQ facility



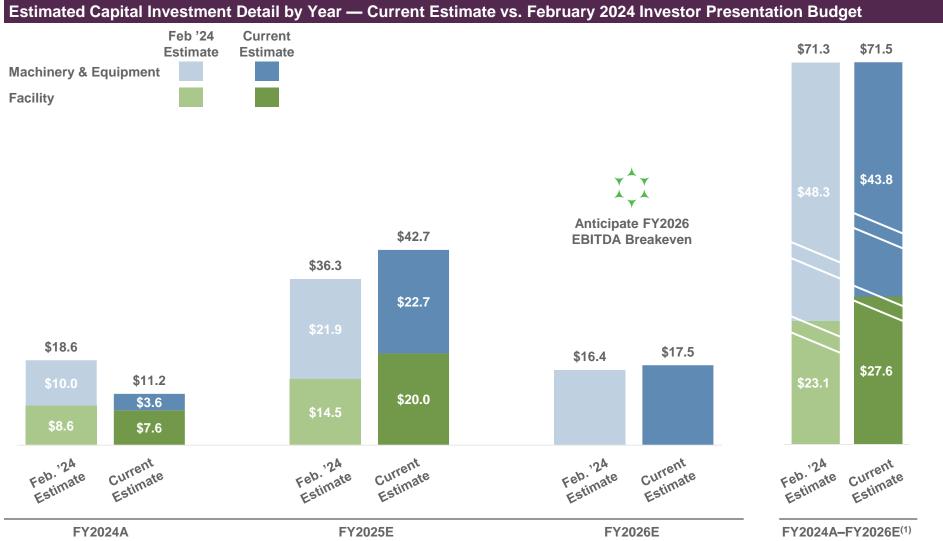
Secure 1<sup>st</sup> U.S. government grant and advance other grant opportunities



- Advance collaboration with preferred supplier partner
- Advance collaboration with U.S. DoD-funded labs

FY2025 Estimated Capital Requirements

## Planned Capital Investments







5 Share Register

## **Shares and Options Outstanding**

		(Share count in millio	ns, strike prices in A
Capitalization Table		Amount	Ordinary O/S %
Top Shareholders			
Pegasus Growth Capital		191.7	35.3%
Fidelity International		30.3	5.6%
Australian-Based Private Investor		20.9	3.8%
U.SBased Investor & Board Affiliate		20.6	3.8%
Australian-Based Fund Investor		12.0	2.2%
Australian-Based Fund Investor		10.6	2.0%
Top 6 Shareholders		286.2	52.7%
Top 50 Shareholders		392.0	72.2%
Total Ordinary Shares Outstanding		543.1	100.0%
Dilutive Securities <sup>(1)</sup>	Expiration	Amount	Strike Price
Tranche 1	May 2025	26.2	A\$0.42
Tranche 2 (ASX-Listed)	Dec 2025	187.9	A\$0.18
Tranche 3	Dec 2026	60.3	A\$0.24
Employee and Contractor Grants	Various	42.9	A\$0.24 <sup>(2)</sup>
Performance Rights	_	0.7	_
Total Options Outstanding   Weighted Average Strike Price		<b>318.0</b> <sup>(3)</sup>	A\$0.22
Memo: U.S. Ownership			U.S. Ownership %
Total U.S. Shareholders (Ordinary Shares)			47.9%
Total U.S. Shareholders (Fully Converted)			56.8%

Source: Company data and publicly available information as of 13 August 2024.

<sup>(3)</sup> Based on 13 August 2024 closing share price of A\$0.38, if options were to cash exercise, company would receive A\$69.5M; if options were to cashless exercise, 138.3M shares would be issued.



<sup>(1)</sup> Pegasus Growth Capital owns 71.3%, 67.2% and 41.5% of Option Tranches 1, 2 and 3, respectively.

<sup>(2)</sup> Represents a weighted average strike price.

Q&A



Questions