

Amaero International Ltd

“Plan B” brings risk but potentially greater returns

Amaero International Ltd (ASX:3DA) is a global specialist in metal additive manufacturing for the defence, aerospace, and other industrial sectors. Following a strategic review, Amaero has shifted its focus to titanium powder production and has created a new United Arab Emirates-based enterprise, Amaero Advanced Metals Ltd, to build an 827-tonne a year titanium powder operation within Abu Dhabi's KEZAD industrial park. The nuances of the focus have shifted since the company first announced plans to concentrate on the UAE and titanium powder operations but “Plan B” allows Amaero shareholders to retain 100% ownership of the project which has been scaled back to focus on the opportunity with the greatest economic return. The previous plan had been to JV a much larger metal powders project which included a commercialisation centre and large format 3D printing operation. The company completed a fully-underwritten \$10.5m entitlements issue in December 2022 giving it \$13.2m in cash at the end of CY23 and estimates at the end of March 31 it had \$11.6m cash on hand. Amaero has publicly stated (investor call 4 April 2023) with a monthly cash burn of ~\$0.8-\$1.0m, it believes it has sufficient funds for the remainder of CY23 and into early CY24. We have extensively reworked our model to incorporate the new project which delivers a base case valuation of \$528m, \$1.26/share on the current share count and \$0.66/share fully diluted for anticipated strategic placements and debt to fund the operations. Amaero expects to greenlight construction of the titanium powder facility by the end of June 2023. First production is estimated for H1 FY25 with “at capacity” production and powder qualification achieved in H1 FY27.

Business model

Amaero is focused on developing an 827-tonne-a-year titanium powder facility in the United Arab Emirates of which 414 tonnes a year will be aerospace-grade titanium powder. Amaero has announced strategic plans that include expansion of powder production to include other specialty alloys (Cu, Al and Ni-based superalloys), integration of midstream titanium supply chain (melt and mill) and Digital Manufacturing Commercialization Centres.

Positioning to become a significant player in Ti supply chain

Amaero's decision to focus on becoming a strategic player in the titanium powder supply chain dovetails with a geopolitical shift in supply sources. The company's equipment and process knowledge positions Amaero to produce titanium powder, including aerospace grade, more efficiently and cost-effectively than legacy competitors. The United Arab Emirates was selected for its commitment to transform its economy with ambitious capital investments, its industrial subsidies including electricity, its proximity to Europe, its geopolitical neutrality, and its growth-oriented regulatory and tax policies. We have made significant changes to our earnings forecasts following the company's change of direction. Our forecasts assume Amaero retains 100% of the project, that the US\$53.5m (A\$79.6m) capital expenditure programme for four titanium gas atomisers and ancillary equipment is debt-funded, and that the working capital until break-even is funded by strategic equity placements. With the green-light for the project slated for the end of June 2023, we conservatively anticipate first production by H1 FY25, powder qualification in H1 FY27 and “at capacity” production in H1 FY28.

Base-case DCF valuation is \$0.66/share fully diluted or \$528m

Our base-case DCF valuation is \$0.66/share, fully diluted, or \$528m following a substantial restructuring of our financial model and forecasts. On the current share count of 419m shares the valuation is \$1.26/share. There is increased risk in the long lead times to profitability and this is embedded in our forecasts and valuation. Our forecasts now reflect our expectation that the value now lies in the UAE titanium powder project with earnings estimates from H1 FY25 and “at capacity” earnings achieved in H1 FY28. Our forecasts only include the initial titanium powder facility without additional downstream production or projects. Earlier approvals for the delivery of powder and/or non-equity-participating funding to build the facility could have a positive impact on valuation.

Historical earnings and RaaS forecasts (in \$A unless otherwise stated)

Y/E	Sales revenue	Gross profit	EBITDA	NPAT	EPS (c)	EV/Sales (x)
06/22a	0.6	0.8	(7.2)	(8.6)	(4.1)	n.m.
06/23f	0.5	1.4	(11.2)	(18.1)	(3.1)	n.m.
06/24f	0.0	0.0	(20.6)	(21.6)	(4.6)	n.m.
06/25f	3.6	(0.9)	(29.3)	(35.0)	(6.2)	44.2

Source: Company data for historicals; RaaS estimates for FY23f, FY24f and FY25f

Additive Manufacturing

6 April 2023

Share details

ASX code	3DA
Share price (5-Apr)	\$0.135
Market capitalisation	\$56.6M
Shares on issue	419.0M
Est. cash at March-31	\$11.6M

Share Performance (12 months)



Upside Case

- UAE project develops a significant presence in the global titanium supply chain
- Strong tailwinds in global demand for both additive manufacturing and metal powder production
- Strong Chairman/CEO with experience and connectivity to key stakeholders in the UAE

Downside Case

- Further capital raises may result in dilution
- Still very early stage with no guarantee that strategy will translate into earnings success
- Long lead times for approval and engagement with defence primes

Catalysts

- Funding secured for Ti powder production in UAE
- Commencement/completion of facility at KEZAD
- Finalisation of an offtake arrangement with a defence major and subsequent certification

Company Interview

[Amaero International RaaS Chairman & CEO Interview](#)

Board of Directors & Management

Hank J. Holland	Chairman and CEO
David Hanna	Non-Executive Director
Lucy Robb Vujcic	Non-Executive Director
Omar Granit	Non-Executive Director
Erik Levy	Non-Executive Director

Company Contacts

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*The analyst holds shares

New Strategic Direction

Amaero International has undergone a significant change in strategic direction and leadership following a review by the board and announced in late September 2022. As part of that review, the company scrapped plans to build the titanium powder facility in Victoria to pursue alternative powder production opportunities in the Middle East. At that time, the company appointed Hank J. Holland, the managing partner of the company's largest shareholder US-based private equity firm, Pegasus Growth Capital, as Chairman and CEO. The company's previously announced ambitions to develop a Middle East 3D printing operation, and several projects including the replacement 3D printed glass spinner for Fletchers Glass, the collaborative agreement with Rio Tinto for the development of Amaero HOT AI, and the PPK joint venture were put on hold, pending further assessment.

In December 2022, Amaero and Rabdan Industries, a subsidiary of Ethmar Holdings, a United Arab Emirates-based, diversified investment group, signed a binding joint-venture agreement to exclusively partner on additive manufacturing and metal powder production in the Middle East with the initial project a A\$215m additive manufacturing and powder production operation in Abu Dhabi in the UAE. Ethmar is chaired by His Highness Sheikh Hamdan bin Mohammed bin Zayed Al Nahyan, a member of the ruling family of the UAE. At the time of this announcement, Amaero also noted that it was expected that capex would likely be funded by UAE-based economic and industrialisation development entities, key stakeholders and/or strategic partners and that Rabdan was provide instrumental support. Further, Rabdan's commitment to the JV included direct funding for 50% of the working capital.

On March 31, 2023, Amaero announced that it and Rabdan had terminated the JV agreement but that Ethmar Holdings had committed to providing ongoing engagement and support with strategy capital partners and key stakeholders in the UAE. The company has proposed retaining Ethmar Holdings as a strategic adviser and granting up to 2% of Amaero's ordinary shares.

The March 31 announcement had the following impact for Amaero shareholders:

- The proposed UAE project would be retained 100% by Amaero shareholders as opposed to 50% under the JV;
- The working capital for the project, estimated at US\$70m over four years, would be 100% attributable to Amaero; and
- The company does not expect the termination of the JV agreement to delay greenlighting of the project and that on a fully funded/fully diluted basis, the termination is expected to be accretive to Amaero shareholders.

Within that announcement the company presented a more refined business model for the project. Amaero will now opt to build four titanium gas atomisers at an estimated capital cost of US\$53.2m (A\$79m). With the assistance of Ethmar Holdings, discussions have advanced with the Emirates Development Bank, Tawazun Economic Council and Abu Dhabi Investment Office. Amaero expects to fund the project's working capital expenditures with strategic financing partners and/or UAE-based economic development-related capital with subsidised terms and structure.

Next Steps In The Project

Amaero announced on March 31, that in anticipation of the greenlighting of the project, it had secured the following:

- The Khalifa Economic Zone Abu Dhabi Group (KEZAD Group) has been selected for the development of the built-to-suit titanium powder facility with the first phase comprising a 9,300-square-metre (100,000-square-feet) operation with two gas atomisers for titanium powder production together with office, a laboratory and powder processing. A second phase will see an 11,150-sqm (120,000-sq-ft) operation

with another two gas atomisers, revert/titanium recycling plant and powder processing. Amaero has negotiated an initial rent-free period and the company expects that the development and fit out costs will be capitalised on a long-term lease. Amaero expects that a binding lease will be signed by the end of June and that the first phase will be delivered by June 2024.

- Amaero is in advanced discussions with Emirates Development Bank for project financing which would see EDB capitalise interest until the project reaches profitability. Frost & Sullivan has been retained to produce an independent feasibility study for EDB in order for the financing to advance to final approval and a binding term sheet.
- Amaero has engaged executive search firm Korn Ferry to fill several key executive roles for the project including Managing Director – Titanium Powder Production and Chief Financial Officer/Chief Administration Officer.
- Amaero has retained His Excellency Marwan Bin Jassim Al Sarkal as a strategic adviser. Dubai-based Mr Sarkal is Managing Partner of Chapter 3, a management and investment consultancy which provides advice to government entities, sovereign investment funds, international businesses and family offices. He is also a Director of W Motors in Dubai, a Pegasus Growth Capital portfolio company. The advisory agreement is for two years with Amaero committed to granting 0.5% of ordinary shares on the first anniversary of the agreement and a further 0.5% on the second anniversary.
- Amaero continues engagement with prime OEMs and metal distributors for feedstock and offtake agreements. It is expected that the offtake agreement will be accompanied by a collaboration to identify Ti and speciality powders that are in critical demand, to evaluate equipment technology, to certify equipment and to qualify powder.

Recent Capital Raising Details

In late November, Amaero successfully completed a one-for-1.7 fully-underwritten, renounceable entitlement offer to raise \$10.5m at \$0.067/share, with every new share issued receiving one three-year option at an exercise price of \$0.18/share. Pegasus Growth Capital fully underwrote the offer. At the time the offer was announced (1-Nov), the price represented a 10.7% discount to the last traded price and a 18.6% discount to the five-day, volume-weighted-average-price (VWAP). Amaero is currently trading at a premium to the entitlement offer. The company planned to use the proceeds of the offer for restructuring (\$2.9m) and working capital (\$6.85m) and added to the \$6.95m in net cash held by the company at the end of Q1 FY23.

Additional capital requirements

Amaero ended March 31 with an estimated \$11.6m cash in hand and, according to Mr Holland, is currently running at a monthly cash burn rate of between \$800,000 and \$1m. Mr Holland has reiterated his expectation that Amaero has sufficient cash to undertake its working capital requirements for the remainder of CY23 and into early CY24. The company expects to structure financings with key stakeholders in the UAE and/or strategic partners. Mr Holland noted in the investor call ([Investor Briefing April 4, 2023](#)), that Amaero is exploring a number of funding options including non-participating government funding through the Tawazun Economic Council and Abu Dhabi Investment Office, as well as strategic investors. He noted that it is unlikely that Amaero will return to the capital markets in the near-term to raise money.

It is worth highlighting that the Foreign Investment Review Board (FIRB) on February 8 approved Pegasus Growth Capital to acquire up to an additional 20.5% of the company, which would take its holding to 60%. The acquisition, if taken, must be completed by 6 February 2024.

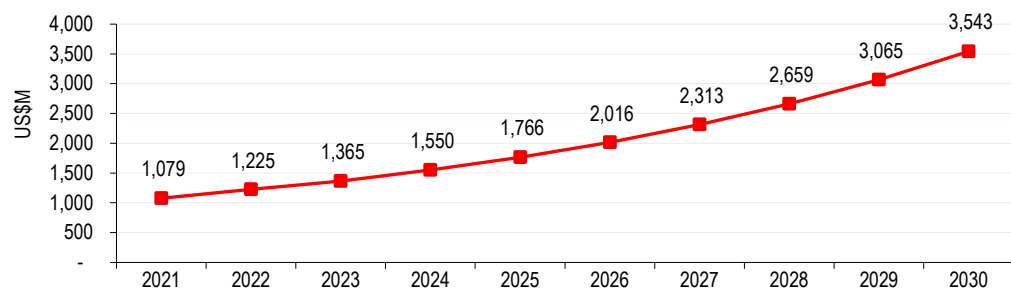
Global Titanium Market

High purity titanium powder and alloyed titanium powder are in growing demand from aerospace and defence, medical, automobile and petrochemical sectors. This is driving global demand with the market projected to grow at a CAGR of 14% from US\$1.08b in 2021 to US\$3.54b in 2030, according to market forecaster VPA Research.

There are several established players in the sector, including Praxair ST Technology Inc, Global Titanium Inc, OSAKA Titanium Technologies Co Ltd, Cristal Metals, ADMA Products, Reade International, Advanced Metallurgical Group, and Russian-owned group VSMPO-Avisma, which produces one-third of all global titanium for the aerospace sector.

Amaero's competitive advantage includes its deep knowledge in material science, powder metallurgy and additive manufacturing. The company was the first to 3D-print CASA-approved components in service in commercial aviation, the first to 3D-print components in the hot part of a turbine engine and the first to 3D-print an aerospike rocket engine. Amaero's atomiser equipment coupled with its process knowledge give it a competitive advantage over legacy metal powder producers.

Exhibit 1: Global titanium powder market forecasts from 2021-2030f (in US\$M)



Source: VPA Research sourced from Amaero International presentation January 2023

Aerospace/defence is forecast to remain the biggest user of titanium powder to 2030, with annual growth of 15% a year. The medical and auto sectors are also expected to grow strongly.

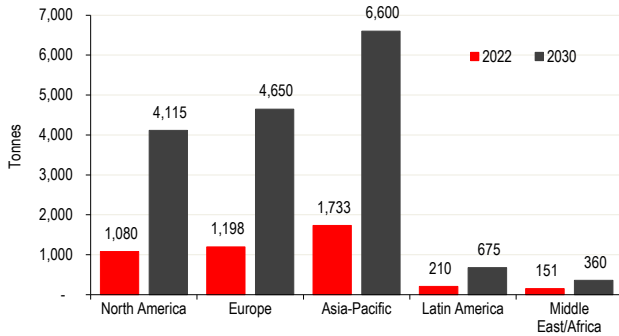
Exhibit 2: Global titanium powder demand in tonnes by region and sector

Sector/Region	North America	Europe	Asia-Pacific	Latin America	Middle East/Africa	Total	Market Share in 2022 (%)	CAGR to 2030(%)
Aerospace/Defence	461	469	736	98	67	1831	42	15
Medical	248	281	398	47	34	1008	23	14
Automotive	120	131	192	24	17	484	11	16
Electronics	68	80	110	12	9	279	6	13
Others	183	237	297	29	24	770	18	12
Total	1080	1198	1733	210	151	4372	100	14
Market share 2022 (%)	25	27	40	5	3	100		
CAGR to 2030 (%)	14	14	14	12	9	14		

Source: VPA Research, Amaero International January 2023 presentation

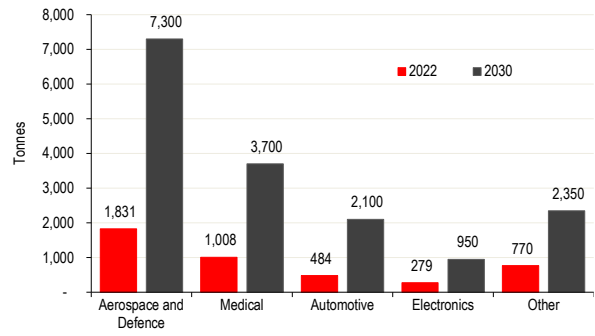
Extrapolating the data and forecast growth rates above, we set out in the following two charts how the market will look by region and by industry sector in 2030.

Exhibit 3: Global titanium market demand by region 2022a to 2030f (in tonnes)



Source: VPA Research via Amaero January 2023 presentation, RaaS interpretation for 2030

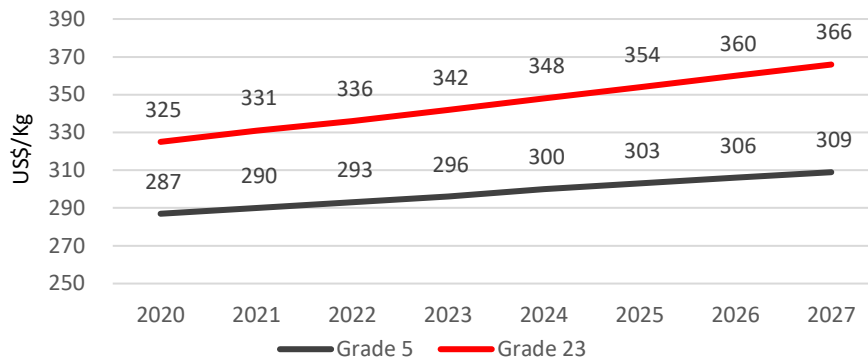
Exhibit 4: Global titanium market demand by industry 2022a to 2030f (in tonnes)



Source: VPA Research via Amaero January 2023 presentation, RaaS interpretation for 2030

Titanium powder pricing is also forecast to rise over the next several years due to higher demand. Amaero Advanced Metals will aim to secure a share of the Grade 5 and Grade 23 titanium powder markets which are respectively used in aerospace and medical applications. Global Markets Insights has forecast that prices for these two titanium powder grades will continue to rise over the next several years, as set out in the following exhibit. Note that our modelling uses an average price of US\$150/kg which is substantially below these forecasts but in-line with the company's commentary on unit economics.

Exhibit 5: Global titanium powder market forecasts from 2021-2030f (in US\$M)



Source: Global Market Insights sourced from Amaero International presentation January 2023

SWOT Analysis

It is worth revisiting the SWOT analysis to consider the restructured Amaero's current position. We are of the view that the company's strengths and opportunities far outweigh its weaknesses and threats.

Exhibit 6: SWOT Analysis

Strengths	Opportunities
Chairman/CEO is based in the UAE and has another prominent investment in Dubai. The local presence and connectivity are a differentiated advantage.	Earlier qualification of aerospace grade powder could reduce working capital need and accelerate "at capacity" earnings
Chairman/CEO is a major shareholder and has aligned interests with other shareholders, having underwritten two capital raises and owning 40% of the company.	Opportunity to integrate midstream titanium supply chain (melt and mill operations)
Titanium powder manufacturing technology and Amaero's process knowledge provides a competitive advantage.	Opportunity to forge supply offtake agreements with defence/aerospace manufacturers such as Raytheon, Boeing and Airbus
Operating in the UAE delivers several advantages including access to cheaper power, a beneficial tax regime and a political regime aligned to fast-tracking economic and business development	Potential to tap the US markets for a NASDAQ listing and/or dual listing on ADX to secure growth capital and a re-rating
Chairman/CEO is a successful, proven growth capital investor	
Renewed board brings a wealth of experience across capital markets and investment, growth equity, M&A and international regulatory regimes	
Weaknesses	Threats
Capital intensive business	New and superior production methods could supersede Amaero's technology
Continuous need to invest in R&D and technology changes	Further capital raisings may be necessary to fund working capital requirements
Small player in market capitalisation terms relative to international peers	Could get acquired before full shareholder value is realised
No guarantee on the timing for qualification of titanium alloy powder	
Significant start-up losses will be incurred as the company funds 100% of the working capital of the project	

Source: RaaS analysis

Sensitivities

We highlight several sensitivities to Amaero's business:

- **Execution risk:** Our forecasts and valuation are predicated on the company's ability to fund, build, operate, and secure offtake agreements for the supply of titanium powders.
- **Key person risk:** We see potential key person risk if Amaero loses its Chairman and CEO and largest shareholder Mr Holland, who is the key architect and driver of the company's renewed strategy.
- **Intellectual property risk:** Amaero has generated intellectual know-how, but not patents in the production of titanium powders in a more cost-effective and efficient process. There is a risk that competitors will emulate Amaero's processes and that this advantage will be eroded.
- **Contract risk:** Amaero relies on key contracts and arrangements to generate revenue. A contract loss could impact the company materially.
- **Competitive risk:** The titanium powder market is highly competitive with significant incumbent players which may engage in pricing wars to drive out smaller operators.
- **Currency risk:** The group is subject to currency and exchange risk.
- **Interest rate risk:** The company may use debt to fund capex and therefore incur the risk of potential rising interest rates until it can generate sufficient cashflows to repay the debt.

New Leadership At The Board Level

The strategic review brought new leadership to the company. The board retained one director, David Hanna, in a non-executive capacity and gained the following directors:

Hank J. Holland, Chairman and Chief Executive Officer. Mr Holland is the founder and Managing Partner of Pegasus Growth Capital, a US-based private-equity firm which seeks high growth opportunities underserved by institutional investors. Mr Holland has funded approximately 50% of Pegasus Growth Capital's investment in Amaero. Pegasus is lead investor in W Motors (www.wmotors.ae) in Dubai and Mr Holland is on the Board. Mr Holland brings more than 35 years' experience in investment, finance and capital markets management across both public and private markets and several asset classes. His prior experience includes senior investment roles at First Republic Investment Management, Merrill Lynch and Sanford C. Bernstein. He holds a Bachelor of Science in Civil Engineering from the Southern Methodist University and a Masters in Agriculture from the Colorado State University. Mr Holland is also Chairman and CEO of Amaero Advanced Metals Ltd and has relocated to Abu Dhabi to oversee development of the project.

Lucy Robb Vujcic, Non-Executive Director. Ms Robb Vujcic is a Sydney-based barrister. She was called to the Bar in 2016 and is briefed to advise and appear in complex litigation and arbitrations involving general equity, breach of contract, consumer law, regulatory disputes, trustee duties, government procurement, tax fraud, money laundering and construction law. Prior to coming to the Bar, Ms Robb Vujcic was an Associate in the international litigation and arbitration group of US law firm Skadden, Arps, Slate, Meagher & Flom where she acted on behalf of multinationals in contract disputes before both US federal and state courts as well as in bilateral investor state disputes before the International Centre for the Settlement of Investment Disputes. Ms Robb Vujcic completed a Master of Laws at the New York University School of Law, where she was awarded the Vanderbilt Scholarship.

Omer Granit, Non-Executive Director. Prior to joining the board, Mr Granit was the strategic adviser to Amaero instrumental in organising the May 2022 A\$11m, US investor investment round led by Pegasus Growth Capital. Mr Granit is a Partner with US venture capital firm, Infinity, which invests in early-stage growth companies and is also the Managing Partner and Founder of REIT Investor West 4 Capital Management. Mr Granit began his career in law, working in practices in both New York and Israel, after completing his Master of Laws at New York University School of Law where he was valedictorian. He switched to finance in 2013, joining Midgal Capital Markets, one of Israel's leading financial services firms, before moving onto private equity in Zurich and New York.

David Hanna, Non-Executive Director. Mr Hanna is the founding chairman of Amaero, and moved to the position of Non-Executive Director upon the appointment of Mr Holland to the chair. He is also the Chairman of Docklands Studios Melbourne and immediate past President of Film Victoria. He previously was the Director of Business Strategy for Monash University, a role he held from 2012-2019 and one in which, he was responsible for the strategic support and financial advice on the university's major investment decisions. In the 15 years prior to joining Monash, David held senior management positions in the Victorian Government including the roles of Deputy Secretary, International Coordination and CEO of the Innovation Economy Advisory Board in the Department of Innovation, Industry & Regional Development. He also spent 15 years in the Commonwealth Government, including three years on the personal staff of then Prime Minister Hon. Bob Hawke.

Erik Levy, Non-Executive Director. Mr Levy is the Managing Partner of EnPar Capital, a New York-based private investment firm, and prior to this he was a Founding Partner and Managing Director of BlackRock's Direct Private Equity business. His earlier experience includes more than 12 years with CPP Investment Board in Toronto, Canada where he held the position of Senior Principal – Direct Private Equity. In this role Mr Levy served on several investee company boards including Skype, Suddenlink Communications and Informatica. He

holds a BSc in Actuarial Mathematics from Concordia University and a Masters Business Administration from University of Toronto – Rotman School of Management.

Robert (Bob) Latta, Non-Executive Director elect. Mr Latta's appointment to the board is contingent on satisfying regulatory conditions. Mr Latta, who is based in California, is a Partner and General Counsel at Pegasus Growth Capital, the company's largest shareholder. Mr Latta is also Senior of Counsel at Wilson Sonsini Goodrich & Rosati, one of Silicon Valley's leading law practices, which he joined in 1979. His practice covers a broad range of general corporate and transactional matters including company formations, venture capital financings, public offerings and mergers and acquisitions, and he represents private and public companies across several industries including computer software, internet, e-commerce, storage, semiconductors and clean tech.

Management

The company's senior management team has also been overhauled following the strategic review:

Hank Holland, Chairman and Chief Executive Officer (see above).

Barrie Finnin, Chief Technology Officer and Manager of Australian Operations. Mr Finnin is the former CEO of Amaero International and of its predecessor, Amaero Engineering, which was established in 2013 to commercialise technology developed by Monash University in the field of additive manufacturing and alloys for the aerospace and defence industries. Mr Finnin brings to his role a long history in research management positions including more than 11 years with CSIRO where he was the General Manager – Advanced Engineered Components Theme, a Director of Green Car Research, and General Manager – Manufacturing Technologies for Transport. He has previously held the board positions as Deputy Chairman of the Science Advisory Council for the Advanced Manufacturing CRC, and a Council Member of the School of Aerospace, Mechanical and Manufacturing Engineering Advisory Council. Mr Finnin holds a Bachelor of Applied Science, Metallurgy, and Technology Management from Deakin University where he also has received a Masters of Business Administration, specialising in Technology Management.

John McKellar, Chief Operating Officer and Manager of Middle East Operations. Mr McKellar brings two decades of operations and logistics management experience to his role, having previously held the position of Global Sales Team/ Director of Business Development at RETECH Systems LLC in the US, and Operations and Logistics Manager for the Meyer Family Cellar in California. He holds a Bachelor of Production Technology/Sciences from the Colorado State University.

Kenneth Davis, Vice President, North American Operations. Mr Davis delivers more 25 years' experience in the additive manufacturing and technology sector in North America with long stints at DWA Aluminum Composites where he held the position of Manager of Products and New Product Development and at CalRAM, where he was the Director of Additive Technology. At CalRAM, Mr David led the transition from a metal AM R&D company dedicated to ePBF of Ti-6Al-4V to the world's only aerospace production facility with NADCAP accreditation in both ePBF and LPBF AM technologies with capability across aluminium, nickel, titanium, and stainless-steel alloys.

James (Jim) Sears, Technology Fellow, Quality Systems and Additive Manufacturing. Dr Sears has extensive experience in providing technical leadership in the additive manufacturing process. His previous roles include as Principal Engineer – Near Net Shape Manufacturing at Lockheed Martin, Senior Lead Engineer – Additive Manufacturing at GE Research, and Technology Fellow – Additive Manufacturing/Metal Powder Processing at Carpenter Technology Corporation. He holds a PhD, Mechanical Engineering from the University of Illinois Urbana-Champaign.

Shareholders

Amaero's top 20 shareholders hold more than 67% of the shares on issue. Pegasus Capital Group, chaired by Mr Holland, is the largest shareholder with just under 40% of the shares on issue. FIRB has also recently given approval for Pegasus to acquire up to an additional 20.5% of the company, with a 12-month deadline affixed (company announcement 8 February 2023).

Exhibit 7: Top 20 shareholders		
Shareholder	% held	No. of shares
Pegasus Capital Group LLC	39.36	163.52
Rosewood Engineering Pty. Ltd.	5.03	20.90
Innovyz Investments Pty. Ltd.	4.51	18.75
Monash Investment Holdings Pty. Ltd.	4.41	18.32
Granit (Omer)	4.39	18.22
June Seventy Sixers LLC	2.45	10.20
Cawood (Philip John)	1.08	4.50
University of Adelaide	0.80	3.33
M & S Skyleisure Pty. Ltd.	0.73	3.04
Allcare Investments Pty. Ltd.	0.70	2.89
National Accounts Pty. Ltd.	0.60	2.47
Douglas (Stuart)	0.42	1.75
Wade (Peter)	0.40	1.66
Jomaho Investments Pty. Ltd.	0.40	1.65
Jabez Investment Group Pty. Ltd.	0.38	1.58
Hobbs (Barbara Myra)	0.35	1.44
PPK Investment Holdings Pty. Ltd.	0.34	1.41
Finnin (Barrie Charles)	0.27	1.12
Douglas Invest Pty. Ltd.	0.23	0.94
Hanna (Robert David)	0.16	0.68
Source: Refinitiv 3 April 2023		

Earnings Forecasts

We have made substantial changes to our forecasts for Amaero following its change in strategic direction. We no longer include forecasts for previously announced opportunities with Fletcher Glass, Boeing or Gilmour Space Technologies or expectations for machine sales and maintenance. We expect negligible revenues from 3D printing with the focus of our model now on the titanium powder project in the UAE.

Our forecasts are predicated on the unit economics provided by the company in recent presentations. We have assumed the following for a single gas atomiser:

- Capital expenditure/atomiser unit: A\$24.0m (US\$16m)
- Annual Grade 5 titanium powder/unit: 207 tonnes
- Average price Ti powder: US\$150/kg
- Average Gross Margin: 62%

Further we have assumed the following in our forecasts:

- Total number of gas atomisers applied to Ti production : Four
- Total capex for the initial project (stage one and two) is estimated to be A\$79.6m (US\$53.5m), with this funded through a combination of strategic placements and debt with an interest cost of 8% p.a. We expect the company to capitalise the interest until the project becomes profitable.
- Amaero will fund 100% of working capital requirements with strategic placements supporting the cash burn until profitability is reached in FY27.

Our earnings estimates from FY23 to FY30 are set out in Exhibit 8.

Exhibit 8: Earnings estimates for Amaero International FY23f-FY30f

Year ending June 30	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Sales revenue	0.5	-	3.6	22.9	122.2	186.4	212.1	233.9
Gross profit	(0.0)	-	(0.9)	(2.7)	73.9	107.9	129.7	147.2
Gross profit margin	(3.0)	-	(26.1)	(11.9)	60.5	57.9	61.1	63.0
EBITDA adjusted	(11.2)	(20.6)	(29.3)	(44.1)	19.8	51.0	69.6	83.7
EBITDA reported	(14.0)	(20.6)	(29.3)	(44.1)	19.8	51.0	69.6	83.7
NPAT	(15.2)	(21.6)	(35.0)	(53.1)	10.3	39.8	59.6	74.2

Source: RaaS estimates

Our earnings forecasts also incorporate the following assumptions:

- Feedstock for the first gas atomiser is purchased from H1 FY25 with testing taking place in that half;
- FALCON secures an offtake agreement for industrial grade titanium powder by H1 FY25 – first powder production commences in this half with 17 tonnes;
- The second gas atomiser is installed in H2 FY25 and H1 FY26 with the fourth installed in H2 FY26;
- We anticipate a 24-month qualification period for the Grade 5 powder with first commercial production in H1 FY27;
- “At capacity” production is forecast to be reached in H1 FY28;
- An offtake Ti64 titanium powder price of US\$150/kg and spot price of US\$210/kg, we anticipate 50/50 production split at these prices;
- Industrial powder prices of US\$28/kilo;
- Gross margins of ~62%;
- USD/AUD exchange rate of US\$0.68/A\$1.00;
- Full production rate of 827 tonnes of industrial Ti64 achieved by FY27;
- Grade 5 powder production qualification is achieved by H1 FY27 with full annual production of 414 tonnes a year achieved by FY28;
- Staffing numbers to grow to just under 300 at full production; and
- COGS are energy costs and titanium ingots. We have used US\$28/kg for feedstock. Energy costs equate to ~5.5% of revenue.

Our forecasts only incorporate assumptions for the initial four titanium gas atomiser facility. Amaero has also flagged ambitions to integrate midstream titanium supply chain, including melt and milling operations. These are not included in our forecasts. We expect to refine our forecasts on the titanium powder project and further opportunities as more detail comes to hand.

DCF Valuation

In our view, given the early-stage nature of Amaero's business and the time that it will take to get the UAE project into full production, the discounted cashflow methodology is the most appropriate method for valuing the company. Earlier commencement of the project, and earlier qualification of aerospace grade powder, would have a material impact on our forecasts given the time-weighting in this methodology. We derive a weighted average cost of capital (WACC) of 12.0% (Cost of Equity 14.9%, beta 1.8, terminal growth rate 2.2%) and this gives us a base-case valuation of \$528m or \$0.66/share on a fully diluted basis. On the current share count of 419m, the valuation is \$1.26/share. We use an equity risk premium of 6.5%, risk-free rate of 3.5% and target gearing of 25%. Note that we use the UAE corporate tax rate of 9% in our valuation. The valuation also assumes that the project is predominantly debt/strategic equity funded. Should the company secure non-participating funding for the project's capex and/or working capital, this could potentially increase our valuation.

Exhibit 9: DCF valuation (in A\$m unless otherwise stated)

DCF valuation	Parameters
Cost of Equity	14.9%
Beta	1.8
Cost of Debt after tax	3.2%
WACC	12.0%
Equity risk premium	6.5%
Risk-free rate	3.5%
Terminal growth rate	2.2%
Sum of PV (A\$m)	83.3
Terminal value at FY33 (A\$m)	1,264.0
Present value of terminal value (A\$m)	365.1
PV of enterprise (A\$m)	448.3
Fully diluted cash and debt (A\$m)	(79.6)
Net value – shareholder (A\$m)	528.0
No. of shares on issue (fully diluted) (M)	804.4
NPV in A\$/share	\$0.66

Source: RaaS analysis

APPENDIX

Below are two articles from TASS, the Russian News Agency, highlighting the changing relationship of aerospace/defence manufacturers with VSMPO-Avisma.

Exhibit 10: TASS reports Airbus to quit Russian titanium



RUSSIAN NEWS AGENCY

Airbus to decouple from Russian titanium in months, says agency

The company has already completely eliminated the use of titanium of Russian origin in the production of military aircraft, said Michael Schollhorn, CEO of Airbus Defense and Space

LONDON, December 2. /TASS/. Airbus plans to halt its reliance on Russia for titanium supplies within several months, [Reuters](#) reported.

"We are in the process of decoupling from Russia when it comes to titanium. It will be a matter of months not years. For the time being Airbus still procures a certain percentage of Russian titanium, but we are clearly on a track of becoming independent of it," chief executive at Airbus Defence & Space Michael Schoellhorn said.

The company no longer needs titanium originated from Russia for military products but has "a short while" to go for civil planes, he added.

Airbus has expanded titanium purchases from the United States and Japan while exploring new sources, the agency said. Certifying new suppliers to stringent aerospace standards can take years, according to the report.

The company said in March 2022 that it was searching for alternative sources to purchase titanium for its production for the event of Russian deliveries halted.

Source: TASS, December 2, 2022

Exhibit 11: TASS reports Boeing to quit Russian titanium



RUSSIAN NEWS AGENCY

Boeing stops buying Russian titanium — company

According to the media, the company receives about a third of the required amount of titanium for aircraft components from Russia

MOSCOW, March 7. /TASS/. Boeing has suspended purchases of Russian titanium, a spokesperson of the company told TASS on Monday.

The American aircraft manufacturer did not comment on the fate of the Ural Boeing Manufacturing joint venture.

"Boeing has a significant stock of titanium, in particular thanks to Boeing's initiative for the creation of a pool of suppliers around the world that has been underway for several years. Boeing has currently suspended titanium purchases from Russia. Titanium stocks and a network of alternative suppliers allow Boeing to maintain uninterrupted production of civil aircraft. The company will continue to take steps to ensure the sustainability of the business in the long term," the corporation said.

According to the Wall Street Journal, the company receives about a third of the required amount of titanium for aircraft components from Russia. The USA, Japan, China and Kazakhstan account for the rest of supplies.

VSMPO-Avisma, which is part of Russia's Rostec state-run corporation, is a monopolist in the domestic titanium industry. It produces one third of all global titanium for the aviation sector.

Source: TASS, March 7, 2022

Exhibit 12: Financial Summary

Amaero International Ltd						Share price (5 April 2023)						A\$		0.14
Profit and Loss (A\$m)						Interim (A\$m)		H122A	H222A	H123A	H223F	H223F	H223F	
Y/E 30 June	FY22A	FY23F	FY24F	FY25F	FY26F									
Sales Revenue	0.6	0.5	0.0	3.6	22.9	Sales Revenue		0.2	0.4	0.5	0.0	0.0	0.0	
Total Revenue	1.5	1.9	0.0	3.6	22.9	EBITDA Adj		(3.0)	(4.2)	(3.1)	(8.1)	(8.5)	(12.1)	
Gross Profit	0.8	1.4	0.0	(0.9)	(2.7)	EBIT Adj		(3.5)	(4.7)	(3.7)	(8.6)	(9.4)	(13.0)	
EBITDA Adj	(7.2)	(11.2)	(20.6)	(29.3)	(44.1)	NPAT (Adj)		(3.6)	(4.8)	(3.8)	(8.6)	(8.9)	(12.7)	
Depn	(1.1)	(1.1)	(1.8)	(6.0)	(9.0)	Minorities		-	-	-	-	-	-	
Amort	0.0	0.0	0.0	0.0	0.0	NPAT (reported)		(3.5)	(5.1)	(6.6)	(8.6)	(8.9)	(12.7)	
EBIT Adj	(8.2)	(15.2)	(22.4)	(35.3)	(53.1)	EPS (Adj)		(1.76)	(2.31)	(1.05)	(2.04)	(1.98)	(2.53)	
Interest	(0.2)	(0.0)	0.8	0.3	0.2	EPS (reported)		(1.73)	(2.45)	(2.39)	(2.00)	(1.88)	(2.41)	
Tax	0.0	0.0	0.0	0.0	0.0	Dividend (cps)		-	-	-	-	-	-	
Minorities	0.0	0.0	0.0	0.0	0.0	Imputation		-	-	-	-	-	-	
Equity accounted assoc	(0.0)	0.0	0.0	0.0	0.0	Operating cash flow		(4.4)	(3.5)	(6.2)	(3.0)	(11.8)	(16.0)	
NPAT pre significant items	(8.4)	(15.2)	(21.6)	(35.0)	(52.9)	Free Cash flow		(4.4)	(3.5)	(6.2)	(3.0)	(11.8)	(16.0)	
Significant items	(0.2)	(2.9)	0.0	0.0	0.0	Divisions		H122A	H222A	H123A	H223F	H223F	H223F	
NPAT (reported)	(8.6)	(18.1)	(21.6)	(35.0)	(52.9)	Sales and service revenue		0.2	0.4	0.5	0.0	0.0	0.0	
Cash flow (A\$m)						R&D grants		0.8	0.2	1.4	0.0	0.0	0.0	
Y/E 30 June	FY22A	FY23F	FY24F	FY25F	FY26F	Total Revenue		1.0	0.5	1.9	0.0	0.0	0.0	
EBITDA	(7.2)	(11.2)	(20.6)	(29.3)	(44.1)	COGS		0.4	0.3	0.5	0.0	0.0	0.0	
Interest	(0.2)	(0.0)	0.8	0.3	0.2	Gross Profit		0.6	0.2	1.4	0.0	0.0	0.0	
Tax	0.0	0.0	0.0	0.0	0.0	R&D costs		(1.2)	(1.8)	(1.6)	0.0	0.0	0.0	
Working capital changes	(0.6)	2.1	(8.1)	(28.7)	(9.4)	Employment		(0.8)	(0.8)	(1.2)	(2.4)	(2.6)	(5.2)	
Operating cash flow	(8.0)	(9.2)	(27.9)	(57.7)	(53.3)	General & Admin costs		(1.0)	(1.2)	(1.2)	(4.8)	(4.9)	(5.9)	
Mtce capex	0.0	0.0	0.0	0.0	0.0	Other costs		(0.6)	(0.5)	(0.5)	(0.9)	(0.9)	(1.0)	
Free cash flow	(8.0)	(9.2)	(27.9)	(57.7)	(53.3)	EBITDA		(3.0)	(4.2)	(3.1)	(8.1)	(8.5)	(12.1)	
Growth capex	(3.2)	(7.1)	(34.5)	(32.1)	(8.3)									
Acquisitions/Disposals	0.0	(0.0)	0.0	0.0	0.0	Margins, Leverage, Returns		FY22A	FY23F	FY24F	FY25F	FY26F		
Other	(0.0)	0.0	0.0	0.0	0.0	EBITDA		nm	nm	nm	nm	nm	nm	
Cash flow pre financing	(11.1)	(16.3)	(62.4)	(89.8)	(61.7)	EBIT		nm	nm	nm	nm	nm	nm	
Equity	8.1	10.5	23.4	72.6	45.2	NPAT pre significant items		nm	nm	nm	nm	nm	nm	
Debt	2.6	79.5	0.0	0.0	(2.8)	Net Debt (Cash)			8.3	4.5	(35.6)	(56.4)	(75.1)	
Dividends paid	0.0	0.0	0.0	0.0	0.0	Net debt/EBITDA (x)		(x)	n/a	n/a	n/a	n/a	n/a	
Net cash flow for year	(0.4)	73.8	(39.0)	(17.2)	(19.2)	ND/ND+Equity (%)		(%)	(132.8%)	(58.7%)	73.2%	54.5%	67.0%	
Balance sheet (A\$m)						EBIT interest cover (x)		(x)	n/a	n/a	n/a	n/a	n/a	
Y/E 30 June	FY22A	FY23F	FY24F	FY25F	FY26F	ROA			(40.1%)	(24.6%)	(21.7%)	(28.2%)	(36.7%)	
Cash	11.1	84.2	44.0	23.2	1.7	ROE			(58.0%)	(134.9%)	(170.7%)	(116.6%)	(125.8%)	
Accounts receivable	0.4	0.1	0.0	0.5	3.0	ROIC			(637.1%)	3053.3%	(38.0%)	(70.6%)	(70.1%)	
Inventory	1.1	1.0	1.0	3.6	15.0	NTA (per share)			0.06	0.03	0.02	0.06	0.05	
Other current assets	0.1	0.2	0.2	0.2	0.2	Working capital			0.0	(3.9)	(6.8)	(10.3)	(7.5)	
Total current assets	12.7	85.5	45.3	27.5	20.0	WC/Sales (%)			1.9%	(804.7%)	nm	(286.1%)	(32.7%)	
PPE	8.6	14.6	47.3	73.4	72.8	Revenue growth			13.0%	(14.9%)	(100.0%)	nm	532.9%	
Intangibles and Goodwill	0.0	0.0	0.0	0.0	0.0	EBIT growth pa			n/a	n/a	n/a	n/a	n/a	
Investments	0.4	1.0	12.0	44.2	50.8	Pricing			FY22A	FY23F	FY24F	FY25F	FY26F	
Deferred tax asset	0.0	0.0	0.0	0.0	0.0	No of shares (y/e)		(m)	241	474	581	764	804	
Other non current assets	0.2	0.2	0.2	0.2	0.2	Weighted Av Dil Shares		(m)	207	419	500	581	713	
Total non current assets	9.1	15.8	59.6	117.9	123.7	EPS Reported		cps	(4.2)	(4.4)	(4.6)	(6.2)	(7.0)	
Total Assets	21.9	101.3	104.8	145.4	143.8	EPS Normalised/Diluted		cps	(4.1)	(3.1)	(4.6)	(6.2)	(7.0)	
Accounts payable	1.4	5.0	7.9	14.4	25.5	EPS growth (norm/dil)			n/a	n/a	n/a	n/a	n/a	
Short term debt	0.0	0.0	0.0	0.0	0.0	DPS		cps	-	-	-	-	-	
Tax payable	0.0	0.0	0.0	0.0	0.0	DPS Growth			n/a	n/a	n/a	n/a	n/a	
Other current liabilities	0.6	2.2	2.2	2.2	2.2	Dividend yield			0.0%	0.0%	0.0%	0.0%	0.0%	
Total current liabilities	2.1	7.2	10.1	16.6	27.8	Dividend imputation			0	0	0	0	0	
Long term debt	2.8	79.7	79.7	79.7	76.8	PE (x)			-	-	-	-	-	
Other non current liab	2.4	2.2	2.2	2.2	2.2	PE market			15.0	15.0	15.0	15.0	15.0	
Total long term liabilities	5.2	81.9	81.9	81.9	79.0	Premium/(discount)			nm	nm	nm	nm	nm	
Total Liabilities	7.2	89.1	91.9	98.5	106.8	EV/EBITDA			nm	nm	nm	nm	nm	
Net Assets	14.6	12.3	13.0	47.0	37.1	FCF/Share		cps	(3.30)	(1.94)	(4.79)	(7.55)	(6.63)	
Share capital	35.3	48.2	71.6	144.2	189.5	Price/FCF share			(4.1)	(7.0)	(2.82)	(1.79)	(2.04)	
Accumulated profits/losses	(21.5)	(36.0)	(58.7)	(97.4)	(152.5)	Free Cash flow Yield			(24.4%)	(14.4%)	(35.5%)	(55.9%)	(49.1%)	
Reserves	0.8	0.1	0.1	0.2	0.1									
Minorities	0.0	0.0	0.0	0.0	0.0									
Total Shareholder funds	14.6	12.3	13.0	47.0	37.1									

Source: Company data for historicals, RaaS estimates

FINANCIAL SERVICES GUIDE

RaaS Advisory Pty Ltd

ABN 99 614 783 363

Corporate Authorised Representative, number 1248415

of

BR SECURITIES AUSTRALIA PTY LTD

ABN 92 168 734 530

AFSL 456663

Effective Date: 6th May 2021

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