18 September 2025

Andromeda Metals Limited ASX: ADN

ASX Announcement

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HPA Scoping Study demonstrates market-leading economics of Andromeda's innovative technology

- **Scoping Study justifies the commercialisation of Andromeda's HPA production technology using Great White kaolin feedstock**
- **Strong economic potential for Andromeda to become a leading global producer of low-cost, low-carbon HPA**
- **Market-leading economics with low cost of production and capital expenditure**
- **HPA processing technology with lower-carbon emissions than traditional process**

Cautionary Statement

The HPA Scoping Study referred to in this announcement has been undertaken in accordance with the AusIMM Cost Estimation Handbook for feasibility studies, with the intention of announcing the outcomes to support further investment and conversations with potential partners.

It is a preliminary technical and economic study of the potential viability of the HPA Project. It is based on low level technical and economic assessments of the research and modelling that has been undertaken to produce the HPA samples tested. The HPA samples were produced from preliminary test work using batch processing. Actual recoveries and purity levels achieved through continuous processing may differ significantly from those assumed.

Further evaluation work and appropriate studies are required before Andromeda will be in a position to estimate detailed timing, capital and operating costs or to provide any assurance of an economic development case. The HPA Scoping Study is based on the assumptions contained under the heading Material Assumptions and Modifying Factors.

These include assumptions about the availability of funding. While Andromeda 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 range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated in the HPA Scoping Study, additional funding and feasibility studies will be required to support the development of the HPA opportunity, in addition to the development of the Great White Project proceeding and providing high-quality refined kaolin product as feedstock as envisaged in the study.

Investors should note that there is no certainty that Andromeda will be able to raise the amount of funding when needed. It is also likely that such funding may only be available on terms that may be dilutive to, or otherwise affect, the value of Andromeda's existing shares.

It is also possible that Andromeda could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce Andromeda's proportionate ownership of the project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of this Scoping Study.

Andromeda Metals Limited (ASX: **ADN**) (**Andromeda**, the **Company**) is pleased to release the outcomes of its Scoping Study (**HPA Scoping Study**), evaluating the economic potential of producing High Purity Alumina (**HPA**) from its high quality Great White kaolin.

HPA is listed as a Critical Mineral in Australia[1], the US[2] and Europe[3] due to its strategic importance in advanced technologies, growing use in energy applications and dependence on limited supply chains.

The HPA Scoping Study demonstrates the strong economic potential for Andromeda to become a leading global producer of low-cost, low-carbon HPA. This is underpinned by:

- kaolin from the Great White Project (**GWP**) being ideally suited to producing HPA, being high grade and having low levels of alkali metals and alkaline earth metals; and
- recent test work results validating Andromeda's novel process flowsheet and producing HPA from kaolin to 99.9985% purity[4].

The HPA Scoping Study provides a preliminary market, technical and economic review of the opportunity and justifies the HPA Project (**HPA Project**, the **Project**) progressing towards development.

Key findings of the HPA Scoping Study[5]:

- HPA Processing Facility capable of producing 10,000 tpa of 4N HPA using ~30,000 tpa of GWP kaolin as feedstock.
- Net Present Value[6] (NPV_{10}) of approximately $1.48 billion (pre-tax) and $1.01 billion (post-tax)[7].
- Pre-production capital costs of approximately $155 million (inclusive of 30% contingency)[8]:
    - Market-leading capital intensity of $15,459 (US$9,894) per tonne of HPA capacity;
    - Significantly below other reported processes.
- Operating costs of approximately $4,718 (US$3,020) per tonne:
    - Significantly below other globally reported processes;
    - Excludes any benefits from potential sales of amorphous silicate by-products.
- High product margin of 85%, equivalent to approximately $26,532 (US$16,980) per tonne using conservative pricing assumptions of $31,250 (US$20,000) per tonne.
- Favourable market fundamentals with 20%[9] compound annual growth rate (**CAGR**) of demand, leading to an estimated supply shortfall of up to 78,071 tonnes in 2030, equivalent to 127% of current available global production capacity[9].
- Potential for Andromeda to become a global leader in the production of low-carbon HPA, with modelling indicating 6.47 tonnes of carbon dioxide emissions per tonne of HPA ($t\text{-}CO_2/t\text{-}HPA$) using natural gas, which is 48% lower than the reported 12.44 $t\text{-}CO_2$ / t-HPA of traditional aluminium alkoxide process.[10]

[1] HPA is included on the Australian Government's Critical Minerals List: https://www.industry.gov.au/publications/australias-critical-minerals-list-and-strategic-materials-list
[2] HPA is included under Aluminium in the United States' Critical Minerals List: https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-critical-minerals
[3] HPA and Aluminium have been merged under Bauxite in the European Union's Critical Minerals List: https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en
[4] Refer to ADN ASX announcement dated 1 May 2025 titled Andromeda *Achieves HPA Breakthrough: Successful Production of 4N HPA & Validation of Novel Flow Sheet*.
[5] Australian dollars quoted, unless otherwise stated. USD/AUD exchange rate of 0.64 assumed. Figures are approximate, subject to rounding and should be read in conjunction with Material Assumptions and Modifying Factors section (page 5).
[6] Calculated using a discount rate of 10%.
[7] Assumes company tax rate of 30%.
[8] Excludes additional costs for PFS, marketing and other studies including ongoing test work, currently estimated to cost approximately $4 million.
[9] High Purity Alumina Special Report 2023, CRU, October 2025.
[10] White Paper – Green Credentials of Altech HPA Process, Altech Chemicals (Mar-2020).

Key metrics and financial outcomes of the HPA Scoping Study[11]:

	AUD	USD
Target Production	10,000 tpa	
NPV_{10} (pre-tax)	$1,480 million	US$947 million
NPV_{10} (post-tax)[12]	$1,010 million	US$647 million
Revenue	$6,403 million	US$4,098 million
HPA Product Sale Price[13]	$31,250 / t	US$20,000 / t
Cash Operating Cost[14]	$4,718 / t	US$3,020 / t
Cash Operating Margin	$26,532 / t	US$16,980 / t
Cash Operating Margin (%)	85%	
Average Annual EBITDA	$247 million	US$158 million
Pre-production Capital Cost[15]	$155 million	US$99 million
Capital Intensity[16]	$15,459 / t	US$9,894 / t
Sustaining Capital Cost	$114 million	US$73 million
IRR (pre-tax)[17]	88%	
IRR (post-tax)	69%	
Project Life[18]	24 years	
Payback Period	3.2 years	

Kaolin feedstock for the production of HPA is intended to be provided through an arms-length inter-company offtake agreement for refined kaolin product from Andromeda's wholly owned Great White Project (GWP), which is supported by Andromeda's Ore Reserve of 15.1 Mt at the Great White Deposit[19].

The Company has determined that the outcomes of this Scoping Study warrant progressing the HPA Project.

[11] Australian dollars quoted, unless otherwise stated. USD/AUD exchange rate of 0.64 assumed. Figures are approximate, subject to rounding and should be read in conjunction with Material Assumptions and Modifying Factors section (page 5).
[12] Post-tax NPV_{10}; assumes company tax rate of 30%.
[13] Based HPA market analysis, which may not reflect actual offtake agreements entered into.
[14] Excludes potential sales of silicate by-products.
[15] Includes ~30% contingency, excludes additional costs for PFS, marketing and other studies including ongoing test work, currently estimated to take approximately 2 years (subject to available funding) and cost approximately $4 million.
[16] Calculated as Pre-production Capital Cost per tonne of HPA Target Production capacity.
[17] Internal rate of return.
[18] Nominal Project Life of 24-years modelled, including approximately 2 years of design and construction for a HPA Production Facility with a 22-year production life.
[19] Refer ADN ASX dated 6 April 2022 titled *Great White Project DFS and Updated Ore Reserve*. The 15.1 Mt Ore Reserves includes 5.1 Mt classed as Proven and 10.0 Mt as Probable. Andromeda is not aware of any new information or data that materially affects the information included in this market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially change.

Sensitivity analysis (pre-tax)

The results show that the HPA Project's value is most sensitive to the following changes:

- AUD: USD exchange rate - A 20% reduction in AUD value increases NPV by 30%, a 20% increase in AUD value decreases NPV by 20%.
- Commodity prices - a 20% movement in HPA prices over the period of analysis increases or reduces the NPV by 26%.

The Project's value is less sensitive to the following changes:

- Operating Costs - a 20% movement in total operating costs over the period of analysis increases or decreases the NPV by 3%.
- Capital Expenditure - a 20% movement in total capital costs over the period of analysis increases or decreases the NPV by 3%.

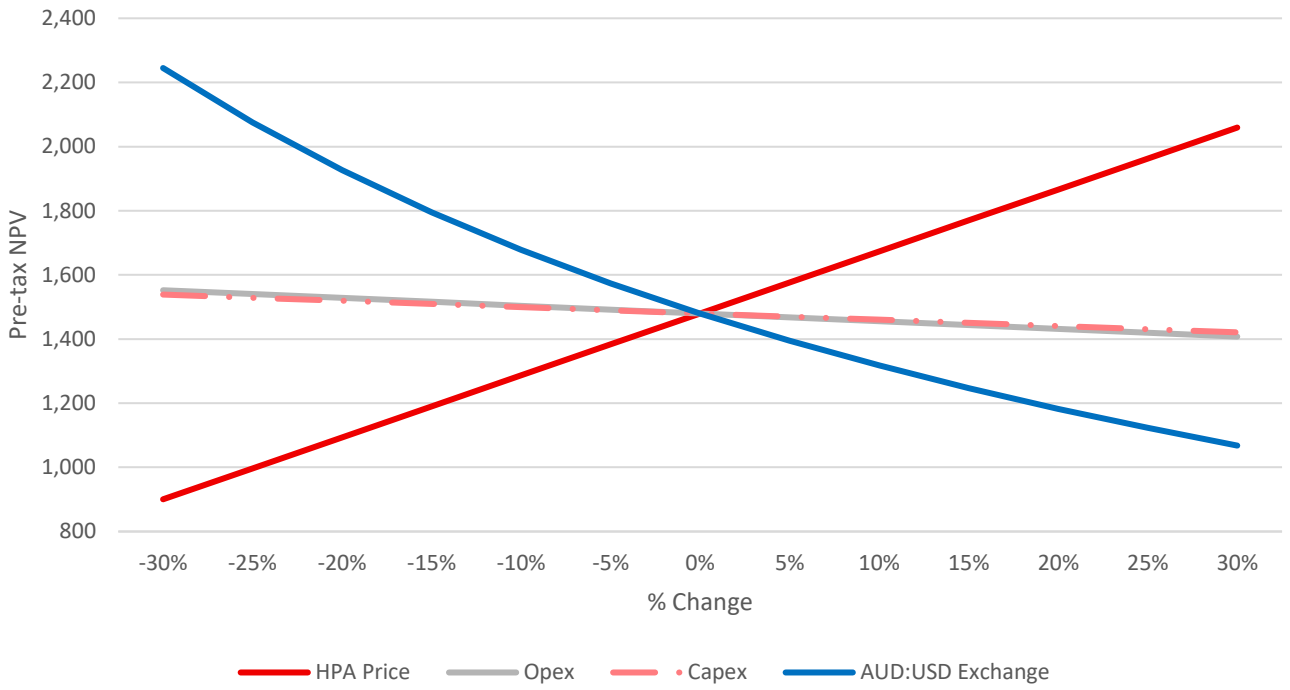

Figure 1 Pre-tax NPV Sensitivity Analysis

Table 1 Pre-tax NPV Sensitivity Analysis

	-30%	-20%	-10%	0%	10%	20%	30%
HPA Price (AUD)	900	1,094	1,287	1,480	1,673	1,866	2,059
Opex (AUD)	1,552	1,528	1,504	1,480	1,456	1,432	1,408
Capex (AUD)	1,539	1,519	1,499	1,480	1,460	1,441	1,421
AUD:USD Exchange	2,245	1,926	1,678	1,480	1,318	1,182	1,068

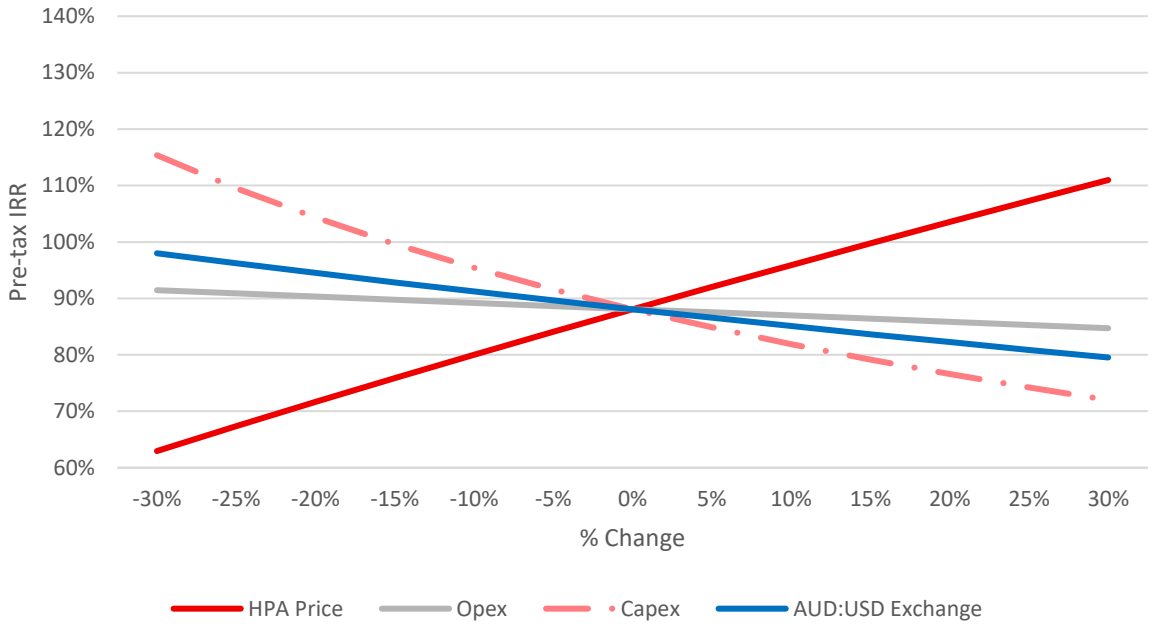

Figure 2 Pre-tax IRR Sensitivity Analysis

Table 2 Pre-tax IRR Sensitivity Analysis

	-30%	-20%	-10%	0%	10%	20%	30%
HPA Price	63%	72%	80%	88%	96%	104%	111%
Opex	91%	90%	89%	88%	87%	86%	85%
Capex	115%	104%	95%	88%	82%	77%	72%
AUD: USD Exchange	98%	95%	91%	88%	85%	82%	80%

Funding

Approximately $159 million will be required to develop the HPA Project, based on the assumptions in the HPA Scoping Study. This includes $155 million in Pre-production Capital Costs inclusive of ~30% contingency, and approximately $4 million in additional costs for a Pre-Feasibility Study, including Plant engineering design and refinement of capital and operating cost estimates, marketing and other studies including ongoing test work.

The Company intends to seek equity investment initially to progress the HPA Project through commercialisation and will likely target a combination of debt and equity for development funding. Any available government grants or incentives, and other forms of investment, will also be investigated. The Company also intends to actively seek offtake partners for HPA product once commercial samples of HPA have been produced.

The Company has sought equity funding for the HPA Project to date, with some of the use of funds from its $5million equity placement announced on 12 May 2025 allocated towards the HPA Project (including the Scoping Study and product and market development activities).

The Company believe that there is a reasonable basis to assume that the additional funding required to complete the forward work program and develop the HPA Project will be available on the following basis:

- The Board and management team of Andromeda have a strong track record in developing resources projects

- The Company has a proven ability to attract new capital, both through equity and debt, including in relation to the credit approval recently received for a A$75million project financing facility to support the development of the Great White Project[20]
- HPA is a high value critical mineral, with a significant supply shortfall predicted by 2030
- The Scoping Study demonstrates the HPA Project's potential to deliver strong economic results

Next Steps

Next steps, subject to funding and approvals, include:

- Investigation of production and sales of 3N and 5N HPA products
- Establishment of a continuous pilot plant for process flow sheet optimisation and production of commercial samples for potential customers
- Pre-feasibility and supporting studies
- Research into the potential value of silicate by-products.

Sarah Clarke, Andromeda's Acting CEO said:

"The HPA Scoping Study demonstrates the exciting potential for Andromeda to become a global producer of low-cost HPA products, using our low-carbon processing technology.

"The production of HPA is a high-value growth opportunity, which is not only complementary to the existing high-quality kaolin products planned to be produced from the Great White Project, but would also see Andromeda's product range extend into critical minerals.

"The HPA Scoping Study supports progressing the HPA Project to the next stage, and demonstrates its potential for unlocking significant value for Andromeda and its shareholders."

This announcement has been approved for release by the Board of Andromeda Metals Limited.

For more information about the Company and its projects, please visit our website, www.andromet.com.au or contact:

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COMPETENT PERSONS STATEMENT

The data in the HPA Scoping Study that relates to Ore Reserve Estimates for the Great White Deposit is based on, and fairly represent, information and supporting documentation fully reviewed and understood by Mr Joseph Ranford who is a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM). Mr Ranford approves the Ore Reserve Estimates for the Great White Deposit. Mr Ranford is the Chief Operating Officer of Andromeda Metal Limited and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which he is undertaking, to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code"). Mr Ranford consents to the information contained in this report being used in the form and context in which it appears. Mr Ranford holds Shares and Performance Rights in the Company and is entitled to participate in Andromeda's employee incentive plan.

[20] Refer to ADN ASX dated 4 June 2025 titled *Credit Approved A$75 million Debt Facility*.

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Material Assumptions and Modifying Factors

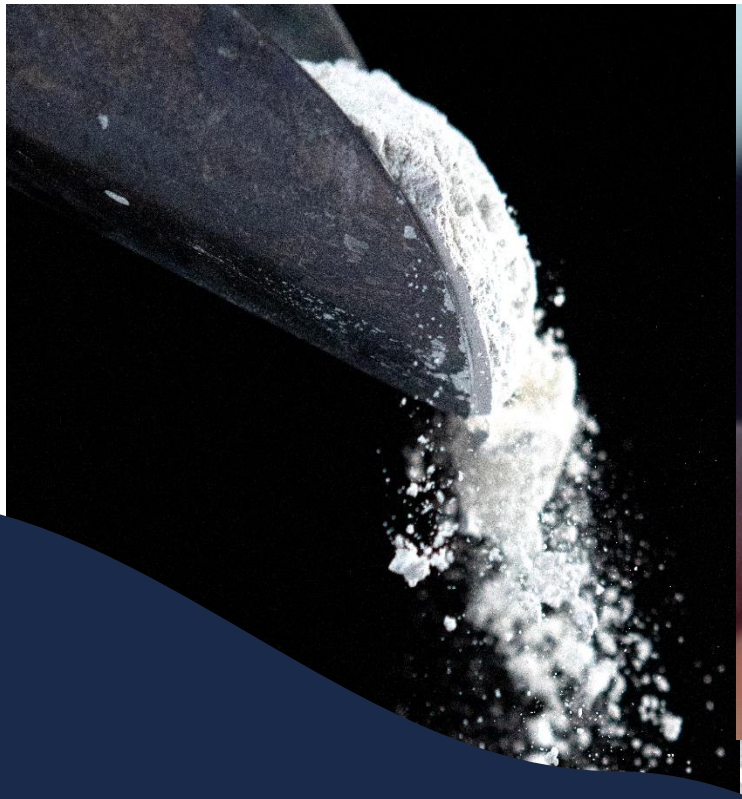
This scoping study is aimed at providing a business overview and financial analysis of the proposed production of 4N HPA using Andromeda's proprietary technology.

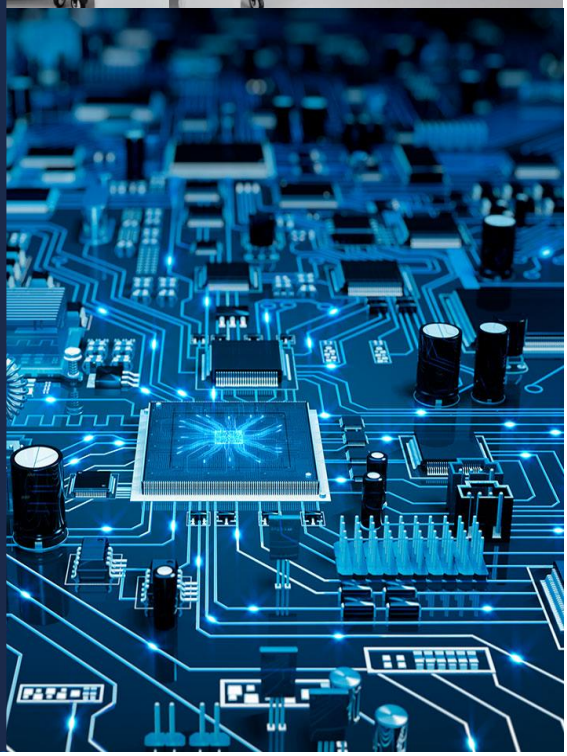
The feedstock assumed for the HPA Processing Facility is defined in the Great White Ore Reserve estimate, along with the published information in the updated Definitive Feasibility Study (2023 DFS). Modifying factors relating to the feed are not listed here, rather this study relies on the refined kaolin product sourced from the GWP.

The economic analysis relies on the following factors to build up the estimations:

- The nameplate production capacity of the operation is 10,000 tonnes per annum of HPA production with a minimum purity of 99.99% Al_2O_3 (4N), with a staged ramp up over 4 years to reach full production (noting that this capacity has been determined based on market analysis, but it should be noted that there is no guarantee that a facility of this scale will be constructed or that full production will be achieved).
- The HPA produced will meet the quality specifications required under any future customer agreements.
- The price of 4N HPA realised will be US$20,000 per tonne, which is conservative based on advice provided by independent third-party market consultants.
- The potential production and sale of 5N HPA products using Andromeda's proprietary flowsheet have not been included as a revenue stream in this model and remain an opportunity for the project.
- The Ore Reserve at Great White justifies an operation with a minimum mine life of 28 years[21] For the purposes of this HPA Scoping Study, a nominal 24-year project life has been modelled (inclusive of approximately 2 years of design and construction for a HPA Production Facility with a 22-year production life).
- The planned development of the Great White Project proceeds, enabling provision of high-quality refined kaolin product as feedstock, as envisaged in the study.
- Silicate by-products produced from the proprietary process have not been included as a revenue stream in this model and remain an opportunity for the project.
- A suitable site for the HPA Processing Facility can be found within South Australia with Great White kaolin transported to the site.
- No Native Title impediment exist in relation to the potential HPA Processing Facility sites.
- No environmental impediments have been identified in relation to any of the HPA Processing Facility sites.
- Accuracy of data is to a Scoping Study accuracy (Class 5 estimate - 30%), as per AusIMM Cost Estimation Handbook Second Edition Monograph 27.
- A discount rate of 10% has been used.
- A corporate tax rate of 30% has been assumed.
- A USD / AUD exchange rate of 0.64 has been assumed.
- No allowance has been made for the following items in the operating cost estimate:
    - Exchange rate variations
    - Escalation
    - Project financing costs
    - Interest charges
    - Utilisation of Andromeda's existing carry-forward tax losses.
- All goods and services tax (GST), import duties, surcharges and any other statutory taxation, levies or government duties are excluded.
- No allowance for contingency has been made in the operating cost estimates.

[21] Refer to ADN ASX dated 24 August 2023 titled *2023 Definitive Feasibility Study Results*; all material assumptions and technical parameters underpinning the estimates and forecast financial information continue to apply and have not materially changed.





Andromeda

HPA Scoping Study
Executive Summary

September 2025

1 Overview

Andromeda Metals Limited (**Andromeda, the Company**) has prepared this Scoping Study (**HPA Scoping Study**) as part of its business evaluation process for the commercial production of High Purity Alumina (**HPA**) from kaolin (**HPA Project, the Project**). This HPA Scoping Study is based on the construction and operation of a plant capable of producing a nominal 10,000 dry tonnes per annum (tpa) of HPA product in South Australia.

Over 7 years, the Company has undertaken investigation, research and metallurgical test work leading to the development of a novel process flowsheet to produce HPA from kaolin feedstock. Andromeda filed a Patent Co-operative Treaty (**PCT**) application for the novel process in July 2022.

This HPA Scoping Study was commissioned following the successful undertaking of test work on the novel process using refined kaolin product from the Company's Great White Project (**GWP**). Analysis conducted by EAG Eurofins USA confirmed the HPA produced from the test work was 99.9985% pure, which was independently confirmed by analysis conducted by Australia's National Science Agency, the Commonwealth Scientific and Industrial Research Organisation (**CSIRO**)[1].

Once constructed and operational, the HPA Processing Facility will initially produce 2,500 dry tpa HPA in year 1, increasing by 2,500 dry tpa each year to reach nominal production of 10,000 dry tpa in year 4. This staged strategy allows for the establishment of markets and customer agreements with production growing to meet predicted growth in global demand.

Market advice from CRU Group (**CRU**)[2] supports the proposed initial production of 2,500 dry tpa, given it represents 3.1% of the global demand forecast for 4N+ HPA in 2027 of 79,799 tonnes, which is considered by Andromeda to be suitable for establishing a presence in the existing market.

An assumed average pricing of USD20,000 per tonne for 4N HPA has been adopted by Andromeda for this HPA Scoping Study (not escalated over time). This has been based on market research which indicates current (2025) average 4N HPA prices range from USD20,700[3] per tonne up to USD30,700[4] per tonne.

A future ramp-up of production to 10,000 tpa is considered appropriate, at the assumed prices, based on market forecasts indicating it could be accommodated given predicted market compound annual growth rates (**CAGR**) of 20.1% pa[5], with a supply shortfall of 78,071 tonnes in 2030, equivalent to 127% of available capacity, as estimated by CRU.

This HPA Scoping Study outlines the potential economics of a HPA Processing Facility, that for a capital investment of AUD155 million (inclusive of 30% contingency[6]) delivers a potential

[1] Refer to ADN ASX dated 1 May 2025 titled *Andromeda Achieves HPA Breakthrough: Successful Production of 4N HPA & Validation of Novel Flow Sheet.*
[2] CRU Group is a private business intelligence firm specialising in mining, metals, and fertilisers, offering market analysis, consulting, data services, and industry events globally.
[3] High Purity Alumina Special Report 2023, CRU, October 2025.
[4] High Purity Alumina Market Assessment, FutureBridge (commissioned by Andromeda), August 2025. FutureBridge is a *global* techno-commercial consulting and advisory company that helps businesses anticipate and navigate the future of their industries over a 1-to-25 year horizon.
[5] High Purity Alumina Special Report 2023, CRU, October 2025.
[6] On initial capital cost expenditure, but not capital spares.

return of Net Present Value[7] (**NPV_{10}**) of ~AUD1,010 million post-tax, with an Internal Rate of Return (**IRR**) of ~69% post-tax and a pay-back period of 3.2 years[8]. Average annual earnings before interest depreciation and amortisation (**EBITDA**) of AUD247 million is predicted.

Sourcing high purity kaolin feedstock from Andromeda's fully owned GWP is key to producing HPA at a lower cost and lower environmental impact than other established processes.

Currently, the largest producers of HPA rely on either the alkoxide hydrolysis process or a modified Bayer process both of which use bauxite as the primary source of aluminium. These processes are costly both economically and environmentally. Other companies are currently investigating solutions away from aluminium metal with varying degrees of success. Andromeda, however, is the first company to identify a commercial solution directly from kaolin feedstock.

The Andromeda novel process presents an opportunity for low-cost, lower-carbon HPA processing technology, with modelled carbon emissions up to 48% lower than the traditional aluminium alkoxide process currently used in 88% of global HPA production[9].

There is the potential to reduce carbon emissions further, through leveraging South Australia's leadership in renewable energy, which in 2024 generated more than 70% of its electricity from renewables and has a target of reaching 100% net renewable energy by 2027[10].

It is considered that Andromeda's proprietary technology has the potential to disrupt the existing market by producing HPA sourced from kaolin, a more abundant and less costly feedstock than feedstock used by established HPA processes.

2 Project Ownership

The HPA Project is held by Andromeda Technologies Holdings Pty Ltd (**ATH**), a wholly owned subsidiary of Andromeda Metals Limited. Andromeda Metals Ltd is listed on the Australian Securities Exchange (**ASX**) under the ticker code of ADN. The Great White Project is owned by Andromeda Industrial Minerals Pty Ltd (**AIM**), another wholly owned subsidiary of Andromeda Metals Ltd.

3 Project Location

A number of possible locations in South Australia (**SA**) (Figure 1) are being analysed against key operational and infrastructure parameters, in particular reticulated gas supply. The specific location of the processing facility has not yet been finalised.

Potential locations include Whyalla and industrial suburbs of northern Adelaide. Whyalla is a South Australian city located 396 km northwest of South Australia's capital, Adelaide, with an industrial history with regional mining, a steel works, access to port, rail and an all-weather airstrip, reticulated gas, water, power and renewable energy options. Both locations have

[7] NPV calculated using a discount rate of 10%.
[8] Following a financial investment decision.
[9] HPA Market size and share analysis: Growth trends and Forecasts (2025-2030), Mordor Intelligence.
[10] https://www.energymining.sa.gov.au/consumers/energy-grid-and-supply/our-electricity-supply-and-market

available skilled workforces and are supported by commerce and services in health and administration.

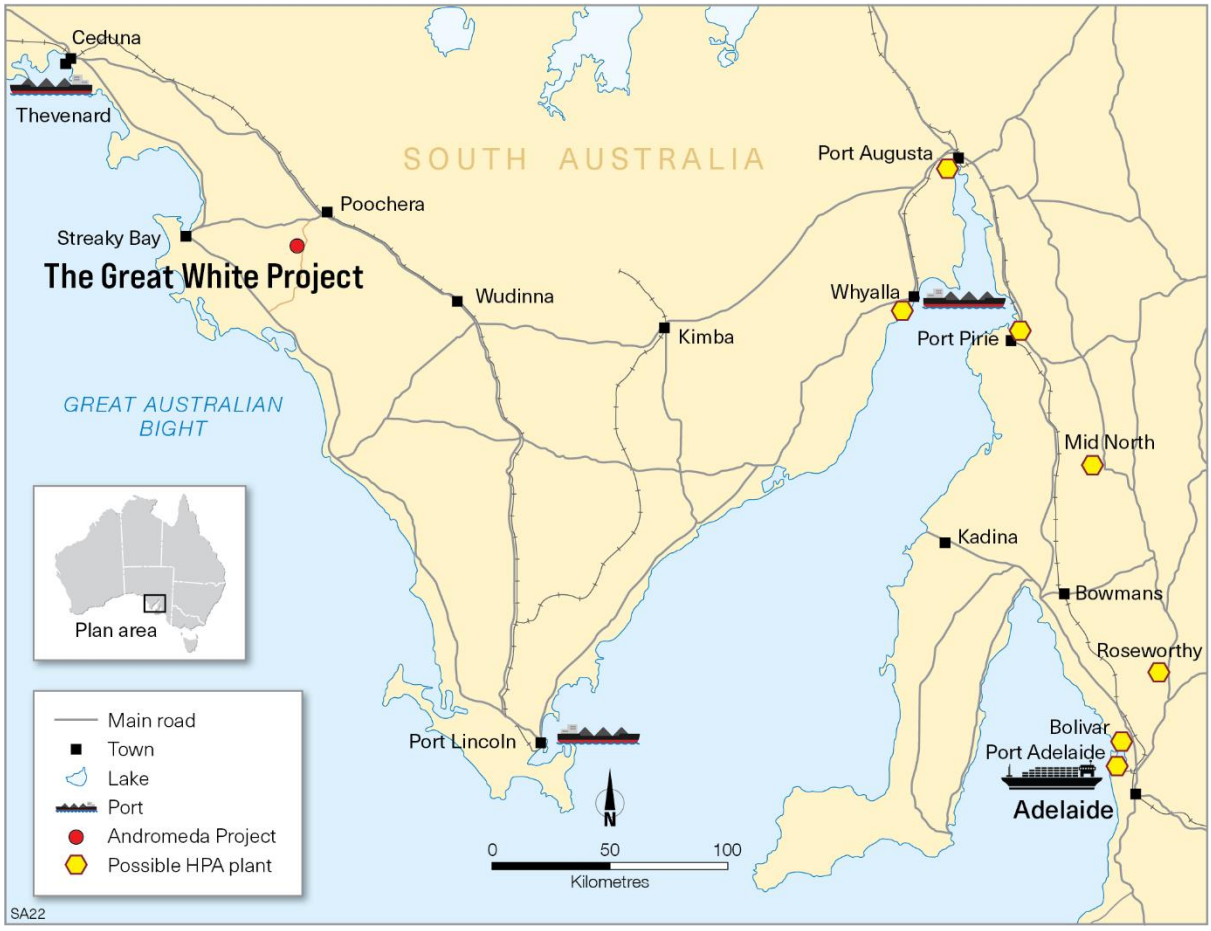


Figure 1 Potential HPA Processing Facility locations and Andromeda's Great White Project.

4 Kaolin Feedstock

The high aluminium grade (>36% Al_2O_3) and the significantly low level of impurities in the Great White kaolin are the basis for the highly successful research and development program. The success of the novel process flow sheet in making a 99.99% (**4N**) HPA is predominantly due to the low levels of alkali metals and alkaline earth metals in the high quality Great White kaolin.

The GWP production schedule will be planned to have flexibility to allow kaolin to be used for HPA production along with existing offtakes. The GWP has capacity to provide feedstock, and it is contemplated that this will be via an arms-length offtake agreement that matches production schedules[11]. Detailed integration planning between Andromeda's HPA Project and its GWP will be established in future studies.

[11] Assumes that the GWP will be in production at the time the HPA project requires feedstock.

Details relating to the Ore Reserve for the kaolin feedstock sourced from GWP were previously announced by Andromeda to ASX[12].

5 Scope of Work

This study covers the required inputs to approve and construct a HPA Processing Facility with the capacity to produce up to 10,000 tpa of 4N HPA in South Australia.

This HPA Scoping Study reflects the latest information on the HPA Project, to inform process flowsheet, metallurgical recoveries, engineering design, cost estimation, project execution and the financial modelling.

The HPA Scoping Study scope includes, but is not limited to:

- Technical research and development of Andromeda's novel technology
- Aspen Plus modelling to provide chemical mass balance, indicative capital and operating costs
- Capital and operating costs outside of the HPA Processing Facility relating to infrastructure and services
- Market definition and pricing estimates from FutureBridge and CRU (commissioned by Andromeda), and other publicly available published reports
- Metallurgical test work, reporting and analysis
- Mineral processing and plant engineering
- Capital and operating cost estimation
- Infrastructure, logistics and site services
- Human resources and operations management
- Financial evaluation and analysis
- Project schedule and execution
- High-level risk analysis
- Environment, sustainability, and governance (ESG)

and assumes refined kaolin feedstock is sourced from the GWP Ore Reserve.[12]

The HPA Scoping Study capital cost estimate has been prepared to a Class 5 accuracy level of +/-30 % guided by the requirements of the Australian Institute of Mining and Metallurgy (**AusIMM**) guidelines *(AusIMM 2012. Cost Estimation Handbook. 2nd Edition, Monograph 27. The Australian Institute of Mining and Metallurgy)*.

The body of work supporting this HPA Scoping Study has been managed by the Andromeda project team. Andromeda has appointed independent consultants, research organisations,

[12] Refer ADN ASX dated 6 April 2022 titled *Great White Project DFS and Updated Ore Reserve*. The 15.1 Mt Ore Reserves includes 5.1 Mt classed as Proven and 10.0 Mt as Probable. Andromeda is not aware of any new *information* or data that materially affects the information included in this market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

laboratories suppliers and experienced contractors to provide inputs, specifications and budget estimations for the various parts of the study.

6 Project History

Andromeda began investigating HPA production from the Great White Project in 2018. Over the next seven years, the Company carried out extensive research, testing, and assessment of various production methods and technologies, aiming to identify the most efficient process for extracting alumina from its kaolin resources.

In May 2025, a breakthrough in the HPA Project was announced following test work which successfully produced 4N HPA to a purity of 99.9985% from GWP feedstock.[13] On the back of these highly successful results, the Company has undertaken this HPA Scoping Study to assess the potential opportunity of progressing the HPA Project, identify gaps required for planning the next steps and providing a basis for developing business development plans.

7 Marketing

HPA is a highly refined form of aluminium oxide (Al_2O_3) and is a sought-after material due to its exceptional chemical and physical properties. The use of HPA is indispensable in various industries worldwide.

HPA is usually classified as at greater than 3N (99.9%) pure Al_2O_3 and is typically 4N (99.99%) or above. HPA is classified as a Critical Mineral in Australia[14], the United States of America (USA)[15] and Europe[16] with its value coming from its chemical purity, crystal structure, unique physical properties and limited supply chains.

The potential to make HPA from Andromeda's high quality kaolin Mineral Resources has been recognised by the Company as a potential value adding strategy since 2018. The key business drivers for the Company's ongoing research and development into a solution for making HPA from kaolin and undertaking this HPA Scoping Study is to increase the weighted average products sales margin from the GWP through the higher value of HPA, the predicted market growth and projected supply deficit.

Based on the predicted value reported by other companies proposing to make HPA, finding a solution to extract HPA from Great White kaolin has the potential to significantly increase the value of Andromeda's products.

A limited number of established HPA plants are located outside of China, with CRU indicating most non-China producers compete mainly on quality and consistency, while Chinese domestic HPA producers compete primarily on price[17].

[13] Refer to ADN ASX dated 1 May 2025 titled *Andromeda Achieves HPA Breakthrough: Successful Production of 4N HPA & Validation of Novel Flow Sheet*.
[14] HPA is included on the Australian Government's Critical Minerals List: https://www.industry.gov.au/publications/australias-critical-minerals-list-and-strategic-materials-list
[15] HPA is included under Aluminium in the United States' Critical Minerals List: https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-critical-minerals
[16] HPA and Aluminium have been merged under and Bauxite in the European Union's Critical Minerals List: https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en
[17] High Purity Alumina Special Report 2023, CRU, October 2025.

Reputation and consistent quality are highly desired by HPA end users, with Chinese manufacturers reportedly lacking the capability to produce higher purity and specialised grades of HPA, thus the country relies on imports for these advanced grades and there is an opportunity in this end of the market for non-Chinese sources of supply, according to CRU[13].

Marketing is a key area of focus of the Company in the next development stage.

7.1 HPA Properties

Properties of HPA that make it valuable include:

- Exceptional purity which enhances clarity, electrical insulation, thermal stability, and mechanical strength. Ultra-pure grades (5N and 6N) are essential in semiconductors, light-emitting diodes (**LED**), and battery separators.
- Chemical inertness in most environments, resistant to corrosion and chemical attack.
- High melting point making it suitable for high-temperature applications and refractory materials.
- Electrical insulation characteristics, making it useful in applications such as circuit boards and capacitors.
- High hardness and scratch resistance: making it suitable for applications requiring abrasion resistance.
- Optical Transparency as the base material for synthetic sapphire glass it is transparent to ultraviolet (**UV**), visible, and infrared light, ideal for optical lenses, lasers, and LEDs.

The purity of HPA is a crucial determinant of quality, as it determines its suitability for various high-tech applications. The highest commercial level is 6N (99.9999% purity) with a range of products within these categories, denoted by the next significant decimal. i.e. 4N5 indicated 99.995% pure.

The novel process to produce HPA considered in this HPA Scoping Study produces an amorphous silicate material by-product. In this study the by-product is being disposed of at a cost. The applications of the by-product have not yet been analysed. The analysis and value of the by-product, including any further refining required will be undertaken in the next stage of studies, with the potential reclassification as a high-value co-product.

Crystalline Structure

HPA exists in various crystalline phases, most notably alpha (α) and gamma (γ) phases, along with amorphous forms. Alpha HPA (α-Al_2O_3) is the thermodynamically stable phase, while gamma HPA (γ-Al_2O_3) is a metastable phase that can transform into alpha HPA under certain conditions. Amorphous alumina is a non-crystalline form, lacking long-range order.

- **α-Al_2O_3:** The thermodynamically stable phase, known for its high hardness and thermal stability. It is often used in wear-resistant applications and cutting tools.
- **γ-Al_2O3:** A metastable phase with a high surface area, making it suitable for catalysis and other applications where a large surface area is beneficial.
- **Amorphous HPA:** A non-crystalline form that can be used in thin-film coatings for corrosion protection, capacitors, luminescent materials and catalysts.

The Andromeda novel flowsheet can produce a range of HPA products with various crystalline structures as required by customer requirements (including alpha, gamma and amorphous HPA).

Impurities

Purity is a crucial factor, the make-up of trace impurities in the HPA will negatively impact the performance and efficiency of applications that rely on its properties.

Limits on individual elemental impurity concentrations also typically specified, as these impurities can result in significant quality and safety issues in the end use applications such as sodium (Na), iron (Fe), and magnesium (Mg). Andromeda's use of Great White kaolin as a low impurity feedstock with the novel flowsheet targeting specific impurities for removal, as part of the process.

Size

Size is an area of identified additional research to be progressed in the next phase of the HPA Project, given particle size distribution is another important property for value creation and affects value in several ways.

7.2 HPA End Use Markets

The HPA market (Figure 2) can be broadly categorised into two primary segments:

- applications that utilise HPA in ceramic form — typically a white powdered product supplied by HPA manufacturers; and,
- applications that process it into corundum, commonly referred to as synthetic sapphire.

Ceramic-grade HPA is valued for its exceptionally high melting point and chemical inertness, making it particularly suitable for use in environments where mechanical or physical functionality is required without interfering with surrounding chemical processes. Key applications include coatings for lithium-ion battery (**LIB**) separators and chemical-mechanical polishing.

Synthetic sapphire is prized for its optical clarity and extreme hardness. With a Mohs hardness rating of 9, it ranks as the third hardest known mineral, following diamond and moissanite. These properties make synthetic sapphire ideal for precision optical components such as Light Detection and Ranging (**LiDAR**) systems and camera lenses, where surface integrity is critical to performance.

Furthermore, synthetic sapphire's crystal lattice closely aligns with that of gallium nitride and gallium arsenide—semiconductors widely employed in LED technologies. Its electrical insulating capabilities and thermal conductivity further enhance its utility in these applications.

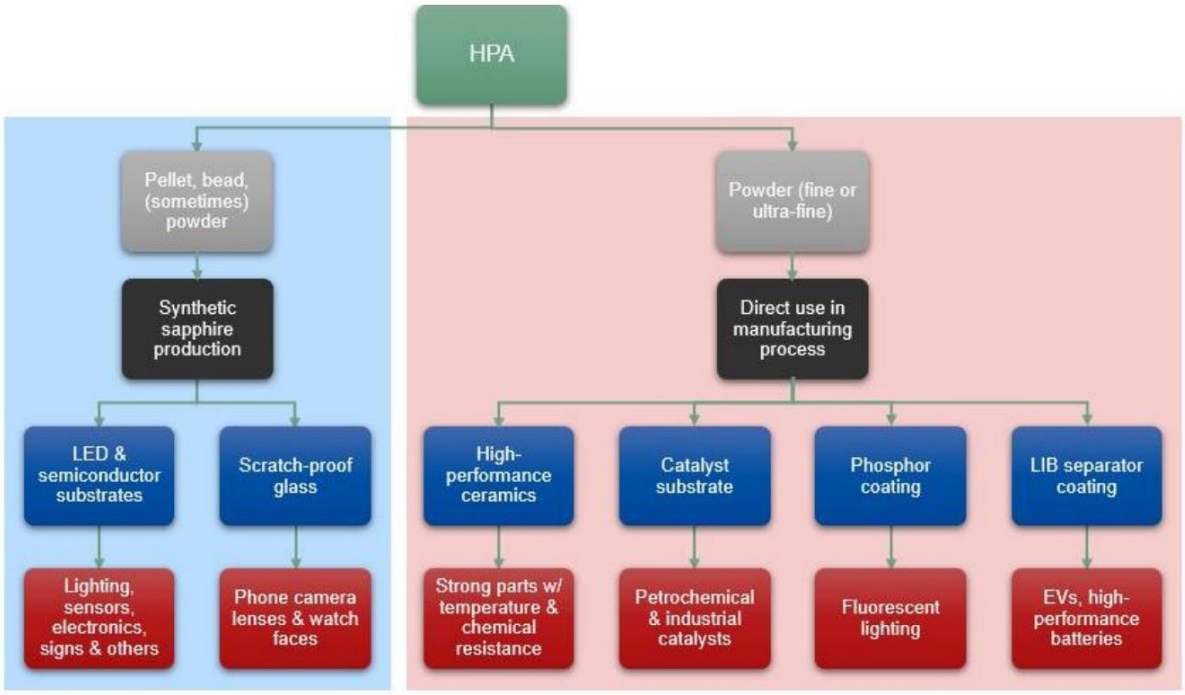


Figure 2 HPA End Use Markets (Source: CRU)

Market segmentation is set out in Figure 3. It is noted that the Company investigating lithium-ion battery application is not included above as there may be emerging alternatives (i.e. boehmite, a precursor to HPA) in this market, that the Company could supply.

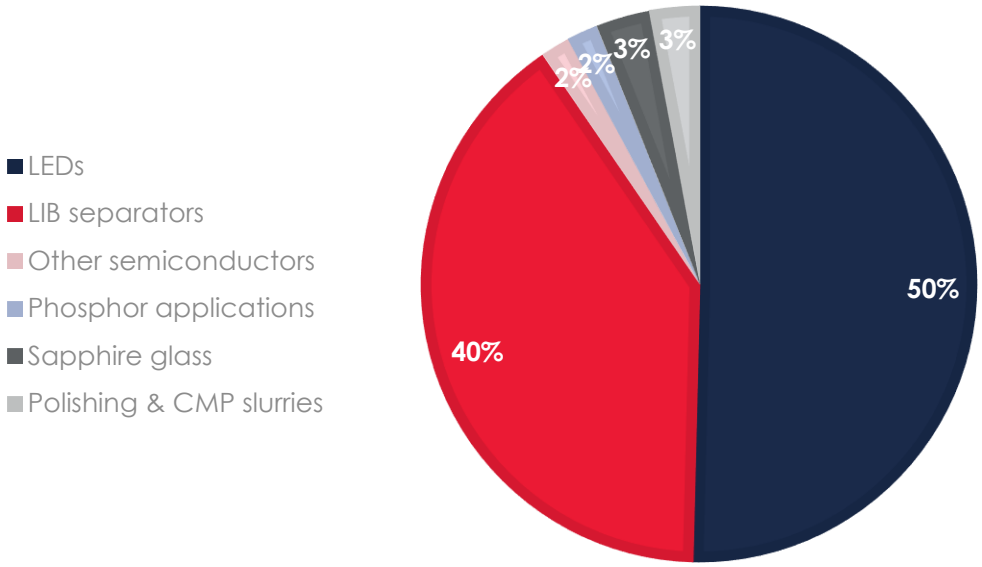


Figure 3 HPA consumption by application 2024 (all demand 3N – 5N HPA) (Source: CRU)

7.3 HPA Demand and Supply

Market demand for HPA is driven by growth in the following end uses:

- LED usage in lighting and television and display screens, including in smartphones, tablets and smartwatches
- LIB coatings used in portable electronics such as mobile phones and laptops, and the electric vehicle (EV) market
- Micro-LEDs which are expected to be integrated into smart wearable and automotive displays
- Synthetic sapphire glass used in smartphones, tablets, digital cameras and smartwatches.

CRU forecast (Figure 4) total 4N+ HPA demand in 2024 of 46,463 tonnes, reaching 139,731 tonnes in 2030, representing a CAGR of 20.1%.

Based on CRU forecasts for 4N+ HPA, a supply shortfall of 7,628 tonnes is expected to develop in 2028, growing to a supply shortfall of 78,071 tonnes in 2030, representing 127% of estimated production.

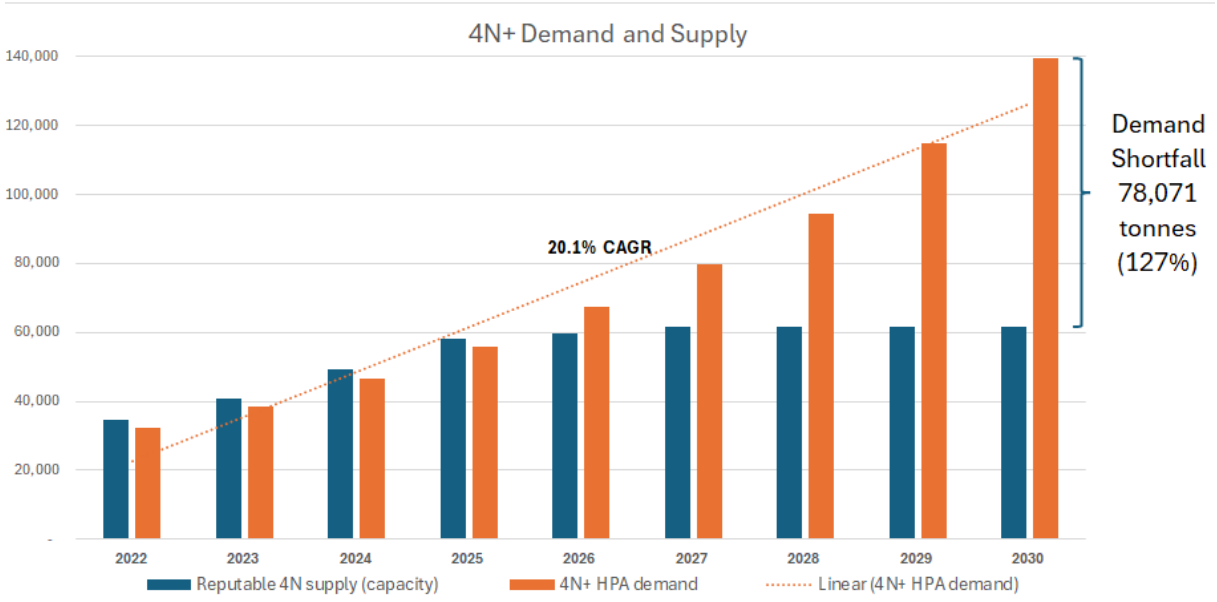


Figure 4 Market demand and supply forecasts for 4N+ HPA 2022-2030, showing supply shortfall from 2028 onwards (sourced from CRU)

7.4 HPA Pricing

There is no benchmark pricing for HPA or standardised industry-wide formula for calculating prices. Rather, pricing is largely determined on a product-by-product basis, with the value of a given HPA product being largely dependent on the end-use application and specific requirements of the customer, essentially reflecting the willingness to pay of each customer.

A conservative average price of USD20,000 per tonne of 4N HPA (i.e. USD20/kg HPA) has been adopted for this HPA Scoping Study, which is not escalated over time.

This compares to forecasts (Figure 5) for nominal prices and compound annual growth rates (**CAGR**) of:

- USD20.70/kg price in 2025, rising to USD31.13 in 2030 at an 8.5% CAGR (2025-2030), as estimated by CRU; and,
- USD30.70/kg price in 2025, rising to USD39.20 in 2030 at a 5.0% CAGR (2025-2030), as estimated by FutureBridge.

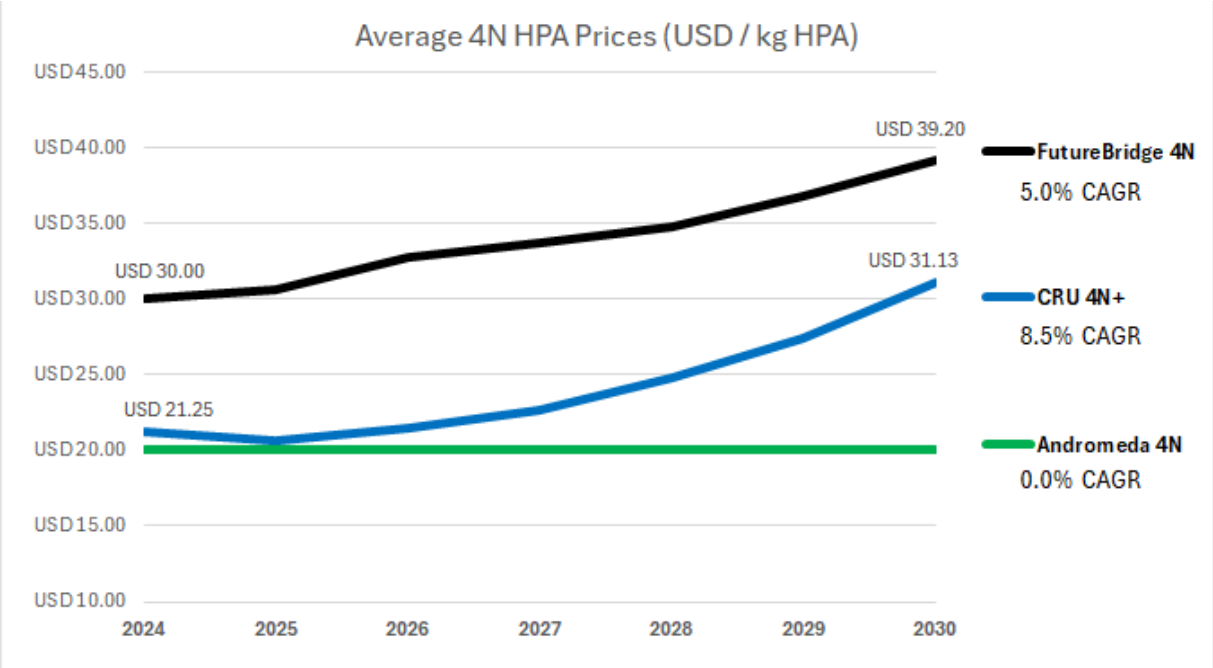


Figure 5 Average 4N HPA prices and CAGR forecasts, with Andromeda's assumed average pricing (Source: Andromeda, CRU and FutureBridge)

8 Metallurgy

8.1 Andromeda's HPA process

The novel flowsheet uses established metallurgical unit operations to refine the aluminium oxide (Al_2O_3) from kaolin. The successful trials at lab scale of the flowsheet sets Andromeda apart from other HPA producers, as the process is more cost and carbon effective than established reported processes.

Importantly, the novel flowsheet does not require hydrochloric acid (**HCl**) crystallisation of ACH (aluminium chloride hexahydrate), nor re-leaching using acid at high temperatures and under high pressure to achieve high purity levels. It also does not need the product to be calcined typically above 1250°C to remove chlorides.

Andromeda's novel process produces HPA that can be calcined starting at 700°C and provides a wide range of product forms, from amorphous to crystalline (gamma to alpha). Further, the process is flexible and the HPA produced can be produced to suit the customer and application.

8.2 Andromeda kaolin feedstock

The feedstock used in Andromeda's HPA test work was Great White CRM™, a refined kaolin product sourced from Andromeda's GWP. Theoretically, it takes 2.78 tonnes of Great White CRM™ to produce 1 tonne of HPA, assuming a 100% Al_2O_3 recovery.

An advantage of using the Great White low-cost kaolin feedstock is the natural purification the kaolin has undergone due to weathering over millions of years. This natural process that created the kaolin has also reduced the concentrations of deleterious elements such as iron, titanium, sodium, calcium, potassium, and magnesium. Great White CRM™ products have high aluminium oxide (Al_2O_3) content and low concentrations of alkali metals and alkaline earth metals for a kaolin product, making it an ideal feedstock.

9 Infrastructure and Services

9.1 Site selection

Site selection for the HPA Processing Facility will have a significant impact on the Project's success. Access to reticulated services, specifically natural gas, informed an early analysis that showed that an off-site location (not at the GWP mine site) was preferable for operations. Ideally, the HPA Processing Facility will be located in close proximity to the supply of key consumables and within an established industrial precinct with ready access to utilities.

Multiple criteria assessment was conducted, using key capital and operating cost drivers, to identify the HPA Processing Facility locations including:

1. Site access and logistics considerations for both feed and product
2. Size and availability of suitable land packages
3. Zoning and approvals processes
4. Access to Infrastructure and services including
    a. Reticulated high volume gas supply
    b. Access to water supply
    c. Power supply with access to renewable energy
5. Skilled workforce and accommodation
6. Local community
7. Surrounding built and natural environment

A high-level review of potential sites identified multiple opportunities. Whyalla and Northern Adelaide both rated highly, with further investigation required following this 2025 HPA Scoping Study.

9.2 Roads

Access for feedstock to all potential sites from Great White will be established via a combination of council owned local roads and South Australian Government Department for Infrastructure and Transport (**DIT**) arterial roads and highways. The final site location will be selected based on a range of factors including road access.

9.3 Logistics

Logistics costs are based on those estimated for the GWP for bulk delivery of refined kaolin feedstock to the HPA Processing Facility. The HPA Scoping Study is based on sales ex-works (from the processing site). HPA product will be packed into 25 kg bags and as required loaded onto a pallet and wrapped for collection from the processing site. Ultimately packaging will be stipulated by the market and that required by customers. For this study the product is assumed to be bagged, palletised and wrapped.

9.4 Water Supply

The HPA Project plans to access the mains water supply with a connection from the local SA Water at the HPA Processing Facility. An installed water treatment plant will treat water to the required specification as required in the process.

9.5 Energy

Electrical supply options were considered with a link to the grid proposed as the best option for long term supply. Final site selection will take into account minimisation of the infrastructure costs and access to renewable sources of generation with a view of reducing carbon and other greenhouse gas emissions.

South Australia is a leader in renewable energy, generating more than 70% of its electricity from renewables in 2024 to support the state's reticulated power network, with a target of reaching 100% net renewable energy by 2027[18].

Purchasing renewable energy is an option with all suppliers due to the integration of wind and solar generation. The aim is to utilise as much renewable energy as possible as part of Andromeda's commitment to ESG. In order to lock in supply of electricity, Andromeda will look to enter into commercial supply contracts from renewable energy suppliers.

The use of natural gas in the process constitutes one of the largest operating costs. Connection to a natural gas transmission pipeline is important to reduce the cost per gigajoule (**GJ**) and is a driver for the project design, processing plant location and opportunity for optimisation of the final product form.

10 Workforce

The modelling includes a direct workforce, excluding logistics and external support services, of approximately 88 people at full production. This workforce supports a 24 hour per day 7 day per week operation with 4 shifts to maintain production. Employees will be sourced from the local region selected wherever possible. Where required capabilities are not available in the region, personnel with relevant skills will be recruited and offered relocation assistance.

Andromeda will train all employees under its Health Safety Environment and Community (**HSEC**) Management System to ensure compliance and understanding of roles and responsibilities.

[18] https://www.energymining.sa.gov.au/consumers/energy-grid-and-supply/our-electricity-supply-and-market

Where appropriate, Andromeda will work with relevant district councils, government agencies and community groups to ensure appropriate training programs are available. The programs provide genuine opportunities for members of the local community to obtain employment on The Project.

Indigenous employment will be encouraged and ongoing discussions with relevant parties will explore ways to successfully implement this.

11 Capital Costs

The capital cost estimate for the Project was prepared by Andromeda with the assistance of specialist technical and engineering consultants to a class 5 level (AusIMM Cost Estimation Handbook, Second Edition Monograph 27).

The Project's total capital cost inclusive of contingency is set out in Table 1.

A contingency of 30% has been applied to The Project's initial capital cost estimate.

Table 1 Initial capital cost estimate (thousand $)

Capital Expenditure	AUD	USD
Project Management	2,340	1,498
Approvals	743	476
Land[19]	1,760	1,126
General Infrastructure	9,455	6,051
Plant & Construction	90,936	58,199
First Fills	129	83
Services & Utilities[20]	7,850	5,024
Other	1,526	977
Total Capital Expenditure	114,739	73,434
Contingency (30%)	34,436	22,039
Capital Spares	5,412	3,464
Total Capital Expenditure (inc contingency)[21]	154,587	98,937

This results in a capital intensity for the HPA processing plant of USD 9,894 per tonne, which is the lowest capital intensity reported by other prospective producers of HPA (Figure 6).

[19] Based on a conservative estimate on a northern Adelaide or Whyalla site.
[20] Based on a conservative estimate tieing into a northern Adeladie gas line with Whyalla expected to be similar
[21] Excludes additional costs for PFS, marketing and other studies including ongoing testwork, currently estimated to take approximately 2 years (subject to available funding) and cost approximately $4 million.

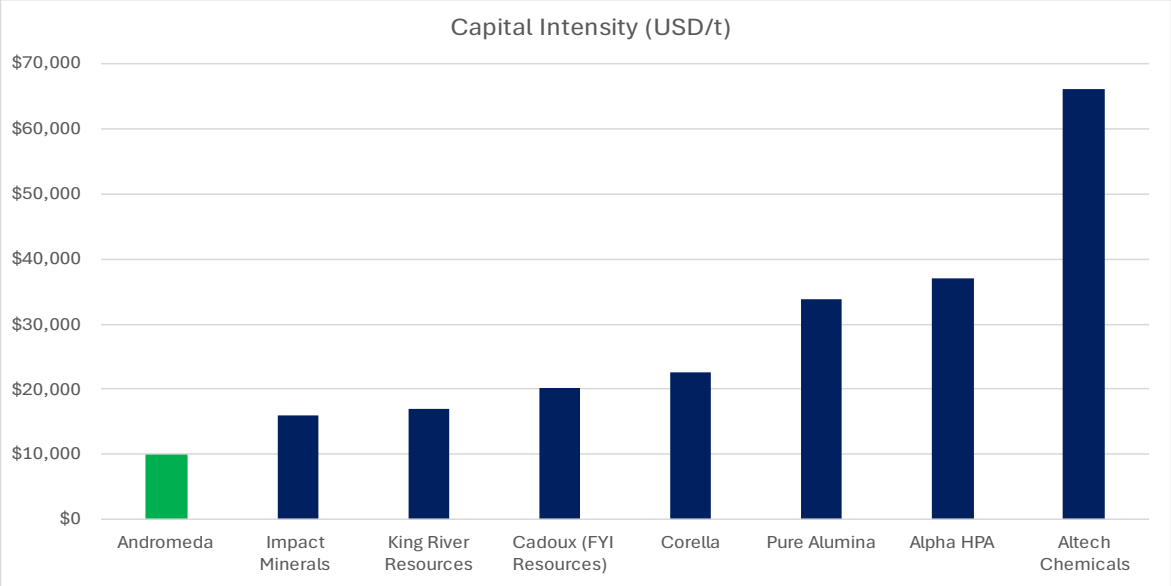


Figure 6 Capital intensity of Andromeda and other prospective HPA producers.[22]

Sustaining capital expenditure has been allowed for as a percentage of total project capital expenditure (excluding contingency and capital spares). A rate of 1% of total project capital expenditure in year one, increasing by 1% per year until year 5 has been used and maintained at 5% per year thereafter, considering timing of commissioning and warranty periods. The resulting project life sustaining capital expenditure is AUD114 million.

12 Operating Costs

Operating costs are outlined below in Table 2. The outcome of the research program and the input into this study was the development of a mass balance model using Aspen Plus[23]. Two models were built using independent consultants and compared against the actual physicals recorded in the chemical test work. The mass balance included the consumables and energy requirements which then informed the process size, material movements and manning required.

Operating costs outside the model were compiled using costs sourced from the GWP (including rates estimated for final product packaging)[24]. Processing-plant operating costs were estimated through the modelling based on the requirements to support the plant set

[22] High Purity Alumina Market Assessment Report, FutureBridge (Aug 2025), which was commissioned by Andromeda, which sourced comparison data from: Impact Minerals (IPT ASX dated 17 June 2025 titled *Lake Hope HPA Pre-feasibility Study and Maiden Ore Reserve*); King River Resources (KRR ASX dated 16 June 2021 titled *Kwinana HPA Prefeasibility Study confirms technical and economic viability*); Cadoux (FYI ASX dated 30 November 2022 titled *AGM Presentation*); Corella (CR9 ASX dated 2 November 2023 titled *Scoping Study for the Tampu Project Supports Acceleration to Feasibility Study*); Pure Alumina (PUA ASX dated June 2018 titled *Yendon High Purity Alumina Pre-feasibility Study*); Alpha HPA (A4N ASX dated 20 May 2024 titled HPA First Project Stage 2); and Altech Chemicals (ATC ASX dated 19 October 2022 titled *Annual Report*).

[23] Aspen Plus is advanced process simulation software developed by AspenTech, extensively used across the chemical, energy, and related industries for the modelling, optimisation, and design of complex chemical processes. It facilitates rigorous predictive modelling to support process efficiency, operational reliability, and strategic decision-making. Simulations conducted using Aspen Plus can also provide detailed insights into energy usage, material flows, and operating costs, enabling more accurate financial forecasting and cost optimisation

[24] Freight costs of products are borne by the purchaser.

out from Aspen Plus. The modelling assumes that Andromeda will perform all functions using company-owned/leased fixed and mobile equipment.

Salaries are based on industry standards for professional staff and regional averages for like roles for operating staff. All employee costs include all on-costs, including payroll tax, superannuation, and workers' compensation insurance.

Table 2 Operating cost estimates (HPA Product)

Unit Cost Summary	AUD/t HPA	USD/t HPA
Feed	1,108	709
Feed Freight	158	101
Reagents	78	50
Water	44	28
Fuel	1,044	668
Power	38	24
Labour	1,432	916
Maintenance	643	412
Logistics Packaging	44	28
Sample Freight	15	10
Other General & Administration	114	73
Total Operating Cost	**4,718**	**3,019**

Values have been rounded to the nearest whole dollar

The capital and operating costs compare favourably (Figure 7) to reported costs of existing regional prices globally and proposed HPA projects by Andromeda's peers, providing the potential opportunity for Andromeda to become the lowest cost producer of HPA globally.

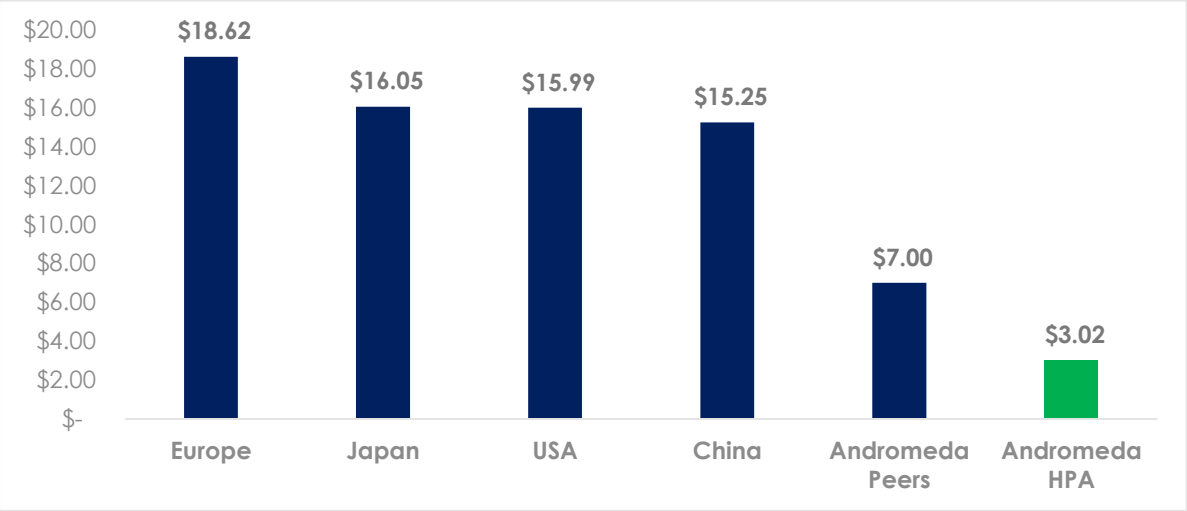


Figure 7 HPA Costs of Production (USD/kg) - Regional Averages & Andromeda Peers (Source: CRU, FutureBridge and Andromeda)[25]

[25] High Purity Alumina Special Report 2023, CRU, October 2025, which includes a Datapack with Regional Averages for Europe, Japan, USA and China. Information on Andromeda Peers is sourced from High Purity Alumina Market

13 Financial Analysis

Key financial metrics are outlined in Table 3.The cash flows in the model were discounted at 10% to determine a value for the project. The analysis has been carried out on a post-tax basis, resulting in a Net Present Value (**NPV**) of AUD1,010 million with an internal rate of return (**IRR**) of 69% p.a. The payback period is 3.2 years.

Assumptions and Financial Notes:

- A discount rate of 10% has been used.
- A foreign exchange rate of AUD:USD 0.64 has been applied.
- No allowance has been made for the following items in the operating cost estimate:
- Exchange rate variations
- Escalation
- Project financing costs
- Interest charges
- All goods and services tax (GST), import duties, surcharges and any other statutory taxation, levies or government duties are excluded.
- No allowance for contingency has been made in the operating cost estimates.

Tax treatment

- The financial analysis in this 2025 HPA Scoping Study is presented on a post-tax basis and assumes no utilisation of the group's available tax losses.

Table 3 Key financial metrics

	AUD	USD
Target Production	10,000 tpa	
NPV_{10} (pre-tax)	$1,480 million	US$947 million
NPV_{10} (post-tax)[26]	$1,010 million	US$647 million
Revenue	$6,403 million	US$4,098 million
HPA Product Sale Price[27]	$31,250 / t	US$20,000 / t
Cash Operating Cost[28]	$4,718 / t	US$3,020 / t
Cash Operating Margin	$26,532 / t	US$16,980 / t
Cash Operating Margin (%)	85%	
Average Annual EBITDA[29]	$247 million	US$158 million
Pre-production Capital Cost[30]	$155 million	US$99 million

Assessment Report, FutureBridge (Aug 2025), which was commissioned by Andromeda, and included peer comparison data from: Impact Minerals (IPT ASX dated 17 June 2025 titled *Lake Hope HPA Pre-feasibility Study and Maiden Ore Reserve*); King River Resources (KRR ASX dated 16 June 2021 titled *Kwinana HPA Prefeasibility Study confirms technical and economic viability*); Cadoux (FYI ASX dated 30 November 2022 titled *AGM Presentation*); Pure Alumina (PUA ASX dated June 2018 titled *Yendon High Purity Alumina Pre-feasibility Study*); Alpha HPA (A4N ASX dated 20 May 2024 titled HPA First Project Stage 2); and Altech Chemicals (ATC ASX dated 19 October 2022 titled *Annual Report*).

[26] Post-tax NPV_{10}; assumes company tax rate of 30%
[27] Based HPA market analysis, which may not reflect actual customer agreements entered into.
[28] Does not include potential sales of silicate by-products.
[29] Earnings before interest, taxes, depreciation, and amortization
[30] Includes ~30% contingency on initial capital cost expenditure.

Capital Intensity[31]	$15,459 / t	US$9,894 / t
Sustaining Capital Cost	$114 million	US$73 million
IRR (pre-tax)[32]	88%	
IRR (post-tax)	69%	
Project Life[33]	24 years	
Payback Period	3.2 years	

Sensitivity analysis (pre-tax)

To obtain further confidence in The Project's financial returns and value, a sensitivity analysis was conducted by varying key input values and recalculating NPVs (Figure 8 and Table 4), and IRRs (Figure 9 and Table 5).

The results show that The Project's value is most sensitive to the following changes:

- AUD: USD exchange rate - A 20% reduction in AUD value increases NPV by 30%, a 20% increase in AUD value decreases NPV by 20%.
- Commodity prices - a 20% movement in HPA prices over the period of analysis increases or reduces the NPV by 26%.

The Project's value is less sensitive to the following changes:

- Operating Costs - a 20% movement in total operating costs over the period of analysis increases or decreases the NPV by 3%.
- Capital Expenditure - a 20% movement in total capital costs over the period of analysis increases or decreases the NPV by 3%.

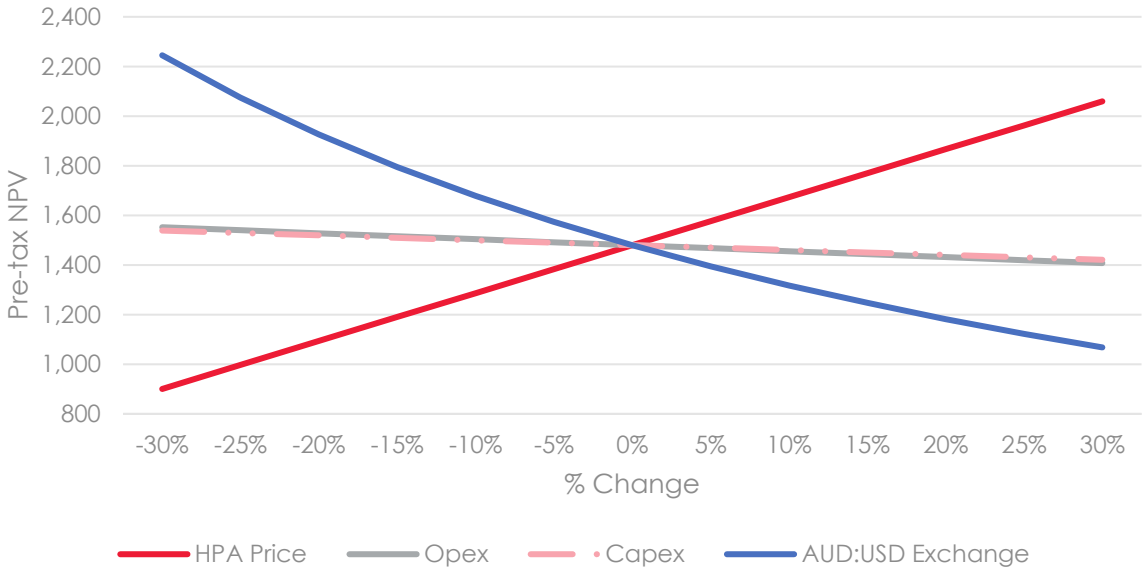


Figure 8 Pre-tax NPV Sensitivity Analysis

[31] Calculated as Pre-production Capital Cost per tonne of HPA Target Production capacity.
[32] Internal rate of return.
[33] Nominal Project Life of 24-years modelled, including a 2-year design and construction period for a HPA Production Facility with a 22-year production life.

Table 4 Pre-tax NPV Sensitivity Analysis

	-30%	-20%	-10%	0%	10%	20%	30%
HPA Price (AUD)	900	1,094	1,287	1,480	1,673	1,866	2,059
Opex (AUD)	1,552	1,528	1,504	1,480	1,456	1,432	1,408
Capex (AUD)	1,539	1,519	1,499	1,480	1,460	1,441	1,421
AUD:USD Exchange	2,245	1,926	1,678	1,480	1,318	1,182	1,068

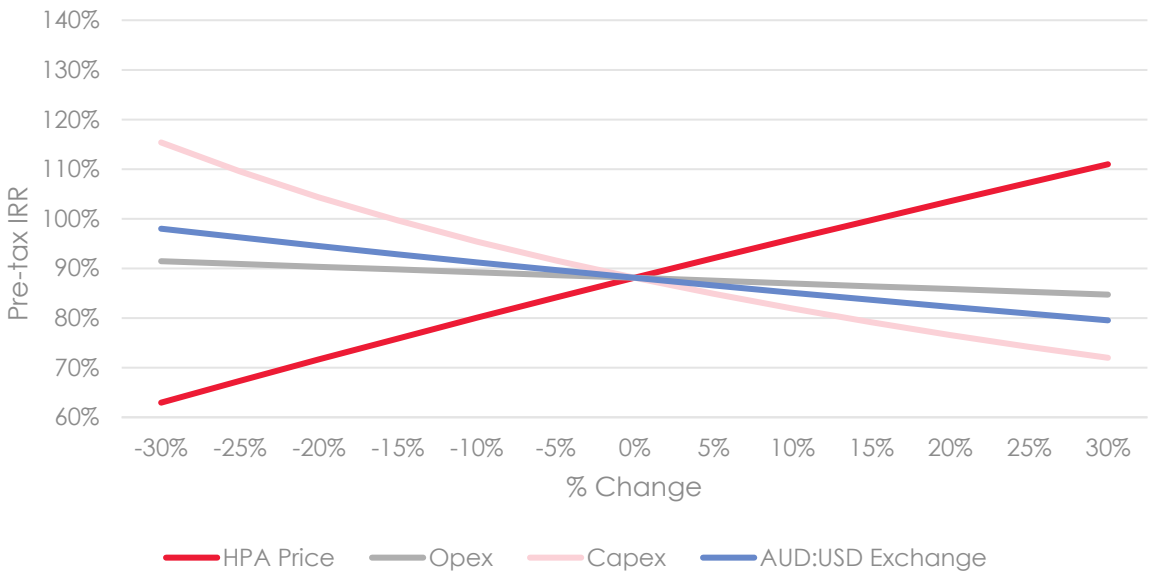


Figure 9 Pre-tax IRR Sensitivity Analysis

Table 5 Pre-tax IRR Sensitivity Analysis

	-30%	-20%	-10%	0%	10%	20%	30%
HPA Price	63%	72%	80%	88%	96%	104%	111%
Opex	91%	90%	89%	88%	87%	86%	85%
Capex	115%	104%	95%	88%	82%	77%	72%
AUD: USD Exchange	98%	95%	91%	88%	85%	82%	80%

14 Environment, Social & Governance

Andromeda is focussed on responsible resource development, sustainable operations and collaborating with its stakeholders to become a preferred supplier, partner, and employer. This Project supports this ambition. As part of the approval process social and community engagement will be undertaken to understand issues that could possibly arise.

CO_2 emissions

Andromeda's proprietary HPA process uses established metallurgical unit operations to extract the HPA in a way that:

- eliminates the need for dry-acid gas sparging used in other processes

- makes recovery and reuse of acid achievable
- does not rely on the end calcination to convert $AlCl_3$ or ACH to Al_2O_3.

Initial calculated carbon emissions of Andromeda's proprietary HPA process were 3.45–3.92 t-CO_2 / t-HPA, subsequent modelling of the whole process estimates carbon emissions of 5.87 kg-CO_2/kg-HPA. The higher level is due to:

- a more rigorous treatment of the circuit with more conservative estimates of energy usage and recovery
- a more rigorous water balance in the circuit
- final calcining has been conducted at 1400°C (to produce a-Al_2O_3) whereas previous flowsheets considered final calcining at 800°C.

While higher than the earlier estimate, the modelled CO_2 emissions of 5.87 kg-CO_2/kg-HPA remains 52.8% less than the widely used, incumbent aluminum alkoxide process and is considered more accurate.

The aluminium alkoxide process is reported to be used to produce 88% of global HPA production[34] and emit 12.44 tonnes of CO_2 per tonne of HPA (t-CO_2 / t-HPA). In comparison, processes that use hydrochloric acid leaching and direct extraction from kaolin clay are considered more environmentally friendly alternatives.

When the carbon emissions related to the kaolin feedstock sourced from GWP, of 0.2 t-CO_2 per tonne of kaolin as estimated by Ammjohn[35] (equivalent to 0.6 t-CO_2/t-HPA). The total Scope 1 carbon emissions of Andromeda's HPA product is estimated to be 6.47 t-CO_2/t-HPA, which is 48.0% less than the widely used incumbent aluminum alkoxide process.

There is further scope to achieve lower CO_2 emissions, through:

- process optimisation leading to reductions in energy and consumables, and
- utilising renewable sources of energy, including through leveraging South Australia's leadership in generating more than 70% of its electricity currently from renewable sources, with a target of reaching 100% net renewable energy by 2027.[36]

Environment

Environmental compliance during operations is an important part of Andromeda's business and for the communities in which it operates. The Company is committed to protecting the surrounding environment and aims for continuous improvement in its practices.

The plan is to establish the HPA Processing Facility in an existing heavy industry area which is set out for manufacturing facilities as proposed. Approvals for the project will be assessed, controlled and approved within the conditions of the South Australian Planning, Development and Infrastructure Act 2016. The Company is committed to achieving sustainable developments and making a positive, lasting impact on the communities in which it operates.

[34] HPA Market size and share analysis: Growth trends and Forecasts (2025-2030), Mordor Intelligence.
[35] Ammjohn is a specialist project engineering and construction management firm, delivering tailored solutions for industrial, mining, and infrastructure projects across Australia.
[36] https://www.energymining.sa.gov.au/consumers/energy-grid-and-supply/our-electricity-supply-and-market

Safety

Andromeda acknowledges that work health and safety (WHS) risks and hazards will be encountered in the construction, operational and closure phases of the Project. These risks and hazards arise due to the varied nature of tasks and the environment in which tasks are to be carried out. WHS risks consequently need to be managed specifically for each phase of the Project, based on its plan and scope of work.

Stakeholders

Andromeda is committed to effective, ongoing, and transparent consultation with stakeholders directly and indirectly impacted by the HPA Project. This includes local landholders, First Nations, business, and community groups, Government, business and utility providers. The Company's stakeholder and community engagement approach is based on understanding and respecting stakeholders, neighbours and communities.

Andromeda's Project team is actively engaged with its stakeholders, including local community and regulators, to ensure comprehensive consultation has occurred on its GWP. This approach will continue for the HPA Project. Andromeda is committed to providing South Australia, regional and local communities with sustained benefits as a result of its HPA Project activities.

Governance and approvals

The construction, operation and closure of the HPA Project is subject to a range of South Australian and Commonwealth legislation including, but not limited to, the *Planning, Development and Infrastructure Act 2016* and *Environment Protection Act 1993* and other legislation. A range of secondary approvals may also be required before construction and/or operation of the Project may commence.

15 Risk and Opportunity

A high-level analysis of risks and opportunities by Andromeda has highlighted priority areas to guide mitigation ahead of project activities. The HPA Project may encounter technical, operational, compliance, financial, market and reputational risks, including the following major risks in executing and operating the Project:

- Sales: there is a risk that the Company will be unable to sell HPA product at assumed prices and volumes.
- Market: there is a risk that the HPA market will not grow in line with forecasts, or that viable substitutions are found for HPA in certain applications, which could impact on demand and pricing.
- Competition: there is a risk of new competitors entering the market or existing competitors increasing supply, which could impact on market dynamics and pricing.
- Funding: there is a risk that the Company will be unable to secure the funding required to progress the HPA Project to full commercialisation.
- Feedstock: it is intended that reliable kaolin supply will be secured from the GWP, but this relies on the GWP reaching production.

- Intellectual Property: there is a risk that third parties may attempt to infringe the Company's intellectual property rights. The Company is seeking to protect its intellectual property via patent protection and has also implemented strong protocols to protect process knowledge.
- Technical: the HPA Project is at an early stage of project development, with risks associated with scalability and process to be tested and optimised via pilot testing and reviews.
- Supply chain: there is a risk of supply chain disruptions impacting operations which the Company intends to mitigate by using a range of suppliers and inventory management.
- Operational: there is a risk that the HPA Processing Facility may not be able to produce to required customer specifications.
- Financial: Budgeting and funding risks will be monitored with modelling and contingencies.
- Regulatory: there is a risk to the HPA Project with approvals delaying the Project however engagement with regulators and compliance with legislation will mitigate this risk.
- Reputational: this risk has a special importance in the HPA markets, where assaying issues are complex.
- Unforeseen costs due to the commercialisation process.

Due to the Company's technology being lower capital intensity and lower emissions than the incumbent *Bayer alkoxide process,* there is opportunity for the Company to offer a product that is both more cost and carbon effective, which is likely to be disruptive to the market and will allow the Company to enter the market and gain market share.

Other major opportunities include:

- Market demand for high-purity alumina may grow - in both current and new applications
- Low-emission products may offer customers ESG benefits.
- Production of other purities of HPA, including 3N, 5N and 6N may offer great sales.
- Understanding of amorphous silicate by-products may lead to additional high value markets.
- Production of a range of crystalline structures available through the Andromeda Process including Amorphous HPA offering product diversification and increased market opportunities.
- Potential to optimise operating and capital costs.
- Undertaking a cost-benefit analysis to identify the most strategic location which to optimises logistic, and supply costs.
- Optimisation of the process flow sheet to decrease operating costs.

Further research is required into these risks and opportunities, which will form part of the forward work plan.

16 Forward Work Plan

The outcomes of this Scoping Study warrant progressing the HPA Project to the next phase of the workplan. Next steps, subject to funding and approvals, include:

Continuous test work studies, marketing and other support studies

- Continuous pilot scale test work for process flow sheet optimisation, and to produce commercial samples of HPA from the continuous operation for potential customers
- Development of the optimised process flowsheet under continuous operation conditions
- Engagement with potential customers regarding product requirements
- Definition of engineering requirements and equipment performance specifications for the pre-feasibility study
- Marketing studies to define target markets and products, including investigation of production of 3N and 5N HPA products
- Investigation into the potential value of silicate by-products

Prefeasibility Study and supporting works including approvals

- Plant engineering design, capital and operating cost estimates
- Identification of service requirements and potential suppliers
- Preparation and pre-submission works for required regulatory approvals
- Ancillary studies (air quality, noise, waste)
- Community engagement and economic impact assessment
- Risk assessment
- Selection of HPA Processing Facility location, which will also inform regulatory approvals

Product and Market Strategy

- Development of market strategy
- Identification of customer qualification and product specifications required

Feasibility

- Development of pre-feasibility outcomes to feasibility level
- Binding customer agreements
- Engagement with investors and funding discussions

Assuming positive outcomes throughout the study period, a first commercial HPA product from Andromeda to market could be by 2 years post-financial investment decision. While such timing is considered advantageous with reference to a supply shortfall of up to 78,071 tonnes

in 2030, equivalent to 127% of available capacity, as estimated by CRU, it is possible that there will be unforeseen delays given the early stages of the business opportunity. There is also a need for additional funding to progress together with extensive requirements to determine customer, product and investor requirements to allow commercialisation.

Funding

Approximately $159 million will be required to develop the HPA Project, based on the assumptions in the HPA Scoping Study. This includes $155 million in Pre-production Capital Costs inclusive of ~30% contingency, and approximately $4 million in additional costs for a Pre-Feasibility Study, including Plant engineering design and refinement of capital and operating cost estimates, marketing and other studies including ongoing test work.

The Company intends to seek equity investment initially to progress the HPA Project through commercialisation and will likely target a combination of debt and equity for development funding. Any available government grants or incentives, and other forms of investment, will also be investigated. The Company also intends to actively seek offtake partners for HPA product once commercial samples of HPA have been produced.

The Company has sought equity funding for the HPA Project to date, with some of the use of funds from its $5million equity placement announced on 12 May 2025 allocated towards the HPA Project (including the Scoping Study and product and market development activities).

The Company believe that there is a reasonable basis to assume that the additional funding required to complete the forward work program and develop the HPA Project will be available on the following basis:

- The Board and management team of Andromeda have a strong track record in developing resources projects.
- The Company has a proven ability to attract new capital, both through equity and debt, including in relation to the credit approval recently received for a A$75million project financing facility to support the development of the Great White Project[37].
- HPA is a high value critical mineral, with a significant supply shortfall predicted by 2030.
- The Scoping Study demonstrates the HPA Project's potential to deliver strong economic results.

17 Material Assumptions and Modifying Factors

This scoping study is aimed at providing a business overview and financial analysis of the proposed production of 4N HPA using Andromeda's proprietary technology.

The feedstock assumed for the HPA Processing Facility is defined in the Great White Ore Reserve estimate, along with the published information in the updated Definitive Feasibility Study (2023 DFS). Modifying factors relating to the feed are not listed here, rather this study relies on the refined kaolin product sourced from the GWP.

The economic analysis relies on the following factors to build up the estimations:

- The nameplate production capacity of the operation is 10,000 tonnes per annum of HPA production with a minimum purity of 99.99% Al_2O_3 (4N), with a staged ramp up over 4 years to reach full production (noting that this capacity has been determined

[37] Refer to ADN ASX dated 4 June 2025 titled *Credit Approved A$75 million Debt Facility*.

based on market analysis, but it should be noted that there is no guarantee that a facility of this scale will be constructed or that full production will be achieved).

- The HPA produced will meet the quality specifications required under any future customer agreements.
- The price of 4N HPA realised will be US$20,000 per tonne, which is conservative based on advice provided by independent third-party market consultants.
- The potential production and sale of 5N HPA products using Andromeda's proprietary flowsheet have not been included as a revenue stream in this model and remain an opportunity for the project.
- The Ore Reserve at Great White justifies an operation with a minimum mine life of 28 years[38]. For the purposes of this HPA Scoping Study, a nominal 24-year project life has been modelled (inclusive of approximately 2 years of design and construction for a HPA Production Facility with a 22-year production life).
- The planned development of the Great White Project proceeds, enabling provision of high-quality refined kaolin product as feedstock, as envisaged in the study.
- Silicate by-products produced from the proprietary process have not been included as a revenue stream in this model and remain an opportunity for the project.
- A suitable site for the HPA Processing Facility can be found within South Australia with Great White kaolin transported to the site.
- No Native Title impediment exist in relation to the potential HPA Processing Facility sites.
- No environmental impediments have been identified in relation to any of the HPA Processing Facility sites.
- Accuracy of data is to a Scoping Study accuracy (Class 5 estimate - 30%), as per AusIMM Cost Estimation Handbook Second Edition Monograph 27.
- A discount rate of 10% has been used.
- A corporate tax rate of 30% has been assumed.
- A USD / AUD exchange rate of 0.64 has been assumed.
- No allowance has been made for the following items in the operating cost estimate:
    - Exchange rate variations
    - Escalation
    - Project financing costs
    - Interest charges
    - Utilisation of Andromeda's existing carry-forward tax losses.
- All goods and services tax (GST), import duties, surcharges and any other statutory taxation, levies or government duties are excluded.
- No allowance for contingency has been made in the operating cost estimates.

[38] Refer to ADN ASX dated 24 August 2023 titled *2023 Definitive Feasibility Study Results*; all material assumptions and technical parameters underpinning the estimates and forecast financial information continue to apply and have not materially changed.