Australian Securities Exchange Announcement **16 June 2021**

Kwinana HPA Prefeasibility Study confirms technical and economic viability

Highlights

- Pre-feasibility study (PFS) demonstrates the potential for KRR to be a significant producer of high value high purity alumina (HPA)[1], sourced from an industrial chemical feedstock and utilising the KRR ARC HPA process.
- Summary of the main PFS highlights are:
  - **Production rate of 9,000 tonnes per annum of high purity alumina (HPA) of 4N purity[1]**
  - **Unit cash costs of A$8,987 (US$6,740)[2] per tonne HPA, or A$8.99 (US$6.74) per kg HPA, during full production**
  - **Annual EBITDA of A$193M (US$145M)[2]**
  - **Annual pre-tax Free Cash Flow (FCF) of A$190M (US$142M)[2]**
  - **Pre-production project capital cost estimate A$203.4M (US$152.6M)[2]**
  - **Project NPV before tax A$1,043M (US$782M)[2] and IRR before tax 50.8%**
  - **Project revenue 25 years A$7,027M (US$5,270M)[2], Project EBITA 25 years A$4,715M (US$3,537M)[2], Project Free Cash flow 25 years A$4,438M (US$3,329M)[2]**
  - **Sensitivity Analysis shows the project is most sensitive to HPA sale price and exchange rate, and could be profitable at a reduced HPA sale price**

King River Resources Limited (ASX: KRR) is pleased to announce the completion of its Preliminary Feasibility Study (PFS) for the Company's 100% owned High Purity Alumina Project (HPA Project or the Project) to be located in the Kwinana industrial area near Perth, Western Australia. The Kwinana HPA Project is owned by ARC Specialty Metals Pty Ltd, a wholly owned subsidiary of KRR.

The Kwinana HPA Project uses the Company's ARC process to produce 4N HPA, a crystalline white powder which is almost pure aluminium oxide (Al_2O_3), from an industrial chemical feedstock.

The Project includes a base case production rate of 9,000 tonnes of 4N HPA per annum.

The PFS outlines the potential for KRR to be a significant world producer of high value HPA outside of Japan, USA, Europe and China. HPA is an essential ingredient in the production of light emitting diodes (LED) and lithium ion battery separators, both of which are used in clean energy and high technology applications, such as lighting and electric vehicles (EV).

The demand for high quality HPA is expected to increase significantly.

[1] – In this announcement and the PFS high purity alumina (HPA) is to be read as 4N HPA of ≥ 99.99% purity unless otherwise stated.
[2] – $ are Australian (A$) and United States (US$) dollars using an exchange rate of A$1.00 = US$0.75.

The Material Assumptions and Modifying Factors tables for the PFS are in Appendices 1 and 2.

King River Resources' Chairman Anthony Barton said:

"The completion of the Kwinana HPA PFS is an important milestone for KRR, and confirms the Project is getting well positioned to become a global HPA participant."

"This PFS has effectively endorsed the Company's strategy to initially focus on entering the global HPA market, then consider developments at a later date of other high value/high purity commodities sourced from the Speewah vanadium-titanium and fluorspar deposits."

"These very positive study outcomes support the Kwinana Project's transition immediately towards a more detailed Definitive Feasibility Study. Once in full production, the Kwinana Project has been modelled to deliver pre-tax $190M average annual operating free cash flow."

"The ARC HPA process has evolved through numerous laboratory leaching and precipitation studies undertaken on the mineral concentrates produced from KRR's Speewah Strategic Metal deposits in the Kimberley region of Western Australia. The full ownership of the ARC HPA intellectual property, and the modular nature of the engineering, may enhance the future competitive positioning of our HPA products."

An Executive Summary of the Kwinana HPA PFS is included with this announcement. Key highlights include:

Robust economics

A financial evaluation of the Project was undertaken based on data from the PFS, which confirms the value and economic robustness of the Project with annual Earnings Before Interest Taxes Depreciation and Amortisation (EBITDA) estimated at A**$193M** (US$145M), annual pre-tax Free Cash Flow (FCF) of A$**190M** (US$142M), and a **2.2** year payback (after tax) from commencement of production.

The Project has initially been modelled on a 25 year operation. The timeframe of the financial model is not constrained by a Mineral Resource as is it is based on an industrial chemical feedstock, and can realistically extend beyond the 25 year operation assumption.

Demand for high value HPA

A key feature of the Project is the extraction of high value HPA. Globally, high quality 4N HPA suppliers are limited, with demand rising on the back of growth in technology and energy applications. KRR is well positioned to capitalise on this market opportunity.

Competitive capital and production costs

The Project has a pre-production capital cost of A$203.4M (including contingency of A$27.3M), and a production cost of A$8,987 (US$6,740) per tonne, A$8.99 (US$6.74) per kg of HPA. The pre-production capital cost estimate is competitive largely due to the relatively simple purification refining process.

Conventional process technologies

HPA is planned to be produced by a processing plant at Kwinana using locally produced or imported aluminium chemical feedstock. KRR's ARC HPA process flowsheet uses conventional crystallisation purification and calcination technologies and unit components, and readily sourced reagents. The flowsheet has been demonstrated through laboratory scale testwork to produce high recoveries of alumina into a high purity HPA product. It is considered commercially scalable and will be tested by a pilot plant.

Marketing HPA

The key market driver for ≥99.99% purity ("4N+") HPA is the growing demand from two very large and growing industries – LEDs and EVs. The forecasted growth for 4N+ HPA to 2028 is expected to be 53,000 tonnes which is 13.7% per annum. The supply landscape as it appears now would be unable to keep pace with demand.

4N+ HPA is currently priced at ~US$24 per kg in over-the-counter large transactions. This price is expected to increase with demand.

Pathway to production

Following completion of the PFS, KRR will move into a Definitive Feasibility Study. The Company is continuing to examine necessary project approvals and will be exploring funding initiatives to take the Project forward to production.

This PFS announcement was authorised by the KRR Chairman Mr Anthony Barton.

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Statement by Competent Person

The detail in this report and Appendices is based on information compiled by Ken Rogers (BSc Hons) and fairly represents this information. Mr. Rogers is the Chief Geologist and an employee of King River Resources Ltd, and a Member of both the Australian Institute of Geoscientists (AIG number 2359) and The Institute of Materials Minerals and Mining (IMMM number 43552), and a Chartered Engineer of the IMMM. Mr. Rogers has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Rogers consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

About King River Resources Limited

King River Resources Limited (KRR) is an exploration mining company with mining tenements at Speewah and Mt Remarkable in the Kimberley region of northern Western Australia and near Tennant Creek in the Northern Territory. The Speewah project covers Australia's largest vanadium-in-magnetite deposit with potential for V, Ti and high purity alumina (HPA) extraction. It also hosts the high grade Windsor fluorite deposit, with end uses in the steel, aluminium and chemical industries. Mt Remarkable is a high grade gold prospect and the Tennant Creek asset is prospective for copper and gold.

KRR, through its wholly owned subsidiary ARC Specialty Metals Pty Ltd, is positioning itself to be a significant producer of 4N HPA in the rapidly developing LED, electric vehicle battery, smartphone and television screen and other associated high-tech product markets.

KRR also plans to evaluate its Speewah Vanadium-Titanium deposit to expand its specialty metals focus to become a high purity vanadium pentoxide (V_2O_5) and titanium dioxide (TiO_2) producer to take advantage of future expansions in the vanadium flow battery energy storage, Al-Ti-V super alloy and TiO_2 pigment markets. KRR is also re-evaluating its Speewah Fluorspar deposit for the production of acid grade fluorspar (CaF_2) and its use in making products for the battery supply chain.

All these markets targeted by KRR are seen to be in increasing demand.

The initial HPA development strategy takes advantage of the current and future demand and pricing for 4N HPA. KRR's simplified process flowsheet focussing on HPA reduces the initial capital required, and provides a basis for funding any future expansion into the other specialty metals at Speewah.

Cautionary Statements

Substance of Prefeasibility Study

The Prefeasibility Study (PFS) referred to in this announcement is a study of the potential viability of the KRR HPA Project. It has been undertaken to determine the technical and economic viability of an HPA refining operation at Kwinana (Project).

The PFS is more than a preliminary scoping level technical and economic study given the work undertaken for the PFS. However, further evaluation work including pilot studies and appropriate studies are required before the Company will be in a position to provide any assurance of an economic development case.

The PFS is based on the material assumptions outlined elsewhere in this announcement and summarised in the Summary of Material Assumptions and Modifying Factors description and tables to this PFS document. These include assumptions about the availability of funding. While the Company considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this PFS will be achieved.

To achieve the range of outcomes indicated in the PFS funding in the order of A$203 million will likely be required. Investors should note that there is no certainty that the Company will be able to raise the amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

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

References may have been made in this announcement and the PFS to previous ASX announcements; for full details refer to the announcement. The Company is not aware of any new information or data that materially affects previous ASX announcements other than as specified in this announcement and the PFS. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the previous ASX announcements.

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

General and forward-looking statements

The contents of this announcement and the PFS reflect various technical and economic conditions, assumptions and contingencies which are based on interpretations of current market conditions at the time of writing. Given the nature of the resources industry, these conditions can change significantly and without notice over relatively short periods of time. Consequently, actual results may vary from those detailed in this announcement and the PFS.

Some statements in this announcement and the PFS regarding estimates or future events are forward-looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Such forward-looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. When used in this announcement and the PFS, words such as, but are not limited to, "*could*", "*planned*", "*estimated*", "*expect*", "*intend*", "*may*", "*potential*", "*should*", "*projected*", "*scheduled*", "*believes*", "*proposed*", "*aim*", "*target*", "*opportunity*", "*nominal*", "*conceptual*" and similar expressions are forward-looking statements. Although the Company believes that the expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties, and no assurance can be given that actual results will be consistent with these forward-looking statements.

The contents of this announcement and the PFS are also subject to significant risks and uncertainties that include, but are not limited, those inherent in chemical processing plant development and production, metallurgical and processing technical problems, the inability to obtain and maintain licences, permits and other regulatory approvals required in connection with processing operations, competition for among other things, capital, acquisitions of lands and skilled personnel, incorrect assessments of the value of projects and acquisitions, changes in commodity prices and exchange rates, currency and interest rate fluctuations and other adverse economic conditions, the potential inability to market and sell products, various events which could disrupt operations and/or the transportation of products and fuel, reagent and raw material inputs, including labour stoppages and severe weather conditions, the demand for and availability of transportation services, environmental, native title, heritage, taxation and other legal problems, the potential inability to secure adequate financing and management's potential inability to anticipate and manage the foregoing factors and risks.

All persons should consider seeking appropriate professional legal, financial and taxation advice in reviewing this announcement and the PFS and all other information with respect to the Company and evaluating the business, financial performance and operations of the Company. The provision of this announcement and the PFS, nor any information contained in this announcement and the PFS, or subsequently communicated to any person in connection with this announcement and the PFS, should not be taken as constituting the giving of investment or financial advice to any person. This announcement and the PFS do not take into account the individual investment objective, financial or tax situation or particular needs of any person.

<u>Previous KRR ASX Announcements</u>

Reports on previous metallurgical and study results can be found in ASX Releases that are available on our website, including announcements 1 April 2010, 15 July 2010, 9 November 2010, 8 February 2012, 21 April 2017, 21 August 2017, 9 October 2017, 4 December 2017, 30 January 2018, 27 February 2018, 21 March 2018, 25 June 2018, 23 July 2018, 15 October 2018,19 November 2018, 18 January 2019, 1 March 2019, 21 March 2019, 22 March 2019, 9 May 2019, 7 June 2019, 27 September 2019, 26 November 2019, 6 December 2019, 22 January 2020, 24 March 2020, 23 April 2020, 13 May 2020, 17 June 2020, 7 September 2020 and 13 October 2020, 11 November 2020, 19 November 2020, 26 November 2020, 15 December 2020, 25 March 2021, 30 April 2021 and 21 May 2021.

KWINANA HIGH PURITY ALUMINA PROJECT

Preliminary Feasibility Study

Executive Summary

Powering 21st Century Technology

King River Resources Limited (ASX: KRR) is focussed on the delivery of the high value high purity alumina 4N HPA used in clean energy and high technology applications. KRR also has a very large Mineral Resource containing other specialty metals including vanadium and titanium within its large landholding in Western Australia.

Through the development of its flagship HPA Project at Kwinana, King River Resources aims to become a significant world producer of 4N HPA.

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PROJECT HIGHLIGHTS

The Kwinana High Purity Alumina Project (HPA Project or the Project) is well positioned to become a significant new source of high value high purity alumina (HPA) of 4N (≥99.99%) purity. HPA is a crystalline white powder which is almost pure aluminium oxide (Al_2O_3).

King River Resources Limited (KRR or the Company), through its wholly owned subsidiary ARC Specialty Metals Pty Ltd, has completed a comprehensive Preliminary Feasibility Study (PFS) on the HPA Project.

The Project is a high purity alumina[1] focussed project. 4N HPA is in high demand for use in clean energy products such as light emitting diode (LED) lighting and as separators in Li-ion batteries (LiB) used in electric vehicles (EV). Global supplies are limited and demand is increasing significantly. KRR is well positioned to become a significant new source of high value 4N HPA.

The PFS has confirmed the value and economic robustness of the Project.

The Company is aiming to commence production of HPA initially as the first stage of a more diversified suite of specialty metals including high purity vanadium pentoxide and titanium dioxide products from its Speewah deposits in the Kimberley region of Western Australia.

The HPA Project will be developed in the Kwinana industrial area where there are feedstock and reagent suppliers, infrastructure, port, energy supply, and a skilled workforce.

The relatively simple HPA process developed by KRR provides a key competitive advantage for the Project.

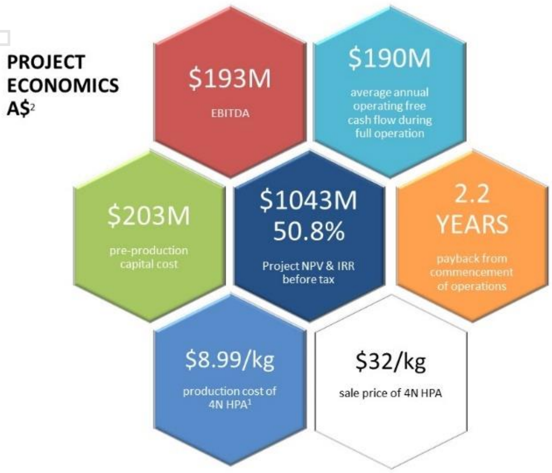
KRR has sourced aluminium feedstock with low deleterious elements. This results in a more cost efficient hydrometallurgical processing plant to produce the final high purity product.

The Company has undertaken extensive metallurgical testing to develop a straightforward processing flowsheet, which will produce 9,000 tonnes of 4N quality high purity alumina.

The PFS is based on a development to provide an initial 25 year life of operation.

PFS level engineering studies have been completed on all aspects of the Project to provide detailed capital and operating cost estimates for the PFS, and support the economic assessment of the Project.

The competitive pre-production capital cost estimate and low operating cost estimate are largely due to the relatively simple process that utilises conventional equipment and low reagent use.



1. *In this report high purity alumina (HPA) is to be read as 4N purity (≥99.99%) unless otherwise stated.*
2. *Assuming an exchange rate of A$1.00 = US$0.75.*

1. INTRODUCTION

The Company has completed a Prefeasibility Study (PFS) for the development of its High Purity Alumina Project (HPA Project or the Project), through its wholly owned subsidiary ARC Specialty Metals Pty Ltd.

The Project is based on the development of a high purity alumina (HPA) processing operation in the Kwinana industrial area south of Perth, Western Australia.

HPA is a crystalline white powder which is almost pure aluminium oxide (Al_2O_3). It has specialty applications in the manufacture of light emitting diodes (LED) and lithium ion battery separators, both of which are used in clean energy and high technology applications, such as lighting and electric vehicles (EV).

An aluminium chemical feedstock produced by other industrial processes will be used as an aluminium source for manufacturing HPA. This feedstock is an internationally traded commodity. Current HPA producers use aluminium metal as a source, and several new HPA projects are looking to enter the market by processing alumina rich kaolin clays from granite or sedimentary sources.

The Company intends to treat the industrial chemical feedstock through an onsite refining plant to produce 9,000 tonnes of HPA per annum of 4N purity (≥99.99%) referred to as 4N HPA. The HPA product will be packaged on site and exported to international markets.

Plant Location

The HPA Project is proposed to be located within the Kwinana or Rockingham area of the Western Trade Coast (WTC) industrial area, 30-40 km south of Perth's CBD in the southern Perth metropolitan area (Figure 1.1).

Figure 1.1: Location of the Western Trade Coast industrial area in Western Australia (Source: Kwinana Industries Council website https://kic.org.au/industry/)

The WTC is a major industrial area located along the south metropolitan coast that is well-served by major transport links, including deep-water bulk port facilities, freight routes and heavy rail. There are four main industrial estates within the WTC - the Kwinana Industrial Area (KIA), Rockingham Industry Zone (RIZ), Australian Marine Complex (AMC), and Latitude 32 (Figure 1.2). The WTC is the State's premier industrial area, covering an area of approximately 8km north-south and 2km east-west, on the eastern side of Cockburn Sound.

The WTC is close to a skilled and productive workforce, hosts specialist centres for chemical and resource-based processing and marine engineering and ship-building, and has industrial land areas specifically set aside for companies wishing to invest in downstream processing and other heavy or strategic industrial activities, including the Lithium Valley concept plan.

Land sales and leasing is managed through the Department of Jobs, Tourism, Science, and Innovation (JTSI), and DevelopmentWA. Discussions are ongoing with the relevant authorities and with private land owners for a suitable site in the KIA or RIZ.

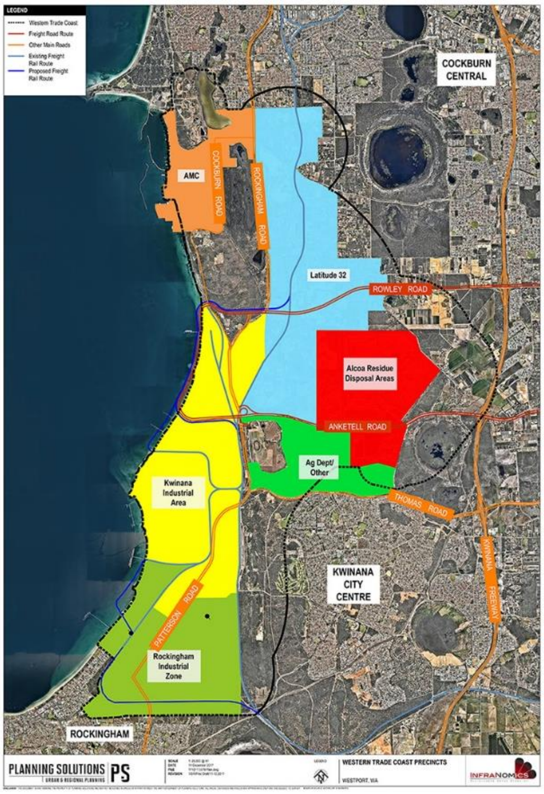


Figure 1.2: Location of the Western Trade Coast industrial estates
(Source: Kwinana Industries Council website https://kic.org.au/industry/)

PFS Team

KRR's HPA Project development technical team consist of a small group of experienced professionals, working in conjunction with several specialised consultant companies to complete testwork and studies on all major aspects of the Project to deliver the PFS.

These companies and their scope are as follows:

Consultant	Scope
Como Engineers	Process plant design, logistics, and capital and operating cost estimates
Source Certain International	Hydrometallurgical testwork, analytical testing and concept design
Ramboll Group	Environmental and Social studies and Permitting
CRU International	Market study on HPA
FTI Consulting	Financial modelling and analysis

2. METALLURGY AND PROCESS FLOW SHEET DEVELOPMENT

Summary

- Extensive metallurgical testwork undertaken to develop a process flow sheet specifically designed for the aluminium chemical feedstock characteristics.
- High Purity Alumina (HPA) produced of ≥ 4N purity (99.99%).

Testwork Programmes

Metallurgical testwork programmes have been undertaken by TSW Analytical (TSW) in Perth since 2017. TSW recently changed its name to Source Certain International (SCI), and comprises a team of chemists and analysts with experience in the development and assay of high purity products.

In late 2019 hydrometallurgical test work by SCI identified a chemical precipitation method to extract an aluminium (Al) rich compound from the sulphuric acid leachate obtained from testwork on magnetic concentrates from KRRs Vanadium-Titanium bearing magnetite gabbro deposit at Speewah (KRR ASX release 26 November 2019). This chemical precipitate was then used to make HPA by a process involving crystallisation purification and calcination.

In August 2020, SCI examined applying the HPA process to aluminium chemical feedstocks produced from other industrial processes. This has simplified the process flowsheet by removing the beneficiation and acid leaching circuits, in addition to no longer requiring a mine development and acid plant, waste dumps, accommodation village, airstrip and haul roads, located at Speewah in the Kimberley region of Western Australia.

The details of the HPA process are a trade secret and commercial in confidence. Therefore, the aluminium chemical feedstock and reagents used, by-product, and the process conditions and steps are not discussed in detail but simplified in this public announcement PFS Executive Summary report.

All the metallurgical testwork and the process flow sheet have been used by Como Engineers in the engineering process design and costings consistent with the requirements of a PFS.

The process flowsheet is relatively simple and modular in nature, which will enable production capacity to be scaled to market demand.

Alumina Recovery

KRR has demonstrated a relatively simple hydrometallurgical process to recover and purify aluminium oxide (alumina) from an industrial aluminium chemical feedstock and deliver a high purity alumina (HPA) product at ≥99.99% purity. The testwork was conceived, conducted and reported by KRR and their testing laboratory (SCI) and provided to Como Engineers. Some of the process steps have significant Intellectual Property implications and are not discussed in detail.

The Al feedstock is mixed in agitated tanks. The feedstock has very low levels of impurities including iron, calcium, silica, magnesium, sodium, potassium, titanium and vanadium. These impurities are removed by the purification process.

The resulting filtered aluminium rich leach solution is treated in the Primary Crystallisation circuit with a reagent to precipitate a crude aluminium intermediate compound (KRR ASX release 26 November 2019). The Primary Crystallisation process has been repeated on several feedstock samples, with Al precipitation efficiencies typically 95% to 97% (with 95% used in the PFS).

The Al rich Primary Crystallisation precipitate is then purified by a two stage Purification Recrystallisation process to reduce contaminant metals to very low levels in a Precursor product suitable for production of 4N

HPA on calcination (KRR ASX release 11 November 2020). The Purification Recrystallisation process involves dissolution-precipitation at low temperatures with 95% to 99% Al precipitation efficiencies in each crystallisation stage (combined 93.8% used in the PFS). Development of this two-step purification process to produce a very high purity Precursor has simplified the process design and improved overall Al recoveries.

The purified Precursor product is calcined at 1250°C to convert to alumina (Al_2O_3) and then washed to remove more impurities to produce ≥ 99.99% purity (4N) HPA.

The main products generated at each stage of the hydrometallurgical process are illustrated in Figure 2.1.

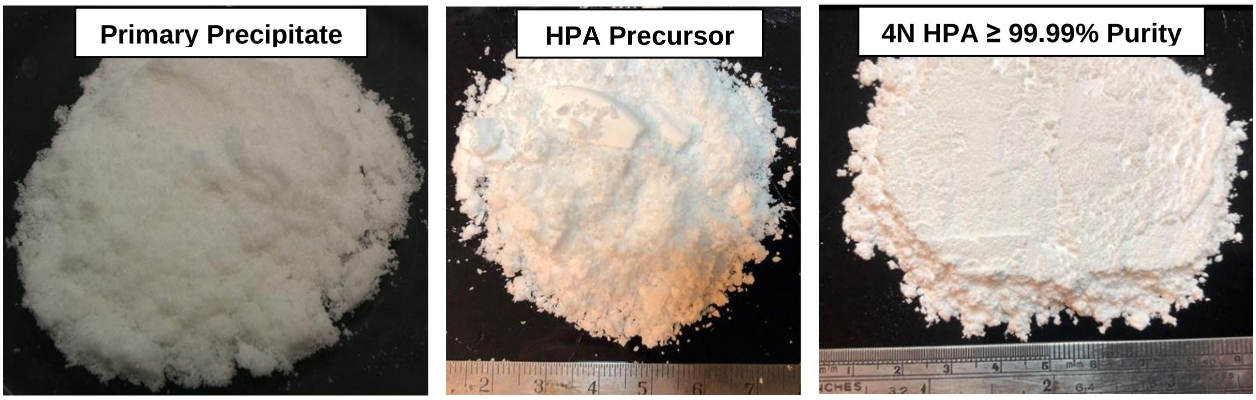


Figure 2.1: Three main hydrometallurgical compounds in the staged production of HPA.

The PFS has used an overall Al recovery of 89% in upgrading the Al feedstock to the 4N HPA product with ≥99.99% purity, to allow for losses during the Primary Crystallisation and Purification Recrystallisation stages and the Calcination and washing stages. A fully integrated closed cycle test inclusive of all recycle streams will be required at the DFS stage to validate the overall recovery.

KRR has named its HPA refining process the ARC HPA process route, to highlight the Aluminium feedstock, the use of only Recrystallisation steps in purification, and final Calcination (KRR ASX release 30 April 2021).

HPA Purity

The HPA produced assayed ≥4N (99.99%) purity with impurities summing to less than 100 ppm (see KRR ASX releases 25 March 2021 and 30 April 2021). The ≥4N purity % was calculated by the addition of all the assayed element impurities then subtracted from 100%. The main contaminants in the HPA samples are silicon (Si), potassium (K), iron (Fe) and sodium (Na), with varying amounts of chromium (Cr) and niobium (Nb). All HPA samples are now routinely assayed by the Microwave digest-Inductively Coupled Plasma (ICP) Mass Spectrometry (MS) and Atomic Emission Spectrometry (AES) method by SCI.

The HPA purity % results for each analytical duplicate for all batches produced are presented in Figure 2.2.

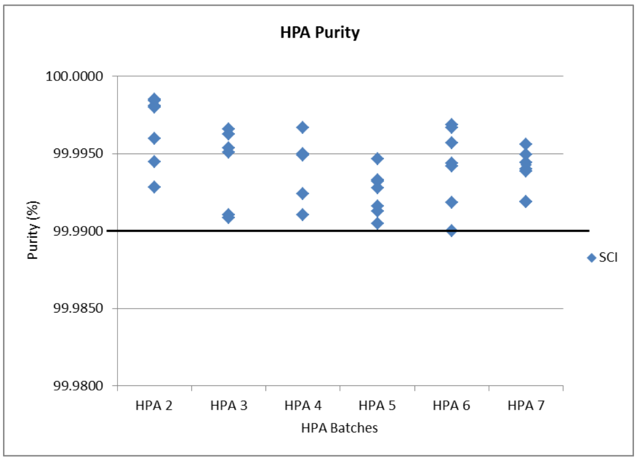


Figure 2.2: Repeat assays for HPA Batches 2-7

Independent verification of the HPA assay was undertaken by analytical laboratory Bureau Veritas Minerals in Perth using the X-Ray Fluorescence (XRF) and Laser Ablation Mass Spectrometry (MS) methods, which confirmed a ≥4N HPA result in all but one of five HPA batches checked (see KRR ASX release 30 April 2021).

HPA, a crystalline white powder which is almost pure aluminium oxide (Al_2O_3), is classified into three HPA products based on purity (total impurities on an elemental basis subtracted from 100%):

- ≥ 99.99% = 4N HPA (equivalent to ≤100ppm total impurities)
- ≥ 99.999% = 5N HPA (equivalent to ≤10ppm total impurities)
- ≥ 99.9999% = 6N HPA (equivalent to ≤1ppm total impurities)

The Table below provides some examples of chemical purity specifications of 4N HPA extracted from product data sheets. Specifications will vary depending on end-user requirements.

Examples of 4N HPA Product Chemical Specifications

		Units	Typical	Producer 1	Producer 2
Purity		%	≥99.99	≥99.99	≥99.99
Silicon	Si	ppm	<20	3-36	20-29
Iron	Fe	ppm	<10	2-3	4-8
Sodium	Na	ppm	<10	2-6	13-51
Magnesium	Mg	ppm	<10	1-6	3
Copper	Cu	ppm	<10	1	3
Calcium	Ca	ppm	<10		3-8
Other		ppm	<30		15

In addition to purity, the 1250°C calcined HPA product was analysed by MicroAnalysis Australia using X-Ray Diffraction (XRD), which confirmed all the alumina in the HPA is in the alpha (α) crystal (corundum) form (KRR ASX release 21 May 2021). Alpha alumina is required by end-users in the production of sapphire glass and lithium-ion battery separators. A high resolution SEM image of the final HPA product is shown in Figure 2.3.

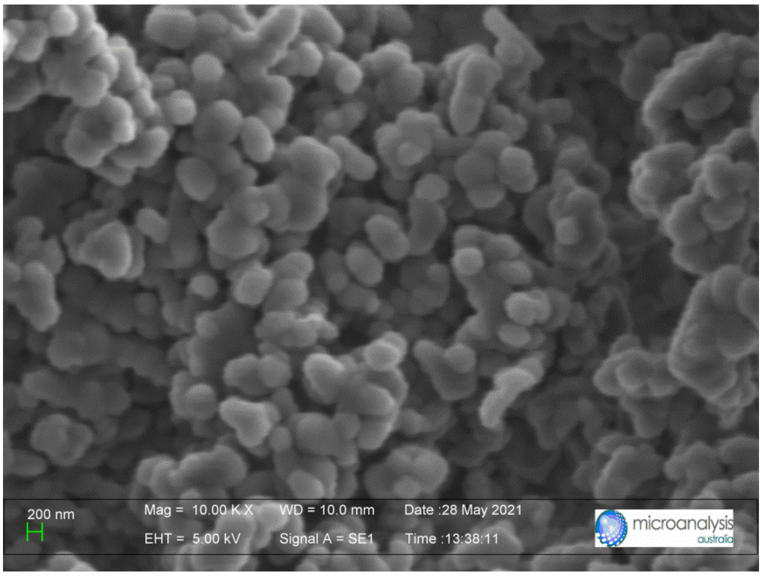


Figure 2.3: High resolution SEM image of the final HPA product
(taken from Batch 4 of HPA assays reported in KRR ASX releases 25 March 2021 and 30 April 2021).

The final HPA product can have different physical properties depending on the end-use applications. The physical properties include particle size distribution, density and surface area, which can be customised to powder, pellet, bead or granular form, depending upon the end-use. Sizing analyses and milling testwork is planned for the DFS stage.

Neutralisation, Reagent Recovery and Evaporation

The mother liquor from the Primary Crystallisation circuit is neutralised to precipitate the by-product and extract the crystallising Reagent for re-use in the Primary Crystallisation and Recrystallisation circuits.

Further testwork is warranted at the DFS stage during a continuous treatment campaign run in order to assess the final water quality and to minimise the amount of wastewater requiring evaporation.

A Neutralising Reagent will be used for the neutralisation process. Reagent quantities have been estimated based on the supplier specifications and the estimated liquor volumes and composition requiring neutralisation.

A simplified process flowchart is illustrated in Figure 2.4.

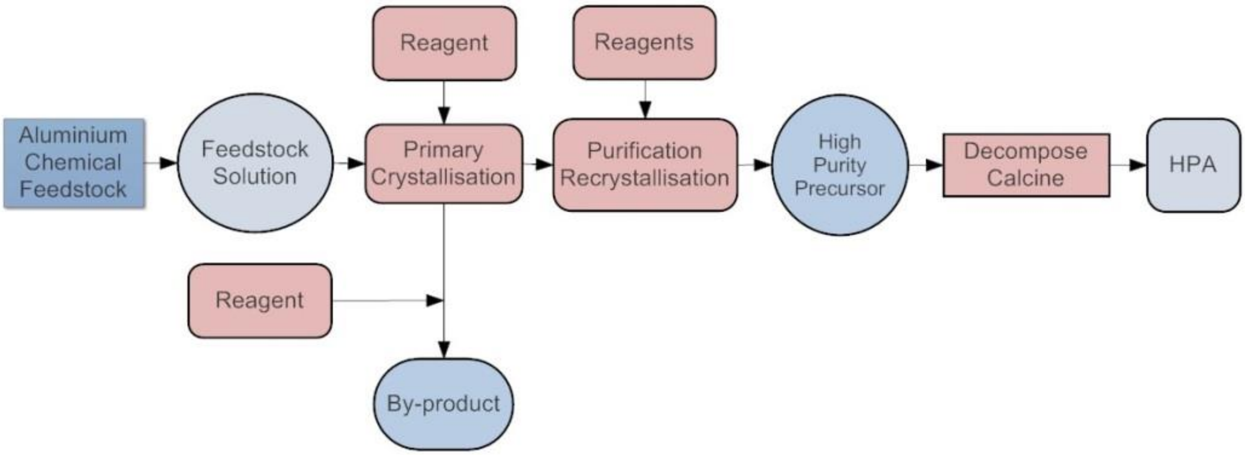


Figure 2.4: Simplified Process Flowchart

Process Feedstock and Reagents

The ARC HPA refining process uses an Aluminium chemical feedstock and several reagents, to manufacture 9,000 tonnes per year of HPA and about 77,000 tpa of a by-product used in other industrial processes.

The HPA process sources its Aluminium chemical feedstock from the global chemicals market. The Aluminium chemical industry is a US$2 billion plus market that produces Aluminium chemicals used in water and waste water treatment, in textile, paper, plastic, glass and rubber industries, in flame retardants, paintings and coatings end-uses, has food, pharmaceutical and agricultural applications, and is used as a feedstock for other aluminum chemicals. This market is large in size with over 25 global suppliers and Australian producers. KRR's feedstock requirement is estimated to represent less than 1% of the global market for the Aluminium feedstock chemical used. Como has obtained feedstock pricing for this study from domestic and international suppliers and is based on a landed cost to the proposed site at Kwinana.

The reagents used in the ARC HPA process are manufactured or produced as by-products of other chemical industries, and are widely available from local suppliers or can be imported. Como has obtained pricing on all the reagents from domestic and international suppliers and is based on a landed cost to the proposed site at Kwinana. Under the current PFS design, two of the reagents are recycled, with a small additional make-up required due to neutralisation losses.

By-Product

The ARC HPA process produces one by-product for sale. The by-product is actively traded within Australia and globally, with an estimated global market size of about 150 million tonnes for US$2.2 billion in 2018, with very good growth forecasts. It is used in powder form in the construction and agricultural industries. KRR's anticipated production of about 77,000 tonnes per annum would present less than 0.05% of the global market and less than 2% of the domestic production market. The Company plans to negotiate sales of the by-product to existing end-users in the Kwinana and Perth metropolitan areas. The Company has not used any by-product sales pricing in the projected annual project revenues of the PFS financial analysis.

Conclusions

The PFS metallurgical testwork programmes have culminated in successful laboratory scale production of high purity alumina (≥99.99% purity or 4N HPA) by a relatively simple hydrometallurgical purification process referred to as the ARC HPA process. The testwork was used to design the Company's HPA flowsheet and associated water, heat and mass balances as input for the basis of engineering design of the process plant and associated infrastructure and the project development schedule for a 9,000 tonnes per annum 4N HPA production operation.

Opportunities

Several areas of testwork and studies have been progressing in parallel to the completion of this PFS which indicate potential opportunities for improvements for the ARC HPA process economics. Details of the testwork will be addressed further during the Definitive Feasibility Study (DFS). A summary of the four core process improvements being investigated include the following:

- Primary Crystallisation. Test work refining the mixing and primary precipitation stage to reduce reagent, water and energy use.
- Recrystallisation. Testwork on refining the purification stage to improve removal of contaminants from the Precursor to be able to produce the higher purity high value 4N5 and 5N HPA products.
- New Crystallisation Stage. Testwork to produce a new Precursor product prior to calcination. The multiple benefits of this modification include:
    - simplify the calcination process.
    - simplify the reagent recycle streams.
    - produce new products used in the manufacture of the cathode and anode in lithium-ion batteries.
- Calcination and Washing.
    - Testwork on the calcination and washing process to further remove contaminants and reduce and recycle inputs.
    - Testwork on the impact of the final calcination temperature on the final HPA products, its crystal structure phase type, and grain size, density and surface area.

Future Testwork for the DFS

Apart from the ongoing batch testwork to improve the flow sheet, Como Engineers recommended the following areas require attention for the Definitive Engineering Study:

- Materials of construction require more detailed evaluation.
- Early engagement with vendors to improve selection of custom design equipment items including:
    - Reagent Recovery Plants
    - Evaporators and Crystallisers
    - Kilns
    - Final product filtration and washing
- Develop a comprehensive process model to enable evaluation of process limitations (e.g. solubility limits and crystallisation properties); opportunities to recycle process liquors to reduce evaporation requirements; improved heat balance to improve utilisation of waste heat. The model will also enable estimation of recycle liquor stream compositions and an improved understanding for potential water treatment options to reduce final discharge volumes for evaporation.
- Demonstrate realistic estimates of reagent recoveries expected during full scale processing, through process modelling and vendor engagement.

- Continuous closed-circuit pilot plant operation will be necessary in order to demonstrate the process will be capable of producing the required product quality on a continuous basis taking into account the effect of recycled streams.

3. PROCESSING FACILITIES

Como Engineers were engaged by KRR to design the process plant to produce approximately 9,000 tpa (tonnes per annum) of 4N HPA based on refining an industrial Aluminium chemical feedstock material available from domestic and international suppliers. Como has examined KRRs plans, metallurgical testwork and process options over the past two and half years to develop a Vanadium-Titanium-Iron Oxide-HPA operation at Speewah and completed several designs and costings at both Scoping and PFS level. This earlier work has assisted in the development of the current HPA process design for a Kwinana-based HPA operation.

Process Design Criteria

The Design Criteria for the 9,000 tpa HPA refinery at Kwinana has been generated to itemise the key design parameters. The Design Criteria are based on several data sources, including KRR Requirements, Como Engineering database, Assumed Value typical of similar operations, Vendor Data or Recommendation, Calculated Data Derived from above and Metallurgical Testwork Data completed by SCI and provided by KRR. Where specific data is not available, assumptions have been made based on generally accepted practice and Como Engineers' experience.

For the purposes of the PFS process design the following key design parameters have been assumed:

Operating Days:	365
Operation Hours per Day:	24
Plant Availability:	91.3%
Operating Hours per Year:	7,998
Production of HPA 4N 99.99% purity tpa:	9,000
Primary Crystallisation recovery:	95%
Recrystallisation recovery:	93.8%
Overall Al_2O_3 metallurgical recovery:	89%

The Aluminium Feedstock and Reagents used, molar ratios and consumptions, and certain process steps, are commercial-in-confidence, and not provided in this PFS Executive Summary.

Processing Plant

The process flow sheet comprises the following key process activities:

- Mixing the Aluminium Chemical Feedstock to produce a solution.
- Primary Crystallisation to precipitate Al as a crude intermediate Al product from the solution.
- Recrystallisation process to purify the crude intermediate Al product by dissolution-precipitation to remove undesirable impurities and produce a high purity Aluminium Precursor compound.
- Decomposition and Calcination of the Precursor to produce a high purity aluminium oxide (Al_2O_3) of ≥99.99% purity (4N HPA) and Alpha (corundum) crystal structure.
- HPA wash for final HPA purification.
- Neutralising Reactor and Reagent Recovery Plants to produce a by-product and recover the Reagents used in the Crystallisation circuits.

All of the above activities, as shown in the combined simplified process plant layout in Figure 3.1, will be located at the proposed project site in the Kwinana industrial area.

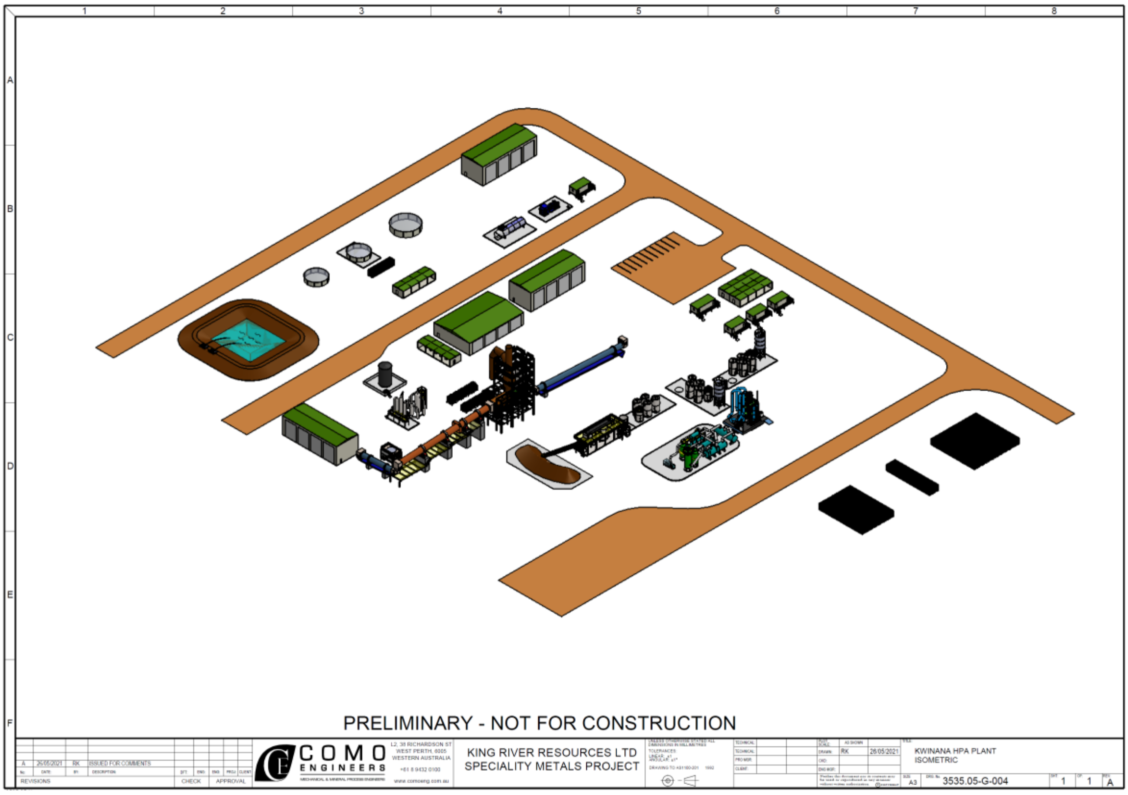


Figure 3.1: Process Plant Layout (with detail simplified or removed)

Process Plant Description

The following is a simplified description of the process flow sheets for a 9,000 tpa HPA operation.

Feedstock Handling and Dissolution

The solid crystalline Aluminium chemical feedstock is pneumatically transferred into a 50 tonne capacity silo. The feedstock is fed into the Dissolution Tank to produce a Feedstock Solution at the required concentration.

Primary Crystallisation

The Feedstock Solution enters the Primary Crystallisation circuit where a precipitating Reagent is added in the Reagent Dissolution Tank. The Reagent promotes the formation of an Aluminium rich crude precipitate in the Primary Crystallisation Tanks at 95% to 97% Al precipitation efficiency. Physical and chemical conditions are controlled to promote the precipitation process. The crystals of the final tank are classified, thickened and fed to a Centrifuge where the solids are transferred to the Recrystallisation circuit.

Como and KRR have used 95% Al precipitation efficiency for the Primary Crystallisation stage in the PFS.

Recrystallisation Circuit

The Primary Crystallisation product is transferred to Stage 1 of the Dissolution-Recrystallisation circuit comprising of two pairs of specially lined dissolution-recrystallisation tanks. Physical and chemical conditions are controlled to promote the dissolution-precipitation process. The process is repeated in Stage 2. The crystals become purer as they travel down the circuit. Three precipitating reagents are added throughout the circuit to achieve the product purity.

A centrifuge separates the mother liquor from the crystals in the crystal-bearing "slurry" between each Crystallisation and Dissolution tank. The crystals produced in the final recrystallisation tank are a high purity Precursor product suitable for conversion to HPA in the Calcination circuit.

Testwork has shown that Aluminium precipitation efficiency for each Recrystallisation stage is 95% to 99%. Como and KRR have used 93.8% in the PFS, based on test results by SCI.

The mother liquor solution leaving the Stage 1 Recrystallisation tank containing unwanted impurities is treated in the Neutralising Reactor and Reagent Recovery Plant to produce the by-product and recover the Precipitating Reagent.

Calcining, Cooling, Final Purification and Packaging

The Calcination Circuit comprises stages of Drying, Decomposition and Calcination in natural gas fired rotary kilns. The Precursor crystals produced in the final Recrystallisation tank are fed to the Dryer Kiln Feed hopper from where they are fed to the Dryer Kiln. The dehydrated crystals are then fed into the Decomposition Kiln circuit that produces an intermediate crystalline product and the kiln off-gases are scrubbed and the resulting liquor sent to the Reagent Recovery circuits. The intermediate crystalline product is then fed into the HPA Calcine Kiln operating at 1250°C with a residence time to ensure conversion of the final product to Alpha Alumina. The final kiln product is discharged into a water cooled Rotary Cooler to reduce the temperature of the product, whereupon it is transferred to the Washing Circuit for further impurity removal. Following the final washing step the HPA product is fed into a dryer before being transferred into the HPA sizing and packaging area. The packaging plant is located within the Packaging and Storage Building where the bags will be stored awaiting transportation for sale.

Neutralising Reactor and Reagent Recovery Circuits

There has been no testwork conducted aimed at producing design parameters for this part of the circuit. The conceptual design is based upon established practice in other industries and the theoretical neutralisation capacity of the Neutralising Reagent and the acid concentration of the treated streams flow. Testwork will be completed during the DFS stage based on the optimised flow sheet at that time.

Liquor streams from the final HPA wash, kiln scrubbers and the crystallisation purification circuits are treated in the Reagent Recovery Circuits. Some liquor is neutralised in the Neutralising Reactor to produce the by-product filtercake. Final solutions are processed by a Crystalliser Unit to recover the Precipitating Reagent for re-use in the process.

Reagents, Services and Utilities

Reagents

The Reagents used in the Primary Crystallisation and Recrystallisation processes will be delivered to site as dry solids or as liquid in tankers and stored in Silos or tanks. The Reagent used in the Neutralising Reactor to produce the by-product will be stored in a 200 tonne silo and delivered by pneumatic tanker.

Raw Water

All water for the plant is intended to be supplied from the Water Corporation scheme and stored in the 1000m^3 Raw Water Storage Tank which has a residence time based on the nominal process plant requirements during a supply interruption. Raw Water will be pumped from the tank to various points of consumption in the Processing Plant, including the Gland Water circuit, Cooling Water Circuit make-up, as well as feed to the Water Treatment Plant.

Potable Water

Potable Water will be reticulated separately from the process water distribution systems throughout the site for personal consumption, ablutions and safety showers.

Fire Water Systems

Fire services in the form of fire extinguishers and hose reels operated from one 450m^3 fire water tank will be installed. The firewater tank provides an independent water source to provide firewater for hydrants. Both electric and diesel backup firewater pumps are included in the design.

Water Treatment

A water treatment plant package consisting of a reverse osmosis plant and CEDI demineralised water plant will produce high purity water from scheme water for use in Stage 2 Recrystallisation, Reagent Recovery Plant Scrubbing, boiler water make-up and heat exchangers (to minimise scaling, minimise corrosion and reduce materials of construction costs).

Cooling Water
Separate banks of cooling towers are installed in order to prepare water for cooling purposes in the following areas:

- Primary Crystallisation
- Stage 1 and Stage 2 Recrystallisation
- Rotary Cooler
- Reagent Recovery Plant (supplied as part of the plant package)
- Evaporator

Sewerage
Sewerage will use the Water Corporation scheme.

Steam Boilers
Three steam boilers are included in the design. Two boilers are required for normal operations. The third boiler is required for start-up of the evaporator circuit and will also serve as a standby unit.

Power Supply
Normal electrical power requirements will be sourced from the grid network. A substation will connect to the HV terminals of the grid supply and distribute HV and LV throughout the process plant. The average continuous power draw has been calculated at 4.6 MW.

In the event of a grid power supply interruption there are certain critical process plants which must be kept operating. A 2.5 MW LNG/diesel backup power station is included in the design to maintain the operation of critical process plant areas including kiln drives, off gas scrubbers and stacks, reagent recovery plant, crystalliser agitators and recirculation pumps, cooling towers and pumps, evaporator and crystalliser systems.

Fuel
Liquefied Natural Gas (LNG) will be supplied on a build-own-operate and maintain basis. LNG will be received by tanker from the Kwinana area and stored in a cryogenic storage vessel. The LNG will be vaporised and distributed to the process facilities as required (Kiln Burners, Boilers) and the back-up power station.

Diesel will be delivered by tanker from the Kwinana area and stored in one 1500L double skinned storage tanks. The back-up power diesel fuel requirement is expected to be minimal.

Evaporator and Emergency Pond
The liquors treated in the Reagent Recovery Circuits contain most of the contaminants from the purification circuits as well as excess metals from the Neutralising reagent. The liquor is sent to an Evaporator to recover the water and minimise the cost of disposal.

In the event the Evaporator needs to be bypassed a 360m^3 Emergency Pond has been included in the design. The stored liquor in the pond can either be reprocessed via the evaporator or disposed of (the suitability of disposal via the wastewater system will require evaluation during the DFS).

Air Services
A Compressed Air and Instrument Air supply system has been included. More detailed design will be required during the DFS to quantify the exact requirements of these systems.

Process Controls and Plant Communications
The Electrical capital costs include an allowance for process control and plant communications, and the General and Administration operating costs includes an allowance for phones for senior staff and internet connection.

General Equipment
A factored allowance has been made for Loading equipment costs, including Cranes, Forklift, and Loader.

Vehicle Movements

Heavy vehicles (no larger than a B-double) will enter and exit the Kwinana HPA plant site from opposite sides. This is estimated to be 14 truckloads per day. Solid Feedstock and Reagents will have a separate free standing area on the opposite side of the plant. The delivery trucks will arrive during daytime hours. Approximately 30 employee vehicles will enter and leave from the site each day.

4. ENVIRONMENTAL AND PERMITTING PROCESS

Figure 4.1: Location of the Kwinana Industrial Estates (looking south towards Rockingham)

King River Resources Limited (KRR) is proposing to build and operate a High Purity Alumina (HPA) Production Plant (the 'Project'), to be located within the Kwinana Industrial Estates (Kwinana or KIA), 30-40km south of Perth, Western Australia (Figure 4.1). The Kwinana based HPA plant will process an industrial chemical feedstock from other chemical process plants located overseas or from within Australia including Kwinana.

The production of HPA involves a relatively simple hydrometallurgical process using reagents already produced in Kwinana or imported from international sources and will produce a by-product that can be used as feedstock for other process plants in the KIA.

KRR is a new entry to the HPA business. It is an exploration and mining company with mineral assets in the Kimberley of Western Australia, including the very large vanadium in magnetite deposit at Speewah.

Scoping of Approvals for a High Purity Alumina Plant in Kwinana

Ramboll Group (Ramboll) was engaged by King River Resources Ltd (KRR) to examine and report on the possible approvals required for a proposed High Purity Alumina (HPA) Plant in Kwinana.

KRR has prepared a Prefeasibility Study (PFS) into the production of 9,000 tonnes per annum of HPA at Kwinana.

Ramboll has developed a robust approvals approach for the Project, which is summarised for each of the key approvals outlined in the Table below.

Nature of Authorisation	Trigger for referral and/or assessment	Comment
Ministerial approval under Part IV of the EP Act.	Upon referral of the Project to the EPA under Part IV of the EP Act, the EPA decides whether the Project will have the potential to cause environmental impacts that are significant. The EPA decides to assess the Project formally if it considers that impacts are potentially significant. Part IV approval is issued under a Ministerial Statement (MS).	A decision on whether the Project goes through the Part IV process is dependent on the baseline studies, modelling and impact assessment undertaken. In the case of the KIA, air quality will be a key factor. Assessment under Part IV may not be required if the Project could potentially be assessed and permitted under only Part V of the Environmental Protection Act 1986 – see below.
DWER approval under Part V of the EP Act	Works approval and licence for prescribed premises under Part V of the Environmental Protection Act 1986, under the category listed below: *Schedule 1 - Category 44* *Metal smelting or refining: premises on which metal ore, metal ore concentrate, or metal waste is smelted, fused, roasted, refined or processed.* *Output: 1 000 tonnes or more per year*	Works approval allows construction and commissioning of facilities. Licence allows operations of facilities. The proposed plant site will be subject to the Environmental Protection (Kwinana) (Atmospheric Wastes) Policy. Permitting of processing activities is likely to include a strong focus on atmospheric emissions, especially particulates and acid gases. Management of process residues and waste will also need attention.
Approval for storage / handling of dangerous goods under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007.	Varies according to stored substances but it is most likely that a DG Licence will be required.	Depending upon the quantity of reagents stored, the site will require a DG licence. Consultation with the Department of Mines Industry Regulation and Safety will be required.
Planning and development approvals for construction and use of new buildings and infrastructure, industrial processing activities and waste management structures.	Planning Act and the Local Authority Town Planning Scheme/Policies.	Separate to any environmental approvals, it will be necessary to consult with local planning authorities about any constraints arising from local planning policies on the proposed development.
On-site effluent Disposal - sewage	Local Government Bylaws and the Health Act.	Depending on whether the site has connection to a reticulated sewerage service. If not connected, then these approvals will be required.
Treated Process Wastewater	Agreement for use of the Water Corporation's Treatment Scheme (incorporating ocean outfall) is required.	The discharge of process wastewater will be made under an Effluent Services Agreement with the Water Corporation and will be required to meet specified discharge guideline criteria.

An indicative timetable for the Project approvals is below. This is based on a Part IV approval process being required by the EPA. This timetable could per shortened by about 12 months if the project is assessed only under a Part V approval process.

Major Task	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Site selection										
Plant Design										
Baseline studies-modelling										
Part IV EP Act										
Part V EP Act										
DA – Local Government										
Other tertiary approvals										

The following recommendations will need to be addressed during the Definitive Feasibility Stage (DFS) of the Project:

- Finalise site selection for the Plant within the KIA.
- Identify and model the specific emissions likely to result from the Plant.
- While the likely environmental factors requiring assessment in the KIA are known (air quality, water, social impacts etc.), the scale of impacts on these factors will need to be fully addressed.

5. PROJECT DEVELOPMENT PLAN

Following the positive outcomes of the PFS and the successful testwork completed to date, KRR is well positioned to continue the development of the Project through to the targeted plant start-up in Q1 2025.

Figure 5.1 details the project development schedule through the Definitive Feasibility Study (DFS) to start-up. The following activities and work programs are the key milestones as the Project moves forward.

Figure 5.1: Project Development Schedule

Pilot Plant Programs

Metallurgical testwork and pilot plant programs will follow on from the PFS. This will involve a hydrometallurgical plant pilot program. The results and knowledge gained from both these programmes will underpin the DFS designs and also provide product sample for potential offtake partners to evaluate.

Site Tenure

The Company is examining various sites within the Kwinana Industrial Area (KIA) and Rockingham Industry Zone (RIZ). Land sales and leasing is managed through the Department of Jobs, Tourism, Science, and Innovation (JTSI), and DevelopmentWA. Discussions are ongoing with the relevant authorities and with private land owners for a suitable site in the KIA or RIZ.

Project Approvals

The Project's primary environmental approval will be through the Environmental Protection Agency (EPA) with the Company submitting an Environmental Assessment report to the EPA in Q4 2021 for assessment. For the PFS, the Company has assumed an EPA assessment by end Q2 2022 under Part V of the EPA Act.

In parallel with the EPA assessment, the Company will be developing all other approvals for submission to relevant regulators.

Details of the approval process pathway options have been outlined in Chapter 4 Environmental and Social.

Definitive Feasibility Study

With the completion of the PFS on the Project, the next study milestone will be the completion of the Definitive Feasibility Study (DFS). The DFS will further develop the technical design of the processing plant and associated plant and site infrastructure, and address the areas of metallurgy, pilot studies and engineering work highlighted by Como in the section on Metallurgy and Flow Sheet Development (Chapter 2), and the environmental and social assessments discussed in Chapter 4. A study manager will be appointed in Q3 2021 and the DFS will further optimise the process design developed through the PFS and from the results of the planned pilot plant programs to further demonstrate the robustness of the process flow sheet.

Project Funding

KRR has funding in place to immediately move into a Definitive Feasibility Study (DFS) and the Board believes the funds available should enable completion of the DFS. The future development funding alternatives for development and construction of the HPA Project post completion of the DFS, including pre-production costs, are very flexible and KRR will pursue various project funding options including traditional and non-traditional methods and international and domestic sources.

The traditional financing of the Kwinana based HPA Project may include one or more of:

- equity,
- traditional project debt,
- off-take financing,
- joint venture or strategic partners.

These options, and potentially other avenues of financing, will be investigated further under the DFS.

Detailed Design and Procurement

On completion of the pilot testwork, DFS and project funding arrangements, detailed design for the process plant facilities will commence to finalise the project designs, develop and award packages for construction and to procure equipment and materials.

Project Construction

The primary process plant construction is scheduled to commence in Q3 2022. The initial focus will be on completing site earthworks and the majority of the concrete works to facilitate continued construction of the process plant. During 2023 and 2024 the construction of the process plant and associated services and infrastructure will be completed, with mechanical completion targeted for Q3 2024.

Commissioning

Commissioning of the process plant and associated facilities will be a staged process. The Primary Crystallisation and Recrystallisation circuit will be the first major item to be commissioned in order to develop a stockpile of Precursor material for commissioning of the Calcination plant.

Production Ramp up

On successful commissioning of the process plants, the Operations team will gradually begin the process of ramping up the facilities to nameplate capacity. This process is expected to take in the order of 2 years. Full production would be achieved in Q1 2027.

6. CAPITAL COST ESTIMATES

Summary

The capital cost estimate to construct the 9,000 tpa HPA Processing Plant at Kwinana, including all direct and indirect costs, is approximately A$194.29M (± 25%) plus owner's costs of A$9.15M. These estimates include a contingency of 15% to 20% of cost, which equates to A$27.26M.

Tables 6.1 and 6.2 below show a summary for the capital cost estimates for the HPA Processing Plant.

Table 6.1 Capital Expenditure Direct and Indirect Cost Estimate

SUMMARY	MATERIALS & EQUIPMENT	LABOUR	FREIGHT	SUB-TOTAL	CONTINGENCY (15% or 18%)	TOTAL
EPCM	$0	$25,921,405	$0	**$25,921,405**	$3,888,211	**$29,809,616**
GENERAL	$9,001,100	$0	$0	**$9,001,100**	$1,350,165	**$10,351,265**
ELECTRICAL	$10,524,935	$9,805,840	$0	**$20,330,775**	$3,049,616	**$23,380,391**
SITE INFRASTRUCTURE	$8,339,018	$1,231,758	$50,037	**$9,620,813**	$1,443,122	**$11,063,935**
CRYSTALISATION CIRCUIT	$4,561,727	$2,205,860	$257,023	**$7,024,610**	$1,053,691	**$8,078,301**
EVAPORATION & CALCINATION	$11,468,216	$4,016,353	$533,910	**$16,018,479**	$2,859,982	**$18,878,460**
WASHING CIRCUIT	$2,845,827	$885,669	$34,052	**$3,765,548**	$564,832	**$4,330,380**
REAGENT RECOVERY CIRCUITS	$41,743,048	$15,789,591	$1,367,200	**$58,899,839**	$8,834,975	**$67,734,814**
BOILER	$2,196,386	$1,049,195	$63,346	**$3,308,926**	$496,339	**$3,805,265**
REAGENTS	$1,342,779	$587,407	$31,530	**$1,961,716**	$294,257	**$2,255,974**
WATER SERVICES	$2,827,941	$1,287,888	$146,804	**$4,262,633**	$639,395	**$4,902,028**
AIR SERVICES	$238,843	$95,075	$14,976	**$348,894**	$52,334	**$401,228**
POWER & FUEL SERVICES	$2,043,120	$270,648	$12,075	**$2,325,843**	$348,876	**$2,674,719**
POWER STATION	$5,753,611	$0	$2,415	**$5,756,026**	$863,404	**$6,619,430**
SUB-TOTAL	**$102,886,551**	**$63,146,688**	**$2,513,367**	**$168,546,606**	**$25,739,201**	**$194,285,807**

Table 6.2 Capital Expenditure Owner's Cost Estimate

OWNERS COSTS	MATERIALS & EQUIPMENT	CONTINGENCY (20%)	TOTAL
FIRST FILLS	$3,525,330	$705,066	**$4,230,396**
COMMISSIONING SPARES	$1,171,724	$234,345	**$1,406,069**
WAREHOUSE AND CRITICAL SPARES	$2,929,310	$585,862	**$3,515,172**
SUB-TOTAL	**$7,626,364**	**$1,525,273**	**$9,151,637**

Plant Estimate Basis

All estimated costs are based on the preliminary design that has been developed to comply with the relevant Australian Standards. The design is based on a fit-for-purpose plant design with duty and selected standby equipment throughout the plant. The capital cost estimates have been based on a nominal HPA production rate of 9,000 tpa.

Cost estimates for this Prefeasibility Study were based on vendor supplied quotations and estimates compiled from previous projects on the Como Engineers data base. The contingency that applied to all capital items is 15% of cost, unless noted otherwise. All costs are in Australian dollars as at Q1 2021, and exclude GST.

The costs presented have been estimated to an overall accuracy of ± 25%, which is commensurate with the level of cost investigations undertaken in this report.

No allowances have been made for financing costs or interest during construction, escalation within the overall project cost, variations or extensions of construction period due to weather, sunk costs, cost of land for the facility, cost of utilities connections (electricity, water and sewerage), geotechnical investigation, Government approvals or special permits, local taxes, and environmental approvals, licences or costs.

The following table depicts the guidelines used by Como Engineers in preparing the capital cost estimates.

Table 6.3 Guidelines for Capital Cost Estimates

ITEM	QUALIFICATION
Equipment list	Como Database for smaller items or Vendor quotations for major items of equipment on proposed flowsheet diagrams
Mechanical work - Labour & material estimates	Estimated
Structural (steel, plate and concrete) work - Labour & material estimates	Estimated Material Take Offs from general arrangement drawings and Como's library on similar sized plant and equipment
Piping	Factored per area from the installed mechanical equipment cost
Instrumentation	Factored from the installed mechanical equipment costs
Electrical work	Estimated on per drive basis
Indirect costs - Labour & material estimates	Mix estimated and factored

The rates per unit for concrete, structural steel, plate work and other commodities were estimated based on Como's database, quotes obtained and factored from equipment. Installation man hours were estimated on the basis hours per unit item of equipment, or hours per unit of material laid or placed. Installation hours were typically derived from Como's historical data.

Engineering, Procurement & Construction Management (EPCM)
The capital costs estimates have included for the following EPCM related costs:

- Detailed engineering design for the plant.
- All engineering design and drafting requirements to produce drawings to sufficient details to allow procurement/fabrication of vendor packaged components required for the installation of the plant.
- Concrete drawings for all new slabs, plinths, footings, bund walls and sumps as required for the plant.
- Procurement of all material, equipment and labour required to complete the plant.
- Management of all fabrication and procurement activities as required to complete the plant construction.
- The on-site construction management and supervision of all construction activities for the duration of the construction phase.
- Technical expertise and supervision of the dry and wet commissioning of the plant.

Electrical and Instrumentation
Electrical and instrumentation equipment supply has been based on the equipment list and factored from the installed mechanical equipment costs.

Bulk Earthworks
Costs for bulk earthworks have been calculated based on the preliminary site general arrangement drawing and assume a 2m fall across site with a 1m cut and 1m fill. No rock breaking has been allowed for.

Concrete
Concrete quantities have been determined from material take-offs, based on general arrangement drawings and Como's library on similar sized plant and equipment. Concrete rates have been based on indicative rates obtained from local suppliers.

Structural Steelwork
Structural steel requirements have been calculated from the general arrangement drawings generated as part of this study. This has resulted in an estimate for material take-off for structural steel, handrails, grid mesh and stair-treads. Rates for steelwork have been based on indicative rates from Como's database, as well as discussions with suppliers. Rates include supply, shop detailing, fabrication, surface preparation, final painting in the shop and touch up as required.

Platework
Platework quantities have been determined by take offs on an item-by-item basis and by reference to previous similar projects undertaken by Como. Rates for plate work have been based on Como's database. Rates include supply, shop detailing, fabrication, surface preparation, final painting in the shop and touch up as required. Installation man hours were estimated on the basis hours per unit item of equipment, or hours per unit of material laid or placed. Installation hours were typically derived from Como's historical data and industry standards.

Equipment
Equipment lists have been derived from proposed process flow diagrams based on the design criteria. Prices for major equipment items have been determined from vendor budget quotations. Costs for smaller items have been obtained from the Como database. Installation man hours were estimated on the basis hours per unit item of equipment, or hours per unit of material laid or placed. Installation hours were typically derived from Como's historical data and industry standards.

Piping
Piping material costs have been determined by factoring by area from the installed mechanical equipment cost and installation costs factored from the piping cost.

Estimate Structure

The capital costs estimates have included the following Process Plant and related direct and indirect costs:

HPA Process Plant
Feedstock dissolution, primary and recrystallisation purification circuits, calcination and HPA recovery, recovery and recycling of reagents, reagents and product handling and storage.

Plant Infrastructure
Site clearance and earthworks, roads within the process plant site, buildings (site offices, crib room, ablutions, product packaging shed, plant workshop, store-warehouse, switch rooms), communications, fire systems, fencing around the plant, pipe racks, electrical equipment, water demineralisation plant, emergency water pond, and storage facilities.

Services
Plant services such as power, gas, water, air and diesel fuel, including back-up power station.

General Costs
Site construction costs required during the construction phase of the project, including:

- Mobilisation of all construction related labour and equipment to site.
- Use of mobile and construction equipment as required during the construction phase of the project, including all light vehicles, cranage, access equipment, forklifts, safety equipment and cutting-grinding-welding equipment.
- General insurances.
- Temporary Construction Facilities such as temporary buildings, temporary utilities and services, construction plant such as signs, barricades, scaffolding and temporary construction camp facilities and operations.

Owner's Cost Estimates

First Fills
The cost of reagents and consumables that will be required to achieve the inventory levels necessary to commence operations. First fills have been estimated based on quantities determined by consultants.

Equipment Spares
The cost of commissioning spares, and warehouse and critical spares necessary during operations, based on a percentage of total project mechanical equipment. A 20% contingency is included in the estimates.

Owners costs not included in the PFS study are owners personnel and expenses during the Project execution up to mechanical completion including corporate personnel assigned to the project, metallurgical and pilot testwork, marketing studies and off-take agreements, other consultants, owners site office, legal costs, insurances, overheads, permits, site lease costs or landowner payments, development approvals, equity costs, bankers consultants and other expenses, State royalties, fees and charges, and funding establishment costs.

Project Plant Contingency

Como Engineers have included a 15% or 18% Contingency provision in the Plant estimates. This is to cover unforeseen items of work that will have to be performed or items of cost that will be incurred within the defined scope of work of the estimate but cannot explicitly be foreseen or accounted for at the time of preparing the estimate due to the level of project definition.

Sustaining Capital

Sustaining capital is the annual costs required to sustain the operation and includes replacing equipment and components that have served their useful life, any plant-infrastructure-waste closure, and environmental monitoring of air quality, groundwater and ponds, and remedial activities if required.

Plant sustaining capital has been factored from the project pre-production capital costs. KRR has made an allowance of 1.5% of the pre-production capital cost commencing from Year 2 of production in the financial analysis, which equates to A$3.1M per annum. The Kwinana HPA Project 25 year modelled life is not constrained at this stage and a much longer plant operation is possible.

The annual sustaining capital costs have been incorporated into the financial model as project capital items.

7. OPERATING COST ESTIMATE

Summary

Processing plant operating costs for the production of 9,000 tpa of HPA from chemical feedstocks have been estimated to be A$8,987 per tonne of HPA, at an accuracy level of ±25%. Table 7.1 presents the total annual operating costs and cost per tonne HPA produced, expressed in Australian dollars.

Table 7.1: Total Annual Operating Costs per Annum and per tonne HPA by Expense Area (based on 9,000tpa HPA plant production)

	Fixed Costs		Variable Costs		Total Costs		
COST AREA	YEAR	A$/tonne	YEAR	A$/tonne	YEAR	A$/tonne	% Breakdown
GENERAL AND ADMINISTRATIVE	$1,225,904	$136			$1,225,904	$136	1.5%
PROCESS and MAINTENANCE LABOUR	$9,964,320	$1,107			$9,964,320	$1,107	12.3%
REAGENTS and OPERATING CONSUMABLES	$1,432,752	$159	$50,036,321	$5,560	$51,469,074	$5,719	63.6%
POWER	$92,331	$10	$13,217,467	$1,469	$13,309,798	$1,479	16.5%
MAINTENANCE	$672,104	$75	$4,239,532	$471	$4,911,636	$546	6.1%
TOTAL	**$13,387,412**	**$1,487**	**$67,493,320**	**$7,500**	**$80,880,732**	**$8,987**	**100%**

Cost Basis and Structure

The annualised operating costs have been grouped into the following primary expense areas:

- Labour – including plant and maintenance personnel
- Operating Consumables – including Aluminium chemical feedstock, reagents, assays, vehicle fuel
- Power – power requirements throughout the plant derived from the electrical load schedule
- Maintenance – details consumable cost allowances
- General and Administration – site office personnel and expenses, community development funding

The operating costs were derived using the design criteria, the equipment list, vendor quotations and historical data from Como Engineers' database. The operating costs have been calculated on the following basis:

- 9,000 tpa HPA production rate.
- Costs from the Feed Bins to packaging of HPA product.
- Labour costs for Staff and Shift personnel.
- Power sourced from the South West Interconnected System electricity grid.
- LNG used as fuel for process heating.
- Diesel delivery cost inclusive of rebate.
- Allowance for processing plant administration costs included.
- Costs associated with head office overheads, transport and sale of products, and State government fees and charges, are not included in this estimate.
- All costs have been estimated in Australian dollars.

	Unit	$/t HPA
PRODUCTION		
Operating Days	365	
Operating Hours Day	24	
Availability %	91.3	
Operating Hours Year	7998	
Estimated Al_2O_3 HPA Recovery – tpa	9000	$8,987

Labour

The workforce is expected to be sourced locally from within the Kwinana and Perth metropolitan area. The labour operating costs for staffing the processing plant and maintenance have been calculated utilising the following parameters:

- Staff roster: 5 weekdays on, weekends off.
- Shift personnel roster: 2 day shifts, 2 nights shifts, and 4 days off.
- Allowance for the following senior staff:
  - Resident Manager
  - OHS/Environmental Manager
  - Administration Manager
  - Processing Manager
  - Senior Metallurgists and Chemists
  - Safety and Training Officer
  - Process Area Shift Supervisors
  - Maintenance and Engineering Superintendents

The workforce required to operate and maintain the processing plant totals 83 employees, and was determined from manning levels at similar sized operations, giving consideration to process complexity, the location of this project and availability of experienced personnel. Annual salaries are based on Como Engineers in-house database.

The labour cost breakdown was grouped under Site Management costs, the Administration Department and the Process Department including maintenance personnel. The total annual site, administration, process and maintenance employee costs are estimated at A$10.7M, which is A$1.19/kg HPA produced. This figure includes all direct salary payments together with superannuation and statutory overheads.

Feedstock, Reagents and Operating Consumables

The Aluminium chemical feedstock, reagents and operating consumable costs have been based on consumption rates as per the design criteria and are provided in the operating cost summary (Table 7.1). The estimated feedstock, reagents and operating consumable costs is A$51.5 million per annum, or A$5.72/kg HPA produced, and represent 63.6% of total operating costs.

Pricing for feedstock, reagents and consumables have been obtained from vendor quotes, vendor supplied information and the Como Engineers database. Pricing is delivered to site.

Liquefied natural gas (LNG) will be used as a fuel for process solution heating (using steam from LNG fired boilers), the calcine kiln and evaporator. The estimated heating cost is A$14.18M per annum, or equivalent to A$1.576/kg HPA produced. This cost is included in the total feedstock, reagents and operating consumables cost of A$5.72/kg HPA (Table 7.2).

The diesel price used in the operating cost estimate is based on Terminal Gate Pricing Kwinana BP and is a delivered price. Diesel is used for emergency power generation in the backup power station for the process equipment, and an allowance has been included for site equipment (forklift, loader and light vehicle usage). Diesel used for the site equipment has the diesel rebate subtracted.

Scheme water and sewerage costs are based on standard Water Corporation rates.

Table 7.2 shows the breakdown of the different process plant reagent and consumable costs.

Table 7.2: Feedstock, Reagents and Consumables Breakdown and Costs

Feedstock, Reagents and Operating Consumables	A$/t HPA	A$/PA
PROCESS		
Aluminium Chemical Feedstock	$2069.58	$18,626,263
Reagents	$1813.00	$16,313,196
LNG	$1575.84	414,182,537
OTHER		
Bags, Dewatering filter cloths, Refractory reline	$101.59	$914,326
Variable Costs Total	$5560.01	$50,036,322
LABORATORY CONSUMABLES		
Plant Sample consumable Costs	$3.55	$31,938
DIESEL and SITE EQUIPMENT		
Light Vehicles, Forklift and Loader	$20.43	$183,864
WATER		
Scheme Water, Sewerage, Water Treatment Plant Consumables	$135.22	$1,216,951
Fixed Cost Total	$159.20	41,432,752
Total Fixed plus Variable Costs	**$5719.21**	**$51,469,074**

Power

The Project will use electrical power from the grid to service the processing facilities and all associated site infrastructure. The average continuous power draw of 4.6MW has been calculated by using the installed ("faceplate") capacity for each area of the process plant multiplied by a relevant drive utilisation factor and the planned availability of each drive.

Electricity costs are based on Synergy Large Business Tariff. The estimated power cost is A$13.31M per annum, or equivalent to A$1.479/kg HPA produced.

Back-up electricity will be supplied by diesel-LNG generated power station. An allowance for down-time is incorporated in the operating costs.

Grid power requirements and costs are based on the unit costs and are outlined in Table 7.3.

Table 7.3: Power Costs

Area	A$/t HPA	A$/PA
Primary Crystallisation & Recrystallisation	$26.84	$241,603
Calcination and Washing	$179.53	$1,615,800
Reagent Recovery and Evaporation	$1114.75	$10,032,799
Boiler	$24.43	$219,837
Reagents	$13.74	$123,658
Services	$109.31	$983,769
Buildings	$10.26	$92,331
Total Power Costs	**$1,478.87**	**$13,309,798**

Maintenance

Maintenance costs comprise maintenance spares and consumables and are based on an assessment of the typical costs incurred in a plant of this size. These costs do not include site labour costs which are covered in the labour section. The factor for the reagent regeneration plant is vendor supplied.

Plant maintenance costs total A$4.9M per annum, or A$0.546/kg HPA produced.

The costs allow for plant and infrastructure maintenance.

General and Administration

An estimate of A$1.23M has been allowed for a variety of miscellaneous administration activities relating to the processing plant only, including personnel and office expenses, metallurgical testing, safety and training, and equipment and vehicle hire costs. These global administration costs are based on Como Engineers in-house database.

Product Handling

An allowance has been made for HPA Product packaging and storage, but not for product transport and sales.

8. MARKETING

Summary

>99.99% purity (“4N+”) HPA exhibits excellent demand growth potential, due to a confluence of interests from two huge and growing industries – light emitting diodes (LEDs) and electric vehicles (EVs). CRU International sees 4N+ HPA demand growing by 53 thousand tonnes by 2028, representing a CAGR of 13.7%. The supply landscape (including advanced projects) is almost able to keep pace with demand out to 2023, but longer term there is a significant need for new projects. 4N+ HPA priced today at ~US$24 per kg in large over-the-counter transactions.

Marketing Strategy

KRR engaged CRU International (“CRU”) to report on the HPA market. CRU undertook and completed this study in Q3 2020.

KRR’s distinctive capabilities lie in its ability to deliver a high value, high purity alumina product. The Company’s marketing strategy is focussed on becoming a long term and reliable supplier of high purity alumina and other critical strategic metals to global markets in the near and long term.

The Product

High purity alumina (HPA) is a crystalline white powder of almost entirely pure aluminium oxide (Al2O3). Traditionally, HPA has been defined as Al2O3 which is >99.99% (“4N+”) pure, although this distinction has blurred due to the difficulty in assaying to this level of granularity, meaning 99.9% (“3N”) alumina is often marketed as, and competes with, 4N+ material. HPA is valued for its excellent properties in a number of areas: chemical stability; a very high melting point; high mechanical strength and hardness (especially as sapphire); and good thermal conductivity but high electrical insulation.

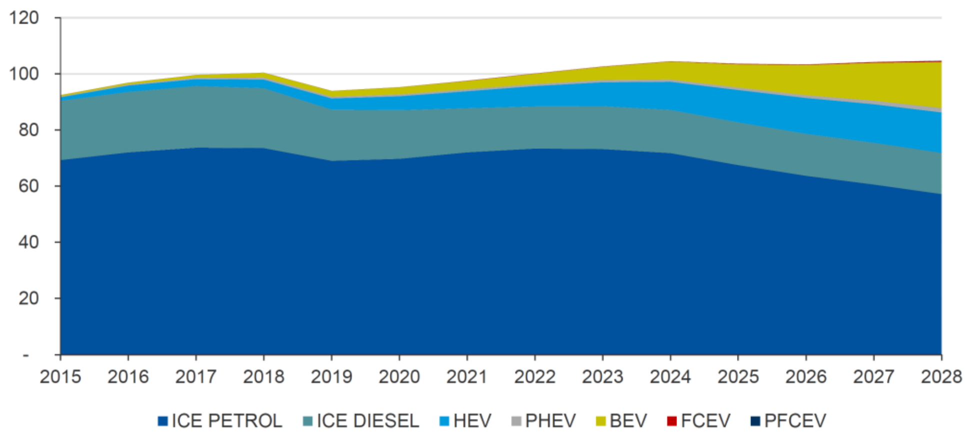
HPA Uses

HPA is certainly a niche market (just 0.03%) when compared with the scale of the overall market for alumina; however, it is highly valuable in a variety of specialist applications - including synthetic sapphires for use in light-emitting diode (“LED”) lights or glass applications, and the coating on lithium-ion battery (“LIB”) separator films to make ceramic-coated separators (“CCS”). The smallest but fastest-growing of the significant end usages is in LIB CCS, a market propelled by the global move towards electric vehicles (“EVs”). The drivers and policies behind this transition are part of a broader “greening” of the global economy, that also includes a focus on reduction in electricity consumption (e.g. for lighting), meaning the energy-efficient LED market is another sub-set of the environmental revolution.

Demand

CRU's detailed and continuous automotive modelling shows headline sales of 94 million total vehicles in 2019, rising to 104.7 million by 2028. However, within this, the sales of traditional petrol/diesel cars (ICEs) peaked back in 2017 at 95.8 million; hybrids (HEVs) and pure battery-electric vehicles (BEVs) continue to grow rapidly throughout our forecast period and take significant market share, collectively rising from 7.1% of the total automotive sales in 2019, to 31.3% by 2028.

Figure 10 Global vehicle demand by drivetrain, 2015-2028 (million units)



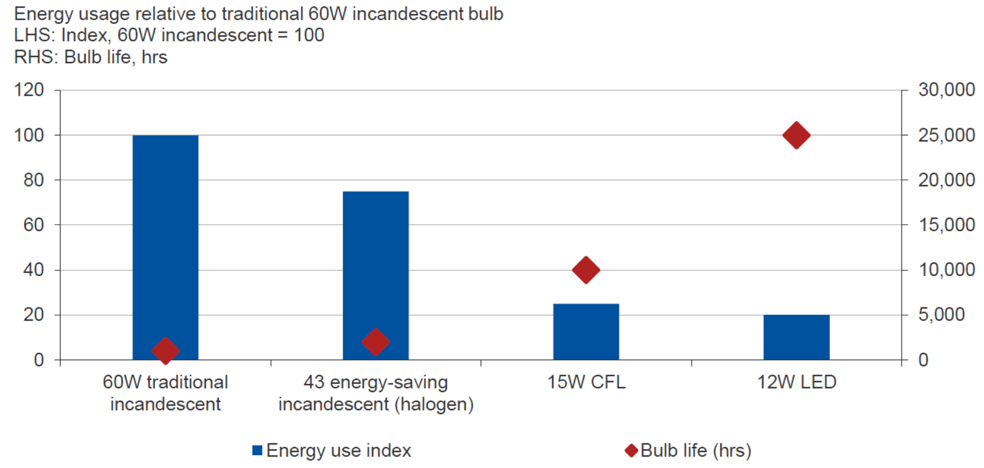
CRU

The rationale for a transition to hybrids and fully battery-electric vehicles from traditional ICEs is manifold. The first motivator is environmental: increasingly, governments and consumers are looking to cap or reduce emissions that can lead to climate change and/or air pollution; this has led to numerous subsidies, targets and quotas being announced the world over to incentivise the transition to carbon-free transportation. The second rationale is economic: EVs have far fewer moving parts than ICEs, making them easier to manufacture and repair; their power source (grid electricity) is considerably cheaper than petrol or diesel; and, in line with the increasing scale of production as well as technological advancements, battery costs (the main component of EV production costs) continue to fall each year, steadily advancing EV purchase prices below equivalent ICEs (the exact parity point varies by region, but on a global average basis, will take place in ~2025). The final reason is performance: EVs are quieter and have faster acceleration than their ICE counterparts, as well as being viewed as 'futuristic' by their early adopters.

All types of EVs are continuously targeting higher energy density in their battery cells: this either allows the car to travel further without recharging, or else reduces the size and weight of the battery itself. However, a consequence of this drive for energy density is that higher temperatures occur within the cell, which can melt traditional separators and lead to short-circuiting and/or battery combustion. The prevailing solution going forward is considered to be an addition of alumina to the separator to create a CCS: this increases its temperature resistance, while maintaining or even improving other properties of the separator. Moreover, the trend throughout the battery industry to source purer battery materials, and so increase battery lifecycle and power output, is highly supportive of 4N HPA as a product selection. The LIB CCS market is fairly new, and its exact trajectory could be altered significantly by technological developments and the discovery of new advanced materials; nonetheless, it creates enormous upside demand potential for the HPA market.

In addition to batteries, LED production also shows an excellent growth trend. LEDs continue to transform the global lighting market: as part of ongoing efforts to reduce energy consumption – both for cost/energy savings and in order to meet greenhouse gas emissions targets – governments around the world have put in place legislation to phase out incandescent light bulbs for use in area light applications, such as in homes or commercial buildings. These traditional bulbs, including more efficient halogen variations, are significantly less efficient and have shorter operating lives than the compact fluorescent light ("CFLs") or LED options which have replaced them.

Comparison of the energy efficiency and lifespans of various lightbulb types



CRU

Moreover, within the LED industry, manufacturing trends have recently moved in favour of larger sapphire wafers, and this has profound consequences for the HPA market. The wafers form the base onto which an LED is fixed, and sapphire is already the dominant material used for this purpose. Increasing the wafer size – from the traditional two inch diameters to six or eight inches - creates a number of productivity gains and cost savings, and so has been sought out by the market over the past few years. However, technical challenges with creating larger wafers have created a drive for very high purity alumina feedstock for the creation of sapphire – and this is fuelling greater demand for 4N+ HPA.

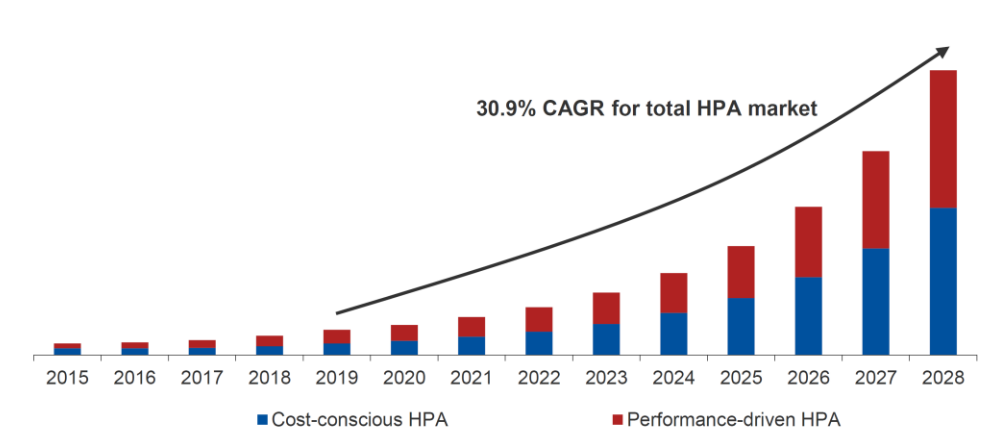
HPA Market Size and Forecast Demand

In 2019, the market for high quality 4N+ HPA stood just short of 25 thousand tonnes, representing a little over half of all 'HPA' demand that includes 99.9% ("3N") material.

- Any overlap between 5N demand and 4N demand will fall into what we describe as higher quality or 'performance-driven' (4N+) HPA demand.
- Any overlap between 3N demand and 4N demand will fall into what we describe as lower quality or 'cost-conscious' (3N-4N) HPA demand.
- Simply put, any usage for which there is no compelling reason to use the highest possible purity of material (e.g. safety, sapphire yield gains) will default into the lower quality, cost conscious category.

After examining only the growth prospects and intensity-of-use in LEDs and LIBs, as well as other existing uses such as phosphors and sapphire glass, our HPA demand forecast by purity appears as follows:

'e 11 Total unconstrained HPA demand by purity, 2015-2028 (metric tonnes)



CRU

For all HPA-consuming demand, we find an extraordinary demand growth 2019-28 CAGR of 30.9%, rising from 45kt to over 500kt by the end of the forecast; of this, cost-conscious demand exhibits slightly stronger growth (33% vs 29%) largely due to the prevalence of China in the EV market. KRR has advised CRU that it intends to produce a 4N+ product that is suitable for performance-driven customers: this is in order to capture the substantial price uplift associated with such a product.

HPA Market Supply

However, on the supply side, there is a lot of ambiguity around how much 4N HPA can be produced through traditional methods. Many companies claim this capability (usually through a modified Bayer process, that is challenging due to the presence of sodium in the finished product), but many of these rely on inaccurate assaying methods to 'prove' this purity level. In practice, the international market only trusts a few companies to provide genuine 4N HPA, mostly via a process involving the hydrolysis of aluminium alkoxide, which uses aluminium metal as a feedstock. Current supply capacity exceeds total HPA demand, but it is mostly geared towards Bayer-process production of 3N material, and so leaves the 4N+ market underserviced.

A group of projects has emerged in recent years, each offering process routes that use lower cost feedstocks, such as kaolin clay or aluminous waste materials, to produce 4N+ HPA. Several have passed the Definitive Feasibility Study level (or equivalent) and have raised large sums of capital; however, none of these have finalised their capital raises, and only Altech Chemical and latecomer AEM Canada (by purchasing Orbite assets) have begun construction of commercial-scale production facilities. With much of the market entry footrace yet to be run, there is still a competitive opportunity in the medium term for a new supplier in this space; and longer term (especially if LIB demand remains persistent) CRU notes the existence of an *enormous* supply gap in the HPA market that would only be satisfied by a number of new market entrants, or significant capacity expansions that have not yet been announced.

Given that 4N+ HPA demand is therefore significantly constrained by new supply, CRU does not anticipate that all of the LIB demand will materialise – shortfalls will lead to the generation and usage of substitutes (expected to predominantly be lower quality / 3N HPA). The 4N+ market is consequently expected at a more moderate – yet still very considerable – CAGR of 13.7% (2019-2028), creating additional demand of 53 thousand tonnes that needs to be met by high-quality existing and new suppliers.

HPA Market Opportunities

The key target markets for any new HPA producer will be China, Japan and South Korea, where the majority of batteries and LEDs are manufactured. The Projects proximity to these markets, as well as its activity in a safe and stable jurisdiction – Australia – are positive aspects for the project. Building a reputation for reliability as a consistent producer of high-quality HPA will be a key success factor for KRR as it develops its position in this market.

HPA Pricing

Through conversations with market participants and examination of available trade data, CRU has managed to place today's prices for 4N-purity HPA at US$24 per kilogram in large-scale transactions, plus or minus US$5/kg for product specifications and negotiation (since there is no pricing benchmark). The projected demand growth, predominantly from LEDs and EVs, provides support and a positive outlook for prices. CRU has supplied a price forecast to KRR for inclusion in its financial analysis of the Project.

9. FINANCIAL EVALUATION

KRR engaged FTI Consulting to complete a financial evaluation of the Project based on data from the PFS. The financial assessment confirms the value and economic robustness of the Project with an EBITDA estimated at A$193M (US$145M) and annual pre-tax Free Cash Flow (FCF) of A$190M (US$142M) at full production.

The 4N HPA price realised over the term of the evaluation is US$24/kg (US$24,000 per tonne).

Financial modelling has been completed on an annual basis, over a 25 year period, and is based on a 10% discount rate and a A$:US$ exchange rate of 0.75. A corporate tax rate of 30% and State government annual fees and charges, taxes, land lease payments and miscellaneous costs, assumed to be 5% of revenue, have been applied.

The Project financial assessment has been modelled based on the PFS average process plant 4N HPA production rate of 9,000 tonnes per annum. The 25 year financial model has allowed 2.5 years for design, construction and commissioning, followed by 2 years to ramp up to full production of 9,000 tonnes per annum (with 50% in Year 1 and 90% in Year 2).

The PFS model is based solely on 4N HPA production and no by-product sales are considered.

Feedstock and Reagent quantities and pricing are not provided as they are commercial-in-confidence to the ARC HPA process. Total annual feedstock, reagent and other consumables costs were provided to FTI Consulting.

The total annual operating costs are A$8,987 (US$6,740) per tonne of HPA produced at full production of 9,000 tonnes per annum 4N HPA. This equates to A$8.99/kg or US$6.74/kg HPA.

Sustaining capital expenditure has been set at 1.5% of the pre-production capital over the life of the Project, commencing from Year 2.

No cost or revenue escalations have been applied in the financial analysis.

The key process parameters, financial inputs and the findings of the financial assessment are outlined in Tables 9.1, 9.2 and 9.3.

Table 9.1: Key Production Parameters	
Life of Operation modelled	25 years
Aluminium chemical feedstock processed (tonnes/year)	Confidential
HPA process plant Al2O3 recovery	89%
Annual average HPA production (tonnes)	9,000
HPA product purity (4N)	≥ 99.99%

Table 9.2: Key Financial Inputs	**A$**	**US$**
4N HPA sale price	$32/kg	$24/kg
Operating cost (per kg 4N HPA)	$8.99	$6.74
Exchange rate (A$:US$)	0.75	

Costs per kg are the average during steady state production of 9,000 tpa HPA.

Table 9.3: Financial Results	**A$M**	**US$M**
EBITDA per annum full production	$193	$145
Free Cash Flow (pre-tax) per annum full production	$190	$142
NPV_{10} (pre-tax)	$1,047	$782
IRR (pre-tax)	50.8%	50.8%
NPV_{10} (post-tax)	$692	$519
IRR (post-tax)	40%	40%
Payback from plant start-up (post-tax)	2.21 years	2.21 years
Profitability index (post-tax)	3.4	3.4
Pre-production capital	$203	$153

Figure 9.1 provides the revenue and net cash flow position of the Project over time and indicates the maximum cumulative negative net cash flow and the payback of 2.21 years after tax.

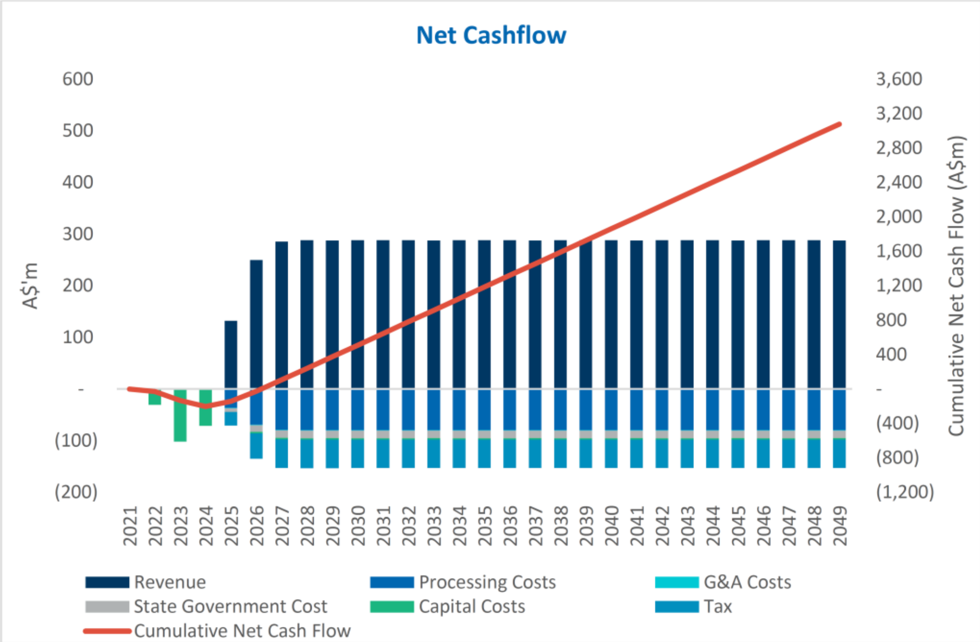


Figure 9.1: Net Cashflow

Financial Sensitivities

A financial sensitivity analysis was undertaken to evaluate the potential impact on the Project economics by varying the key project parameters of operating costs, A$:US$ exchange rate, the price of 4N HPA, discount rate and capital expenditure (the latter two sensitivities for NPV sensitivity analysis only). The sensitivity ranges applied were chosen to reflect the commercial realities and degree of accuracy of the PFS. The results of the analysis are shown in Figure 9.2.

The chart highlights the Project's higher sensitivity to the 4N HPA sale price, A$:US$ exchange rate, and discount rate (for NPV calculations), and while being less sensitive to production rate, capital and operating costs.

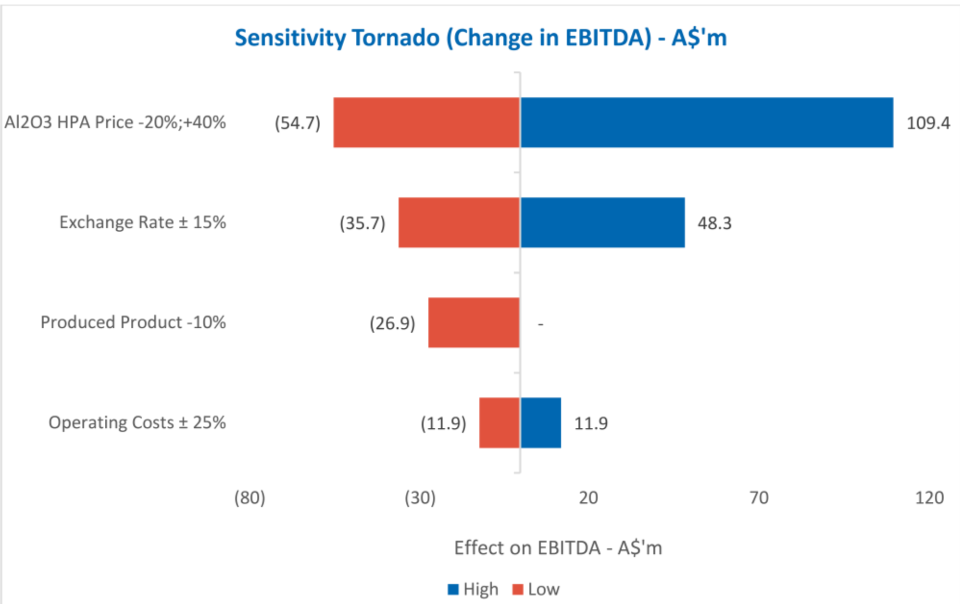


Figure 9.2: Financial Sensitivity Analysis – Effect on EBITDA (A$M)

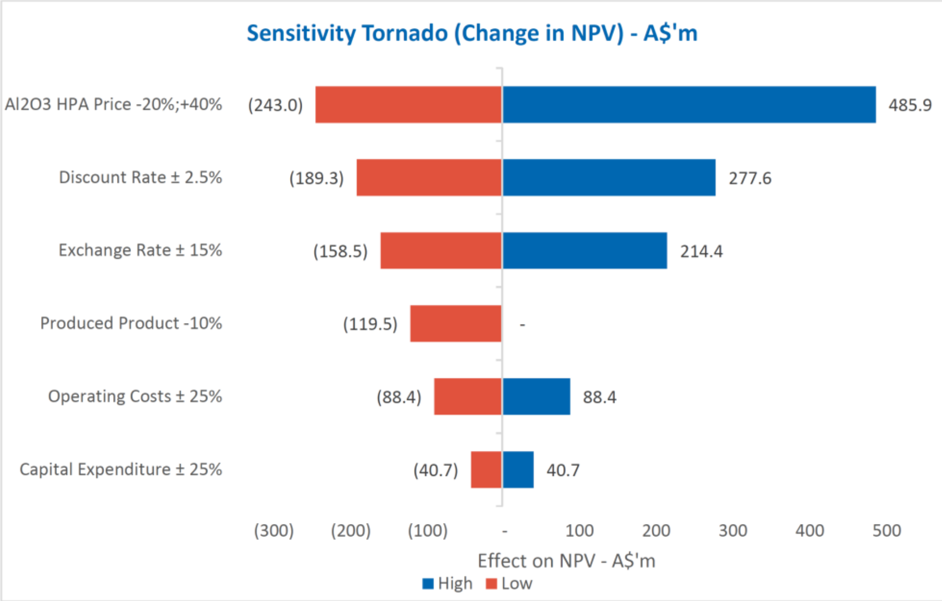


Figure 9.3: Financial Sensitivity Analysis – Effect on NPV_{10} (A$M)

10. DEVELOPMENT FINANCING

KRR has funding in place to immediately move into a Definitive Feasibility Study (DFS). KRR has funding of A$6.6 million as at 31 March 2021. The Board believes the funds available should enable completion of the DFS.

The DFS will include building a small scale pilot plant to further optimise the ARC HPA Process and produce market samples for potential end-users.

The Board believes that there are reasonable grounds to assume that future funding will be available when required. The KRR Board has a successful capital raising record and has been well supported by shareholders and investors when previous funding has been required.

The future development funding alternatives for development and construction of the HPA Project post completion of the DFS, including pre-production costs, are very flexible and KRR will pursue various project funding options including traditional and non-traditional methods and international and domestic sources.

The traditional financing of the Kwinana based HPA Project may include one or more of:

- equity,
- traditional project debt,
- off-take financing,
- joint venture or strategic partners.

These options, and potentially other avenues of financing, will be investigated further under the DFS.

In addition, KRR will enter into Memorandum of Understandings with international HPA end users in the lighting and battery markets.

The strong financial position outlined in the HPA Project PFS, coupled with the demonstrated high quality and purity of HPA with a long project life is expected to appeal to industry related investors, financiers, and partners.

Globally there is currently a high level of market interest in the LED lighting and battery power storage industries driven by demand for green energy efficient technologies. The market conditions and a positive future outlook for demand for HPA products enhance the Company's view of securing successful funding for the Project.

KRR also has the opportunity to reduce the upfront HPA Project costs through production start-up scaling which may impact on initial lower capex and funding requirement. In the DFS KRR will examine a smaller scale start-up targeting both HPA and the higher value new precursor markets used in other battery applications to provide additional funding options. The engineering of the ARC HPA process is modular and readily scaled to different volumes.

Additional opportunities that will be included in the DFS which could strengthen the financial model and diversify funding and revenues sources not included in the PFS are:

- To produce high purity co-products from various stages of the ARC HPA process. These intermediate products can be used in the synthesis of aluminium-bearing cathode active materials used in Lithium-ion batteries and to manufacture components of LEDs. These co-products are high value and could potentially be produced at modest operating cost.
- To explore in the next phase of metallurgical test work opportunities to de-risk and optimise its developed process and potentially produce 5N HPA as an additional very high value product.
- Increased operational efficiencies and savings, including:
    - A higher throughput producing more HPA per tonne feedstock processed, from improved recoveries at the purification stages, and through operational efficiencies that might be achieved due to the engineering capacity allowances and operational fine tuning.
    - Potential operating and capital cost savings already identified at the PFS stage including reduction in reagent additions and increased purification efficiencies, and the production of a new Precursor product to improve the recycling processes, simplify the calcination stages and reduce energy costs.

11. RISKS AND OPPORTUNITIES

During the DFS phase a risk assessment plan will be completed by the management team to identify the risks and opportunities in the Project that will be monitored on an on-going basis.

Opportunities

Increased operational efficiencies and savings
Improved recoveries at the purification stages are still being optimised and may deliver more HPA per tonne feedstock processed. A higher throughput may also be achieved following the commissioning phase through operational efficiencies that might be achieved due to the engineering capacity allowances and operational fine tuning. Potential operating cost savings already identified at the PFS stage include using a higher aluminium grade feedstock, reduction in reagent addition to promote aluminium precipitation, increased purification efficiencies, improvements in recycling reagents, and possible reduction in energy costs.

New Precursor product
Testwork completed has demonstrated that the current Precursor can be converted to a new Precursor compound at very high Aluminium precipitation efficiencies. Testwork underway is optimising this process to ensure high purity is maintained. This process modification may improve the recycling processes, simplify the calcination stages, and facilitate the production of new precursor products for use in lithium-ion batteries and LED lighting components (see Co-Products below).

5N purity product
Based on recent metallurgical process testing, which resulted in a purity of ≥ 99.99%, the Company is encouraged to explore the 4N5 and 5N products in the DFS phase. The Company sees the next phase metallurgical test work as an opportunity to de-risk and optimise the ARC HPA process and potentially produce 5N HPA as an additional product.

A 5N product would potentially require a modest amount of additional capex based on the KRR process and deliver greater margins into a growing market.

Co-Products
KRR has recognised a market opportunity to produce high purity co-products from various stages of the current ARC HPA process. These intermediate products are used to manufacture components of LEDs and in the synthesis of aluminium-bearing cathode active materials (CAM) used in NCA and NCMA Lithium-ion Battery (LiB) types.

KRR is currently examining a slight modification of the current ARC HPA process to produce an intermediate compound used as a LiB cathode precursor.

Further market end-user analysis on volumes, pricing and specification is required in order to factor this additional product into the financial model. These co-products are of higher value and could be produced at lower operating costs.

Industry engagement
With KRRs interest in specialty metals and minerals (vanadium-titanium-HPA-fluorite), the Company plans to join with the Australian government's Critical Minerals Facilitation Office tasked with growing Australia's critical minerals sector and positioning Australia globally as a secure and reliable supplier of critical minerals. The Company will joined the Future Battery Industries Cooperative Research Centre's industry research programme designed to improve cost competitiveness and productivity of Australian energy storage metals, materials and systems to meet growth in markets and exports, and thereby enable value creation, sustainability and global competitiveness through the battery value chain.

Pilot plant
The Company plans to design and operate a continuous closed-circuit pilot plant in order to:

- demonstrate the process will be capable of producing the required product quality on a continuous basis taking into account the effect of recycled streams.
- provide additional confidence in the scale-up of the design process.
- de-risk the process further through testwork under a range of variable operating conditions including producing 4N5 and 5N material.
- provide market samples of 4N HPA in off-take testwork and discussions.

Environmental benefits
KRR plans to develop the Project using sustainable and environmentally friendly methods. The Company will initiate environmental management protocols during the DFS stage. This would include a life cycle assessment of its HPA production process and the value chain, by identifying energy and materials consumed and wastes released into the environment. KRR aims to promote the Project's HPA production process as a substantial improvement for the environment from the traditional HPA production methods.

Reduction of capital and operating expenditures
During the DFS, the Company will investigate opportunities for reduction of capital expenditure without compromising the process and/or product quality. The lowest potential industry capital costs and operating expenditure are critical for the Company in achieving its objective of becoming a reliable low cost producer of consistently high quality HPA. The Company has already identified several areas for potentially simplifying the process flow sheet, reducing energy consumption and recycling reagents.

Risks

The Company will implement a Risk Management Plan outlining the framework and processes to manage the risks in the business that will be monitored on an on-going basis.

In relation to the HPA Project, the Company has identified the following higher-level risks.

Funding
Obtaining the funds to commence the project is a key risk. The future development funding alternatives for development and construction of the HPA Project post completion of the DFS, including pre-production costs,

are very flexible and KRR will pursue various project funding options including traditional and non-traditional methods and international and domestic sources. During the DFS, KRR will mitigate the risk by seeking early involvement of financiers and investors, and ensure that traditional financier's requirements such as construction contract and off-take parameters are met.

Off-take

An important risk for the Project is to have off-take agreements with HPA end-users in order to generate the expected revenues to service the debt, pay the project expenses, and generate a return for the shareholders. A common financier's requirement is that a certain percentage of the sales is covered by off-take agreements. The Company has started to identify potential customers and the plan during the DFS stage is produce marketing samples for off-take discussions. The Company will also consider other mechanisms to assist in the financing of the HPA project, including credit rating for customers, export insurance and hedge agreements.

Feedstock and Reagent Supply

The process flowsheet, feedstock and reagents are commercial-in-confidence and will not be discussed in detail.

Aluminium bearing feedstock is an internationally traded commodity and can also be source from other chemical industries in Australia. KRR will also investigate the use of other Al feedstocks produced from existing operations in the KIA.

The reagents are internationally traded commodities and can also be sourced from KIA operations where they are manufactured as by-products.

Process Design – engineering and process technology

To produce HPA, the Company is using equipment and process technology commonly used in other hydrometallurgical processes. These include filtering, crystallisation, and calcination technologies and equipment.

Although the Company's flow sheet is relatively simple and uses well understood chemical processes, the challenge is to produce high quality and purity HPA on a commercial scale. Some chemicals used in the process are strongly corrosive and reactive and equipment needs to be designed to withstand the constant circulation and re-use of reagents. Decomposition and calcination occurs at high temperature and materials of construction, process controls, recovery and recycling of reagents, and limiting contamination require special design and detailed operational monitoring.

The Company acknowledges the importance of metallurgical testwork for the process and plant design and will conduct pilot plant testing in the DFS phase which will further de-risk the process from a design and operational point of view. The Company is focused on ensuring a very close partnership between engineering, process development and metallurgical testwork critical for the success of the Project.

Permitting risk

The environmental studies have not highlighted any major concerns for a HPA project located at Kwinana. The Company will commence the approval and permitting process in the DFS phase to ensure that the approvals and permitting are in place as condition precedent for funding and start of construction.

Trade Secrets, Confidentiality, Patents and Freedom to Operate

The ARC HPA process design, feedstock and reagents used, and by-product produced, have not been discussed in the PFS as they are Trade Secrets and Commercial-in-Confidence.

KRR has engaged with one of Australia's leading patent and trade mark attorney firms to investigate the legal framework and the risks and merits of intellectual property protection, patents and freedom to operate issues for newly developed HPA production processes and technologies. Securing rights to intellectual property, and in particular patents, is an integral part of securing potential product value in an expanding HPA market. If the Company fails to protect the intellectual property rights adequately, competitors may gain access to its technology which may harm its business.

12. NEXT STEPS

Based on the positive economic and technical outcomes of the PFS, the Company intends to proceed to a Definitive Feasibility Study (DFS) phase of review which will allow greater degree of confidence towards considering a development decision on the HPA project. The DFS is expected to be based on HPA pilot processing results and further marketing and end-user investigations using HPA product samples generated by the pilot plant. The pilot plant is currently being designed by SCI and equipment sourced, with long-lead items like the kiln already purchased and delivered. The DFS pilot plant production runs are expected to be undertaken in Q3 and Q4 2021.

The development plan will focus on advancing the project to a funding decision as well as investigating some of the technical processing and market opportunities that have been identified by the Company to improve the project economics. These include:

Process

- Additional bench-scale testwork to refine the operating conditions and improve impurity rejection in the Recrystallisation circuit.
- Complete bench-scale testwork to produce the LiB cathode Precursor by a small modification of the current ARC HPA process.
- Complete bench-scale testwork underway that introduces an additional stage in the ARC HPA process to simplify calcination and reagent recycling.
- Investigate and test materials of construction to limit contamination and improve operations
- Investigate and test filtration methods and equipment.
- Investigate the HPA physical properties and test grinding and micronising processes with vendor and specialist input.
- Testwork and trade-off studies of alternative feedstocks and blends.
- Pilot testwork and studies, on a continuous basis, to demonstrate the ARC process operation at scale and produce market samples.

Market

- Update the HPA market study, and identify 4N HPA customers and negotiate off-take agreements with HPA end-users using marketing samples.
- Detailed market investigations into other high value Precursors used in LiB cathode and LED component manufacture, including volumes, specifications, pricing and end-users, and the implications on the economics and scale of the operation.

Permitting

- Commence discussions with relevant State and local government authorities and prepare documentation as part of the DFS process.

Site

- Complete the site selection within the Kwinana industrial area and lodge the relevant Proponent Project Proposal application with supporting documentation.

13. CONCLUSIONS

KRR is pleased to provide the results of the HPA Prefeasibility Study that clearly demonstrates the quality of the HPA strategy through the robust economic metrics and outlines the clear and logical pathway forward to developing an integrated HPA business in a favourable operating jurisdiction such as Western Australia.

The Project has the potential to develop into a material global supplier of HPA. The development of the project is ideally timed to be in production to meet the uplift in battery-electric vehicle (BEV) demand after 2023.

According to the initial PFS economic case, KRR offers investors an opportunity to diversify into the rapidly growing BEV and LED lighting industries. KRR commitment to become a specialty metals and material producer for the emerging battery and master alloy markets is underscored by the Company's development plans for the vanadium-titanium and fluorite deposits at Speewah in Western Australia.

Appendix 1

Material Assumptions

The key assumptions used in the Financial Analysis are:

Item	Assumption	Comments
Cost and Pricing Basis	Q1 2021 Dollars	Used by Como Engineers
Currency	Australian (A$)	
A$:US$ Exchange Rate	0.75	Flat rate adopted
Cost Escalation	0%	
Revenue Escalation	0%	
Study Accuracy	±25%	
Capex Contingency	15-20%	
Construction Start Date	Q3 2022	Based on reasonable assumptions for completion of the metallurgical and pilot plant testwork, DFS, MOU HPA offtake agreements, financing, and project permitting.
Production Start Date	Q1 2025	Based on conservative estimates for design, ordering long lead items, construction, and commissioning completion.
Production Ramp-Up	2 years 50% nameplate: Year 1 90% nameplate: Year 2	Typical for similar process plants
Process		
Annual Production High Purity Alumina (HPA)	9,000 tonnes	
Feedstock processed (tonnes/year)	Confidential	Confidential process feedstock
Primary Crystallisation Recovery	95%	95-97% range in testwork
Recrystallisation Recovery	93.8%	95-99% range per test batch
Overall Alumina (Al_2O_3) Recovery	89%	Validate by closed cycle test in DFS
Purity of HPA	≥ 99.99%	4N purity HPA
Pricing		
High Purity Alumina (4N) Sales Price	US$24,000/t	Based on detailed market research by CRU International
Other		
Direct Capital	A$194.29 million	
Owner's Costs	A$9.15 million	
EPCM	A$29.81 million	
Contingency	A$27.27 million	
Operating Costs	US$8,987/t average per tonne HPA	
Sustaining and Deferred Capital	1.5% CapEx: Year 2 onwards	Typical for similar process plants
State Government Charges	5% of product revenue	Allowance
Corporate tax rate	30%	Federal
NPV discount rate	10%	

Appendix 2

Summary of Modifying Factors

Criteria	Commentary
Study Status	King River Resources Ltd (KRR) has completed a Prefeasibility Study (PFS) for the Kwinana High Purity Alumina (HPA) project. The PFS has been completed at an accuracy of ±25%. The PFS was compiled by KRR with the input of services from specialist consultants, including Source Certain International (metallurgy, flow sheet development, and analytical testwork), Como Engineers (process design and costings), CRU International (HPA marketing), and Ramboll Australia (environmental and permitting). The activities and findings of all disciplines were summarised in the PFS document, and it details derivation of other modifying factors such as processing recoveries, costs, revenue factors, government and permitting. Overall the results of the PFS demonstrate that the HPA project is technically achievable and economically viable.
Mining factors or assumptions	The Kwinana HPA Project PFS does not assume any material sourced from a mining operation. The feedstock for the operation is an Aluminium chemical compound sourced from other industries.
Processing (including Metallurgical factors or assumptions)	HPA is produced using a Chemical Precipitation-Calcination process flow sheet. The process involves the following stages: Mixing of the industrial aluminium chemical feedstock Primary and Recrystallisation purification chemical precipitation process using reagents to produce an aluminium chemical HPA Precursor Calcination of the HPA Precursor to 4N HPA Reagent Recovery and Crystallising circuits to regenerate reagents and produce a by-product The process flow sheet has been developed by Source Certain International for KRR and validated for the purpose of the PFS through bench scale chemical precipitation and batch HPA production. Two batches of Precursor have been used to generate six 4N HPA products assaying ≥99.99% purity. The process testwork was conducted on an aluminium chemical feedstock sourced from a local supplier which has generated consistent Precursor recoveries and purity. KRR has commenced development of a Pilot Plant to demonstrate the KRR process works at a larger scale for the Definitive Feasibility Study and to produce market samples for end-users of 4N HPA. Further details are provided in Chapters 2 and 3 of the PFS Executive Summary.
Environmental and Permitting	KRR engaged Ramboll Australia Pty Ltd to assist with the environmental and regulatory permitting approvals process required for a Project site at Kwinana, Western Australia. On completion of the PFS, Ramboll will assist KRR is preparing the environmental documentation to enable authorities to determine the permitting pathway. Further details are provided in Chapters 4 and 5 of the PFS Executive Summary.
Infrastructure	The HPA Project is proposed to be located within the Kwinana or Rockingham zones of the Western Trade Coast (WTC) industrial area, 30-40 km south of Perth, Western Australia. The final site is yet to be determined. The WTC is the States premier industrial area, well-served by deep-water bulk port facilities, freight routes and heavy rail, and comprises four main industrial estates

	- Kwinana Industrial Area (KIA), Rockingham Industry Zone (RIZ), Australian Marine Complex (AMC), and Latitude 32. The WTC is close to a skilled and productive workforce, hosts specialist centres for chemical and resource-based processing and marine engineering and ship-building, and has industrial land areas specifically set aside for companies wishing to invest in downstream processing and other heavy or strategic industrial activities, including the Lithium Valley concept plan. Further detail is provided in Chapter 1 of the PFS Executive Summary.
Financial	Project costs have been estimated by Como Engineers on the basis below: Capital Expenditure totals A$203.4 million. The capital cost estimate is provided at an accuracy level of ±25%. Contingency of 15% on all direct and indirect costs except for parts of the reagent recovery plant and evaporator equipment costs where 18% was used. Contingency is 20% on Owner's Costs. Includes an Engineering, Procurement and Construction Management (EPCM) implementation cost, for detailed plant design and drafting to enable procurement/fabrication of vendor packages and plant construction, procurement of all material, equipment and labour, management of all fabrication and procurement activities, on-site construction management and supervision, and technical expertise and supervision of the dry and wet commissioning of the plant. All costs are in Australian dollars as at Q1 2021, and exclude GST. The capital cost estimates are based on a 9,000 tpa HPA production rate. The process plant design has been developed to comply with the relevant Australian Standards. It is a fit-for-purpose plant design with duty and selected standby equipment throughout the plant. Cost estimates were based on vendor supplied quotations and estimates compiled from previous projects on the Como Engineers data base. Sections of the process plant are commercial-in-confidence and only summary detail is provided. Further detail is provided in Chapter 6 of the PFS Executive Summary. Operating Expenditure of A$8,987 per tonne of 4N HPA produced at full production. The operating cost estimate is provided at an accuracy level of ±25%. All costs are in Australian dollars as at Q1 2021. The operating cost estimates are based on a 9,000 tpa HPA production rate. The process plant will operate for 365 days per year, 24 hours per day, at 91.3% availability. The main process design criteria are listed in Appendix 1. The ARC process detail is commercial-in-confidence. The operating costs were derived using the process design criteria, the equipment list, vendor quotations and historical data from Como Engineers' database. Further detail is provided in Chapter 7 of the PFS Executive Summary. A Financial Evaluation was completed by FTI Consulting FTI Consulting used the Material Assumptions listed in Appendix 1. The HPA project is most sensitive to HPA sale price and the A$:US$ foreign exchange rate as HPA is traded in US dollars. Further detail is provided in Chapter 9 of the PFS Executive Summary. Development Financing

	KRR has sufficient funds to complete the Definitive Feasibility Study (DFS). Obtaining funds to commence the project is a key risk. During the DFS, KRR will mitigate the risk by seeking early involvement of financiers and investors, and ensure that traditional financier's requirements such as construction contract and off-take parameters are met. Development funding alternatives for the construction of the HPA Project post completion of the DFS, including pre-production costs, are flexible and include traditional and non-traditional methods and international and domestic sources. Further detail is provided in Chapter 10 of the PFS Executive Summary.
Marketing	KRR engaged the independent marketing research group CRU International (CRU) to complete an HPA market study in Q3 2020. The key findings of the study are: In 2019 the 4N+ HPA global market was 25,000 tonnes, representing about 50% of the total HPA market. CRU sees 4N+ HPA demand growing by 53,000 tonnes by 2028, representing a CAGR of 13.7%. The strong demand outlook is underpinned by growth in the lighting (LED) and electric vehicle (EV) battery markets. 4N+ HPA is priced at ~US$24/kg for large over-the-counter transactions. Further detail is provided in Chapter 8 of the PFS Executive Summary.
Social, Legal and Governmental	The Kwinana HPA Project is owned by ARC Specialty Metals Pty Ltd, a wholly owned subsidiary of King River Resources Limited (KRR). The final Project site has yet to be determined. However, the Company is investigating several sites in the Kwinana industrial area and discussions with private land owners and the Department of Jobs, Tourism, Science and Innovation and Development WA are underway. The Company is advised by Ramboll with respect to government permitting, environmental studies, and stakeholder engagement. KRR has engaged one of Australia's leading patent and trade mark attorney firms to investigate the legal framework and the risks and merits of intellectual property protection, patents and freedom to operate issues for newly developed HPA production processes and technologies. The Company is not aware of any major impediments to the project development. Further details are provided in Chapters 1, 4 and 11 of the PFS Executive Summary.