Ardea's Independent Scoping Study Confirms Scandium By-Product Recovery Opportunity at Goongarrie Hub

Highlights

- **Building on the 2023 scandium-inclusive Mineral Resource Estimate (MRE) previously announced[1], an American Association of Cost Engineers (AACE) Class 5 - Scoping Study commissioned and managed by Ardea was completed to evaluate the economic potential of a Scandium Recovery Circuit (SRC) within the proposed Kalgoorlie Nickel Project (KNP) – Goongarrie Hub, High Pressure Acid Leach (HPAL) processing facility**
- **Scandium recovery would utilise an existing process stream within the proposed Goongarrie Hub nickel-cobalt operation, providing the opportunity to leverage existing plant and infrastructure rather than developing a standalone scandium project**
- **The study estimated the SRC would require a capital investment of US$73.5 million (CAPEX) with a Net Present Value (NPV) of US$509.8 million and Internal Rate of Return (IRR) of 59.6% assuming a 7% cost of capital**
- **Ion exchange (IX) was selected as the preferred scandium extraction technology, assuming an estimated <70% scandium recovery from a bleed of barren HPAL process liquor destined for tailings**
- **The Scoping Study assumed approximately 25% of the HPAL flowsheet barren liquor flowrate as feed for the SRC, providing optionality to expand scandium production in the future**
- **The Goongarrie Hub possesses flexibility regarding scandium production and is relatively price insensitive through a retained ability to stockpile scandium due to nickel-cobalt production underpinning the project economics**
- **Demand for scandium is expected to continue to grow, driven by its use in lightweight aluminium alloys, additive manufacturing, solid oxide fuel cells (SOFCs) and other advanced aerospace, defence and clean-energy applications**
- **These encouraging results give Ardea and our KNP – Goongarrie Hub partners further optionality on multi-commodity critical minerals production**

[1] Ardea ASX announcement 30 June 2023.

Ardea Resources Limited (ABN 30 614 289 342)
Suite 2 / 45 Ord Street West Perth, WA 6005
Tel: (+61) 8 6244 5136
Email: ardea@ardearesources.com.au

ASX Code **ARL**
Shares on Issue: 219.7M
Performance Rights: 4.5M
Options: 3.0M

SCOPING STUDY CAUTIONARY STATEMENT

The information contained in this announcement is based on the outcomes of an independent Scoping Study undertaken by Elemental Engineering Australia Pty Ltd to evaluate the potential recovery of scandia (scandium oxide Sc_2O_3) from the proposed Kalgoorlie Nickel Project – Goongarrie Hub High Pressure Acid Leach (HPAL) processing facility.

The Scoping Study has been prepared to an AACE Class 5 level of engineering definition. It is based on low-level technical and economic assessments and is insufficient to support or provide assurance of an economic development case for the proposed Scandium Recovery Circuit (SRC).

The Scoping Study provides a technical assessment of the proposed scandium recovery opportunity and forms the basis of the conclusions presented in this announcement. It has been prepared for the purpose of assessing the technical and economic potential of recovering scandium from an existing process stream within the proposed Goongarrie Hub HPAL Project.

Basis of the Scandium Recovery Circuit Feed Assumptions

The SRC Scoping Study feed assumptions are partially based on the Ni-Co-Sc Mineral Resource Estimate released to the market by Ardea on 30 June 2023. The scandium resources reported within that announcement are contained within the nickel-cobalt resources and are inherent within the mineral resources being considered as part of the ongoing KNP - Goongarrie Hub Definitive Feasibility Study (DFS). The Scoping Study assumed a bleed of <25% of the HPAL flowsheet barren liquor flowrate as feed for the SRC. Production targets in the Scoping Study are underpinned by Measured and Indicated Resources only.

The Scoping Study assumes integration with the proposed Goongarrie Hub Project associated plant and infrastructure. Accordingly, the forecast financial information should not be considered independently of the broader Goongarrie Hub Project.

Forecast Financial Information

The Scoping Study includes forecast financial information based on the process design, modelled production profile and the material assumptions summarised in this announcement. There is no certainty that further metallurgical testwork, engineering studies, environmental assessment or commercial evaluation will confirm the assumptions adopted in the Scoping Study or that the forecast financial outcomes presented in this announcement will ultimately be realised.

The forecast financial information contained in this announcement has been prepared solely for the purpose of evaluating the economic potential of recovering scandium as a by-product from the proposed Goongarrie Hub HPAL Project and Mixed Sulphide Precipitate (MSP) flowsheet.

Funding of Future Studies and Development

The Scoping Study has been undertaken to evaluate the potential for scandium recovery as an integrated component of the proposed Goongarrie Hub HPAL Project. Despite an encouraging outcome, any future development of the proposed SRC requires further investigation and will be subject to successful completion of metallurgical testwork, engineering studies, environmental and regulatory approvals, financing and a decision to proceed with development of the broader Goongarrie Hub Project.

The Scoping Study is based on material assumptions outlined in the Material Assumptions section of this announcement. These include assumptions about the availability of funding. While Ardea considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated in the Scoping Study, funding in the order of US$73.5 million will likely be required. Importantly, this estimate relates solely to the proposed scandium recovery circuit and assumes integration with the planned Goongarrie Hub Nickel-Cobalt HPAL operation. Accordingly, it excludes the considerable mining, HPAL processing and broader project infrastructure costs, which in this case are already associated with the base nickel-cobalt development previously disclosed by the Company. There is no certainty that Ardea will be able to raise the amount of funding for the proposed Goongarrie Hub HPAL Project 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 Ardea's existing shares.

Investor Caution

Investors should not place undue reliance on the production targets or forecast financial information contained in this announcement. The announcement should be read in conjunction with the material assumptions underpinning the Scoping Study and the forecast financial information, which are summarised in the Scoping Study Basis and Regulatory Disclosures and Material Assumptions sections of this announcement. Supporting technical information and Competent Person consents are set out in the Competent Person Statements.

Sumitomo Metal Mining, one of the Joint Venture partners developing the proposed KNP – Goongarrie Hub HPAL processing facility, highlights the Scoping Study was prepared solely by Ardea and neither Kalgoorlie Nickel Pty Ltd (KNPL) nor the Japanese Consortium was involved in its preparation, nor does KNPL or the Japanese Consortium endorse its content or financial economics.

Ardea notes the Scoping Study was completed to an AACE Class 5 level of definition applied to Engineering, Procurement, and Construction for the Process Industries, which defines a Scoping Study or Class 5 estimates as generally prepared based on limited information, and subsequently have wide accuracy ranges typically within -30% - +50% order of magnitude (ANSI Standard Reference Z94.2 – 1989). The level of project definition required is 0% to 2% of full project definition and estimates are prepared for any number of strategic business planning purposes.

Summary

Ardea Resources Limited (**Ardea** or the **Company**) (ASX: **ARL**) is pleased to announce the results of an independent Scoping Study, undertaken to an AACE International Class 5 level of engineering definition, assessing the technical and commercial potential to recover scandium from the proposed KNP – Goongarrie Hub, HPAL processing facility through integration of a dedicated SRC.

The presence of scandium within the Goongarrie Hub nickel laterite deposits has been known to Ardea since 2017 and has been the subject of previous drilling and mineral resource estimate announcements released to the ASX[1] [2].

The current scandium Scoping Study undertaken by Elemental Engineering concluded that development of an integrated SRC as part of the proposed Goongarrie Hub HPAL operation would be commercially attractive. The Study encourages further evaluation of scandium recovery as a potential complementary Critical Mineral by-product alongside the planned nickel and cobalt production, noting that, based on forecast scandium pricing and supply and demand curves, scandium could well generate higher by-product credits than cobalt in future. Following nickel-cobalt-scandium recovery from the KNP tails, within selected KNP locations, there is additionally magnesium, chromium, manganese and other Rare Metals (variously Rare Earth Elements, gallium, tantalum, tungsten, vanadium depending on the KNP area) present in potentially recoverable concentrations using specific ion-exchange/solvent exchange resins (as proposed in the SRC).

The SRC Scoping Study confirmed ion exchange as the preferred scandium extraction technology and scandia (scandium oxide **Sc_2O_3**) as the preferred sale product. At the level of technical work completed, the related economic assessment indicates encouraging outcomes. It should also be noted that the study assumed only a bleed of the available HPAL MSP flowsheet barren liquor (<25%) as feed liquor for the SRC. This allows significant flexibility and future upside potential for KNPL to capitalise on depending on the scandium price environment that may present in the future.

The Scoping Study represents an important technical milestone in evaluating the recovery of scandium as a by-product from the Goongarrie Hub Project (**GHP**). The immediate next phase of work will focus on validating the principal assumptions adopted in the Study through laboratory-scale metallurgical testwork using representative process liquors recovered from previous testwork undertaken by KNPL as part of the development of the KNP, including ion exchange resin screening, solvent extraction optimisation, impurity removal and production of scandium oxide product. The outcomes of this work will underpin more advanced engineering studies.

Importantly, the commercial assessment relates only to the proposed SRC and does not represent an update to the economics, development strategy or Definitive Feasibility Study (**DFS**) for the broader Goongarrie Hub Project. Nickel and cobalt remain the primary sale products and strategic focus of the Project, with the scandium opportunity being evaluated as a potential complementary value stream that can leverage infrastructure already planned for the proposed HPAL operation (Figure 1).

[2] Ardea ASX announcements 10 November 2017, 14 December 2017, 15 February 2021, 16 June 2021, 16 May 2022, 14 April 2025, 25 June 2025 and 22 September 2025.

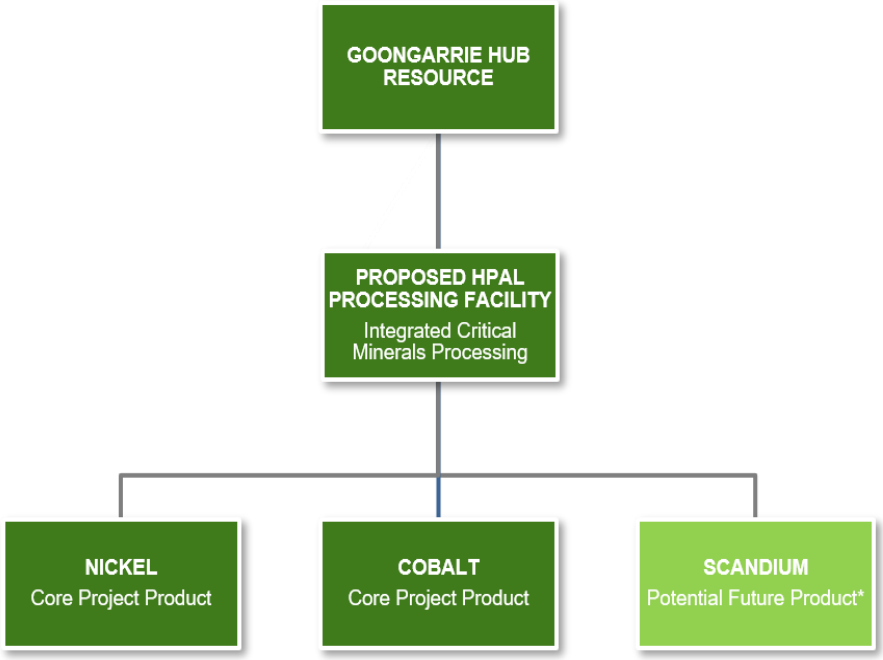


Figure 1: Potential Integration of Scandium Recovery into the Proposed Goongarrie Hub HPAL Development.

**** Subject to further metallurgical validation, engineering studies and commercial assessment***

Ardea Resources Managing Director and Chief Executive Officer Andrew Penkethman, comments:

"The Goongarrie Hub is already recognised as one of the world's largest and most advanced nickel-cobalt development projects. This Scoping Study demonstrates the potential to further enhance the Project by recovering scandium from an existing process stream, creating the opportunity to produce an additional high demand renewable energy Critical Mineral alongside planned nickel and cobalt production".

"Importantly, the independent Scoping Study concluded that an integrated scandium recovery circuit is economically feasible and generated encouraging economics, including an estimated NPV of US$509.8 million and IRR of 59.6%. While these outcomes require further validation through bench-scale metallurgical testwork, they highlight the potential to unlock additional value from the planned HPAL operation through recovery of a third Critical Mineral."

"Scandium is a strategically important Critical Mineral used in high-performance alloys and other advanced technology applications. The ability to potentially recover scandium alongside nickel and cobalt can broaden the Goongarrie Hub's future Critical Minerals product suite, further strengthening the strategic significance of the Project."

"While the scandium recovery circuit economics support further evaluation, this remains an AACE International Class 5 Scoping Study based on preliminary flowsheet development, engineering and modelling assumptions. Our priority now is to undertake laboratory-scale metallurgical testwork using representative Goongarrie Hub process liquor to validate the preferred ion exchange scandium extraction resin, optimise scandium ion exchange selectivity and stripping efficiencies, two stage precipitation and re-leach operating conditions, solvent extraction circuit optimisation, scandium oxalate precipitation and calcining operating conditions and progress engineering to an AACE Class 4 level of definition."

"Importantly, this Study does not change our vision for the Goongarrie Hub. Nickel and cobalt remain the cornerstone of the Project and our primary development focus. Rather, this Study demonstrates the potential to unlock additional value from the same resource and planned processing infrastructure by recovering scandium, as a third Critical Mineral."

"In a world increasingly focussed on supply chain security and diversity, Ardea considers the KNP – Goongarrie Hub well placed to be a future source of nickel-cobalt and scandium."

SCANDIUM OPPORTUNITY OVERVIEW

The scandium occurs within the same mineralisation being evaluated for nickel and cobalt production at the GHP, providing Ardea with the opportunity to assess its potential recovery as an additional by-product from the proposed operation. The scandium Measured Mineral Resource is wholly contained within the Goongarrie South (Figure 2) deposit and is coincident with the 18Mt @ 0.94% nickel and 0.085% cobalt Measured Mineral Resource.[3]

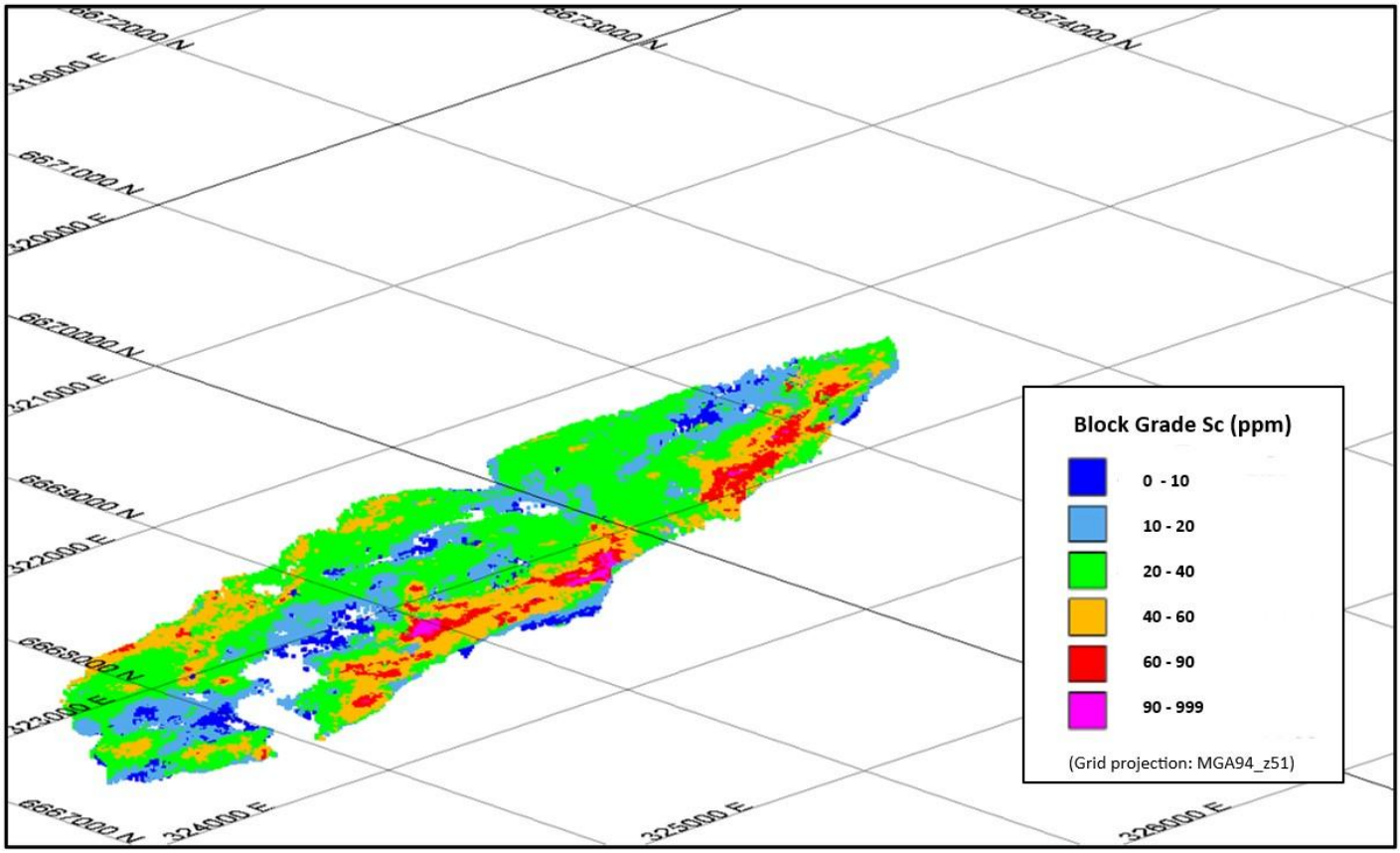


Figure 2: Goongarrie South 3D view looking towards the NW; showing scandium resource model estimates within the +0.5% Ni grade shell envelope.

Scandium mineralisation at Goongarrie has been previously reported by Ardea, with a maiden scandium MRE component in 2021.[4] An updated scandium MRE was subsequently completed as part of the 2023 Goongarrie Hub PFS, however scandium was not incorporated as a revenue source in the 2023 Pre-Feasibility Study[5].

Table 1: Goongarrie Hub scandium Mineral Resource Estimates using a 20ppm Sc cut-off grade, within +0.5% Ni grade shells. Totals may vary due to rounding.

Resource Category	Sc Resource (Mt)	Sc Grade (ppm)	Contained Tonnes
Measured	**18**	**40**	**720**
Indicated	**126**	**23**	**2,898**
Inferred	**14**	**23**	**322**
Total	**158**	**25**	**3,940**

[3]Ardea ASX announcement 30 June 2023
[4]Ardea ASX announcement 15 February 2021, Table 1-2.
[5] Ardea ASX announcement 5 July 2023

Scoping Study Capital and Operating Cost Estimates

Scandium is primarily produced as either a scandium fluoride (**ScF_3**) or as a scandium oxide (**Sc_2O_3**).

The Scoping Study initially included high-level capital and operating cost estimates for both processing pathways.

While the downstream processing methodology for each product is broadly similar, the Study concluded that scandium oxide represents the preferred commercial product for the Goongarrie Hub following assessment of both the technical and commercial characteristics of each product (Table 2). Although scandium fluoride can achieve higher prices in specialist laboratory-scale applications, the Study concluded that its commercial market is comparatively small and less liquid.

Scandium oxide has a simpler processing pathway and is more widely adopted as the principal commercial scandium product, providing broader market acceptance and more transparent pricing. In addition, the oxide pathway avoids the additional processing, fluoride reagent handling and environmental considerations associated with scandium fluoride production. Therefore, the Study proceeded with examination of the scandium oxide production potential.

Table 2: Comparison of Scandium Product Pathways

Assessment Criteria	Scandium Oxide (Sc_2O_3)	Scandium Fluoride (ScF_3)
Typical market	Broad commercial market	Specialist / niche applications
Market liquidity	Higher	Limited
Indicative price (US$/$Sc_2O_3$kg)	2,000[6]	NA
Pricing transparency	Higher	Limited
Processing complexity	Lower	Higher
Reagent handling	Lower complexity	Fluoride-based processing required
Environmental considerations	Lower	Higher
Study conclusion	**Preferred commercial product**	Not progressed

The SRC assessment indicates an initial capital requirement of approximately US$73.5 million for the preferred scandium oxide recovery circuit (Table 3). Importantly, these estimates relate solely to the proposed scandium recovery circuit and assume integration with the planned Goongarrie Hub HPAL operation. Accordingly, they exclude the considerable mining, HPAL processing and broader project infrastructure costs, which in this case are already associated with the base nickel-cobalt development.

Table 3: SRC estimated CAPEX Summary

Component	US$M
Major Equipment	15.2
Direct Construction	35.9
Indirect Construction	22.4
Total SRC CAPEX	**73.5**

[6] NI43-101 Technical Report Feasibility Study Elk Creek Project, Nebraska, United States 10 August 2026 - NioCorp Developments Ltd. On Scandium Pricing pg 457: *"OnG expects secondary recovery in the EU, some red mud recovery in the US, and NioCorp all to enter production in the period 2029-2032. None of these companies possess the market power of Rio and none of them can take the risk of a committed supply, thus OnG expects all these emerging suppliers to obtain prices between the China price and Rio's price, with the actual price per kg determined by industry utilization lagged by 6-12 months (because prices will tend to be sticky). OnG also expects Sumitomo to continue to supply product to Bloom at around $2,000 per Kg scandium oxide although we see this business as limited in volume."*

Annual operating costs for the preferred scandium oxide pathway are estimated at approximately US$16.2 million, with labour and reagent consumption representing the largest operating cost components (Table 4). The alternative scandium fluoride pathway was estimated to have higher operating costs due primarily to fluoride reagent consumption, further supporting selection of the scandium oxide pathway for future evaluation.

Table 4: SRC estimated operating costs (OPEX) Summary (Preferred Sc_2O_3 Pathway)

Component	US$M/yr
Reagents	$3.2
Labour	$9.1
Laboratory	$0.2
Maintenance	$2.3
Consumables	$0.1
Electrical	$1.3
Total Annual OPEX	**$16.2**

Economic Assessment

The economic outcomes of this study relate solely to the proposed SRC incorporated as an integrated facility within the Goongarrie Hub HPAL plant and are preliminary in nature.

As pricing within some sections of the global scandium market are relatively opaque, and researchers derive a wide range of future price forecasts within this dynamic and developing commodity market, the economic assessment (Table 5) within the Scoping Study utilised a long-term product price with larger capacity and more transparent scandium oxide market. The price used by Elemental Engineering is based on Sumitomo's published long-term forecast price of US$2,000/kg Sc_2O_3 as tabled in Bloom Energy*.

Table 5: Initial Economic Assessment

Study Economic Assessment Sc_2O_3 Product	
Sc_2O_3 Sale Price Assumption	US$2,000/kg
Average SRC Sc feed grade	25 ppm
Recovery	<70%**
Initial CAPEX	US$73.5M
Annual OPEX	US$16.2M
C1 Cash Cost/kg Sc_2O_3	US$541
Sc_2O_3 Produced per year	29.96 tonnes
Annual Revenue* **	US$43.8M
NPV (7%)	US$509.8M
IRR	59.6%

***"Chinese spot prices are expected to remain in the range of USD 800–1,200/kg Sc2O3 through 2035, while non-Chinese average prices are projected to trade in the range of approximately USD1,900–2,700/kg Sc2O3, with peak pricing in 2029–2030 and 2034–2035 corresponding to market tightness periods. OnG." Pricing estimates are noted in Source: OnG, 2025**

****Forecast recovery based on process modelling and assumptions requiring validation via testwork.**

*****Annual Revenue of $43.8m net after costs**

Net Present Value (NPV) Analysis

The Study included a NPV analysis (Table 6) utilising the calculations for CAPEX, OPEX and an assumed product price, scaled to the cost per kg of scandium sold. A discount rate of 7% was assumed, with a project life of 40 years. This project life is consistent with the life of mine for the proposed Goongarrie Hub HPAL processing facility and for scandium is underpinned wholly by Measured and Indicated Resources[7].

Table 6: Initial estimated NPV analysis for the preferred potential processing path.

Component	Units	Sc_2O_3 Product
Price Sc_2O_3 Basis*	$USD/ kg Sc	2,000
Revenue	$USDM/yr	$43.8
Project Life	yr	40
Discount Rate	%	7%
Net Present Value (NPV)	$USDM	$509.8
Internal Rate of Return (IRR)	%	59.6%

***The financial model expresses pricing on a scandium and scandium oxide basis (US$/kg Sc_2O_3). The long-term scandium oxide sale price assumption of US$2,000/kg Sc_2O_3 [8] has been adopted for the purposes of this Scoping Study.**

Sensitivity Analysis

A sensitivity analysis on the cost estimations was conducted to determine the estimated net present value (**NPV**) and internal rate of return (**IRR**) of different scenarios for the scandium oxide product process path over the 40 year LOM as per the 2023 PFS.[9] These scenarios are displayed in Table 7 and Figure 3 below.

Table 7: Sensitivity analysis scenarios

Sensitivity Analysis				
Scenario	**Modified Variable**	**Units**	**Range**	**Cr Base Case Value**
1	Saleable price	$USD/ kg Sc_2O_3	Sc cut-off price	2,000
2	Saleable price	$USD/ kg Sc_2O_3	+/- 30% of base case	2,000 $/kg
3	CAPEX	$USDM	+/- 30% of base case	73.5
4	OPEX	$USDM/yr	+/- 30% of base case	16.2
5	Project Life	Years	+/- 30% of base case	40
6	Production Rate	tonnes/yr Sc_2O_3	+/- 30% of base case	29.96

[7] Ardea ASX announcement 5 July 2023

[8] "Scandium – A Metal for a Green Future," eResearch, 18 October 2023. C. Thompson https://eresearch.com/2023/10/18/eresearch-reports/analyst-articles/new-industry-report-scandium-a-metal-for-a-green-future/.

[9] Ardea ASX announcement 5 July 2023.

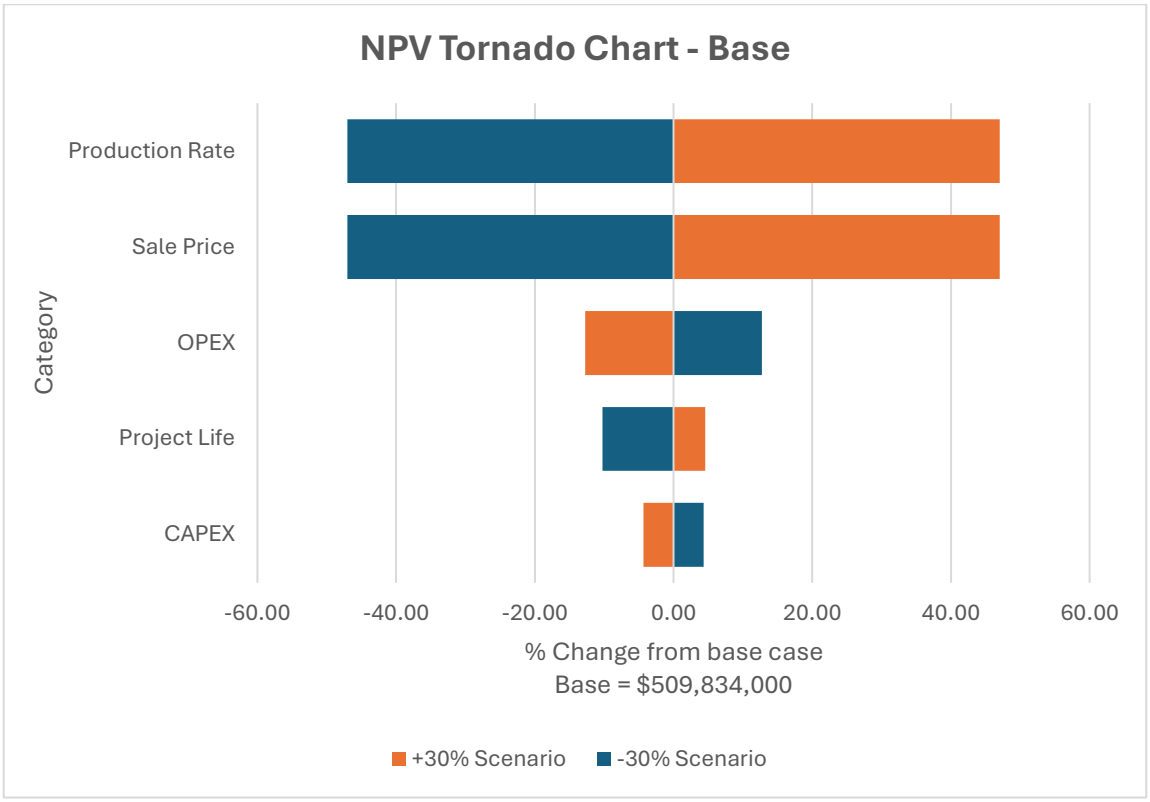


Figure 3: Tornado charts for NPV sensitivity analysis

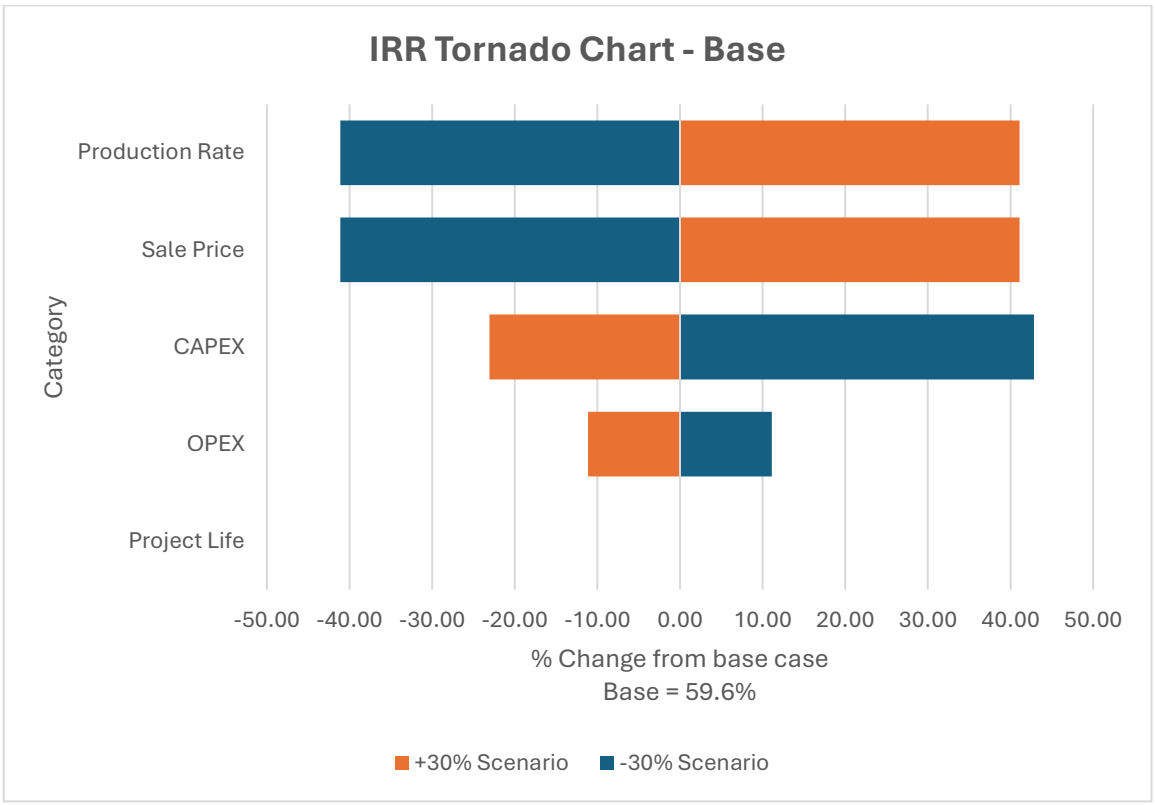


Figure 4: Tornado charts for IRR sensitivity analysis

Value Drivers

The Study indicates that the SRC economic outcomes are most sensitive to changes in scandium market price and production rate (Table 8). The price and production estimates used to initially evaluate viability of a SRC effectively provide an economic buffer to further consideration of the potential to include a SRC within the Goongarrie Hub HPAL plant.

Table 8: Scandium oxide recovery value drivers

Primary Value Driver	Relative Impact
Scandium selling price	High
Scandium production rate	High
Project operating life	Moderate–High
Initial capital cost	Moderate
Operating costs	Moderate

The focus of the next phase of work will be to validate the assumptions applied in the process model through laboratory testwork using representative Goongarrie Hub process liquors recovered from previous testwork.

Discussion on Preferred Recovery and Product Pathway

The Scoping Study evaluated a range of potential processing routes for recovering scandium from barren liquor generated during the mixed sulphide precipitation (**MSP**) circuit of the proposed Goongarrie Hub HPAL processing facility.

Following assessment of alternative recovery pathways, the SRC Study identified ion exchange as the preferred recovery technology for further evaluation.

Ion exchange was selected due to its scandium extraction selectivity from acidic process liquors, compatible with the proposed Goongarrie Hub processing flowsheet and potential for integration with the HPAL MSP flowsheet. The Study recommended screening commercially available phosphonic-group chelating resins and solvent extraction reagents to optimise scandium selectivity over chrome and aluminium trivalent cations and replace the initial assumptions used in the process model with testwork results.

The selection reflects several advantages identified during the Study, including:

- compatibility with acidic HPAL process liquors;
- reported selectivity for scandium relative to competing dissolved metals such as chrome and aluminium;
- integration with the proposed Goongarrie Hub processing MSP flowsheet;
- utilisation of established hydrometallurgical unit operations; and
- suitability for further optimisation through laboratory-scale testwork.

The preferred recovery pathway establishes an engineering design basis to confirm the extraction and recovery of scandium from the Goongarrie Hub processing facility (Figure 5).



Figure 5: Scandium Recovery Process. The scandium recovery circuit is integrated with the proposed Goongarrie Hub HPAL flowsheet, utilising existing process streams and infrastructure. Indicative process flow only. Subject to further metallurgical testwork and engineering validation.

Strategic Market Context

Scandium is a high-value Critical Mineral characterised by relatively small market volumes, limited global supply and pricing negotiated directly between producers and customers. As a result, scandium oxide typically commands a premium to most industrial metals, underpinning the economics evaluated in the Scoping Study.

The metal is recognised as a Critical Mineral by a number of major economies including the USA and Australia due to its strategic importance in advanced manufacturing, defence and clean energy technologies (Table 9).

Although used in relatively small quantities, scandium can significantly improve the performance of aluminium alloys, ceramics and solid oxide fuel cells, making it a high-value specialty material.[10]

Table 9: Scandium market summary

Potential End Market	Key Application
Aerospace	Lightweight, high-strength aluminium alloys
Defence	High-performance alloys and strategic applications
Solid Oxide Fuel Cells	Improved performance and durability
Advanced Manufacturing	Additive manufacturing and specialty materials

The global scandium market remains relatively small but supply constrained, with most production as by-products from titanium and aluminium refining, and targeted primary production limited to a small number of operations worldwide.

Current global annual production is estimated between 60 - 80 tonnes as of February 2026 and is predominantly sourced from titanium oxide residues[11].

[10] U.S. Geological Survey, Mineral Commodity Summaries 2026

[11] S. N. Johnston, “Mineral Commodity Summaries,” Reston, Virginia, U.S. Department of the Interior, 2026, pp. 166-167.

Despite the dependence on scandium in developing advanced technologies, its supply is dominated primarily by countries such as China and Russia, leaving it vulnerable to disruption.[12] [13]

The Study notes that recovering scandium from laterite processing operations is an area of increasing industry interest, with a number of existing and proposed projects globally investigating scandium recovery as a complementary product, including from HPAL processing streams.[14] Ardea's JV partner in the KNP, Sumitomo Metal Mining is producing approximately 7 tonnes per year of scandium oxide at Taganito's HPAL, MSP flowsheet. These precedents demonstrate that scandium recovery is increasingly being evaluated as a means of enhancing project value through the production of an additional critical mineral from established nickel laterite operations, rather than through developing new standalone scandium operations.

The Oregon Group asked the question, *"Can new supply keep pace with defence and AI."* Scandium Canada Ltd commissioned an independent scandium oxide market study by EY Parthenon with market intelligence published in the public domain.

EY-Parthenon projects global demand for scandium oxide of 91 tonnes per year by 2030 and 194 tonnes by 2035. The entire world currently produces approximately 80 tonnes per year. Demand continues climbing through the forecast period, reaching 706 tonnes by 2050 based on EY Parthenon forecast likely scenarios.

Global scandium oxide supply is not forecast to keep up with demand, as the supply gap opens in 2035 and widens every year of the forecast. Even by 2050, EY-Parthenon projects supply of only about 266 tonnes per year against demand of 706 tonnes (Figure 6).

Aerospace and defence sectors lead the growth, between 2030 and 2050, projected demand grows 26% per year for aerospace, 23% for defence and 22% for automotive. Aluminium-scandium alloys are the fastest-growing use of scandium. The sectors driving demand growth, aerospace, defence and automotive use scandium as an alloying element in aluminium, (as scandium metal), 243 tonnes for aerospace by 2050, 128 tonnes for automotive and 92 tonnes for defence.

As of June 2026, there were no scandium primary producers. Scandium is produced as a byproduct only from mining other metals. No operation anywhere in the world currently produces it as its main product.

The supply side is where the study's central finding lies. Scandium is currently produced exclusively as a byproduct of other metal production, which means supply responds to the economics of host metals, not to scandium demand. Supply is also concentrated, EY-Parthenon estimates Chinese production at 30 to 50 tonnes per year, roughly half to 60% of a global supply of 60 to 80 tonnes.

Projecting forward, EY-Parthenon sees the gap opening in 2035 and widening through the rest of the forecast period, with global supply reaching approximately 266 tonnes in 2050 against projected demand of 706 tonnes (Figure 6).

In EY-Parthenon's most likely scenario, annual demand for scandium oxide grows from 91 tonnes in 2030 to 706 tonnes in 2050 (Figure 7). The growth is concentrated where performance materials command the highest premiums: aerospace reaches 243 tonnes of annual demand by 2050 on a 26% compound annual growth rate, driven by the push to make structural components lighter without sacrificing strength.

[12] "Australia's Sunrise Energy signs five-year scandium option with Lockheed Martin, shares jump," Reuters, 24 October 2025. https://www.reuters.com/business/energy/australias-sunrise-energy-signs-five-year-scandium-option-with-lockheed-martin-2025-10-23/.

[13] "Critical Minerals in Australia," Parliament of Australia, 15 July 2025. .https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/Research/Policy_Briefs/2025-26/Criticalminerals.

[14] Projects include sites such as Sunrise Energy Metals' Syerston, Scandium Int. & Scandium Inv. LLC Nyngan, Rio Tinto's Owendale project, Metallica/Australian Mines ScONi, Jervois/Australian Mines Flemington, Imperial Mining Crater Lake, NioCorp Elk Creek and RUSAL Al Corp developing scandium processes. These projects range in scandium production from between 30 to 68 tonnes per annum of > 99.8% purity scandium oxide. Further, companies such as Sumitomo Metal Mining at the Taganito site and META Nikel-Kobalt at the Gordes plant are already producing scandium from high pressure acid leach (HPAL) plants at pilot/lab scale.

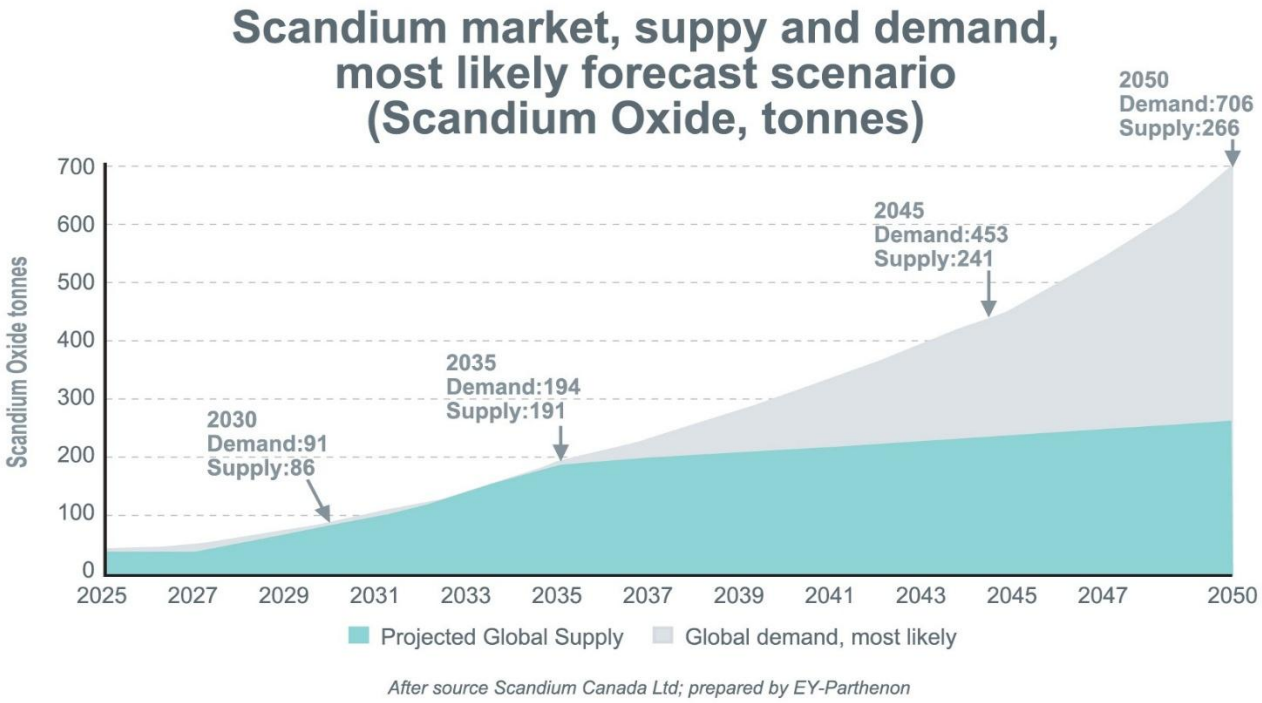


Figure 6: Scandium market supply and demand, most likely scenario (after EY Parthenon, Scandium Canada Ltd).

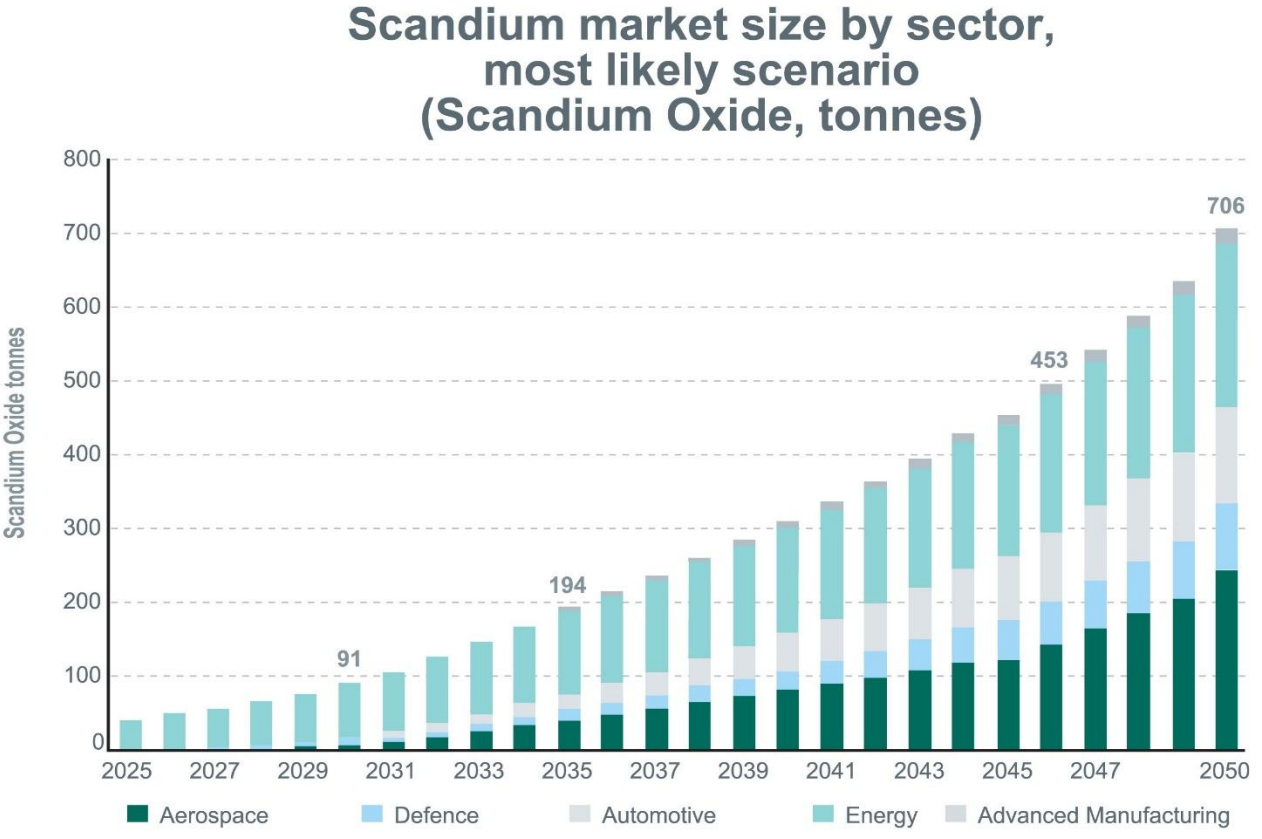


Figure 7: Scandium market size by sector, most likely scenario, Scandium Oxide, tonnes (after EY Parthenon, Scandium Canada Ltd).

Defence follows at a 23% growth rate, reaching 92 tonnes, with automotive at 22% reaching 128 tonnes and advanced manufacturing at 17%. The energy sector, currently the largest end use of scandium oxide, grows more slowly at 8% but still accounts for 222 tonnes of annual demand by 2050, the second-largest segment.

The market for scandium is comparatively small, the world produced approximately 80 tonnes of scandium oxide in 2025 with more than 90 tonnes of annual supply capacity. This means one new supplier can materially change the supply and demand balance.

However, Bloom Energy is using scandium oxide in its solid oxide fuel cells. Connecting the metal to electricity demand from AI data centres alone would require around 200 tonnes of scandium oxide annually by the early 2030s, approximately x2.5 the entire world's estimated production in 2025.

Of particular note, supply is tightening as China increases restrictions on scandium exports. In August 2026, exports from China, the world's largest scandium producer, fell to zero. The purchases are, not guaranteed, and export restrictions may always be lifted, but the scale and importance of scandium explains why this small market is attracting increasingly urgent attention from defence contractors, technology companies and governments.

The US has been 100% dependent on imports of scandium for the last 20 years, with Japan supplying approximately 89% of US scandium oxide imports during 2021–2024. That supply includes material refined from Philippine feedstock, but the report does not disclose the upstream origin of the entire Japanese share with obvious concerns over China's leading share of global production and exports.

Scandium's supply problem is increasingly about access. United States Geological Society (**USGS**) estimates suggest production (80 tonnes in 2025) currently outpaces consumption (60 tonnes) but, especially in such a small commodity market, say little about the material available and the subsequent leverage available to suppliers, to individual buyers, in the required form and under acceptable export conditions.

For example, by February 2026, US chipmakers were reporting delays obtaining scandium export licences and seeking Washington's help, with a US government official telling Reuters some US manufacturers now face "shortages", putting at risk, for example, America's 5G chip industry.

The exposure extends beyond aircraft structures and fuel cells. Scandium is also used in aluminium–scandium nitride thin films, which improve the performance of radiofrequency components used in communications and sensing. These applications connect scandium supply to radar, avionics, satellite communications and 5G infrastructure. By February 2026, US chipmakers were reporting delays obtaining Chinese scandium export licences and were seeking Washington's assistance to secure supply.

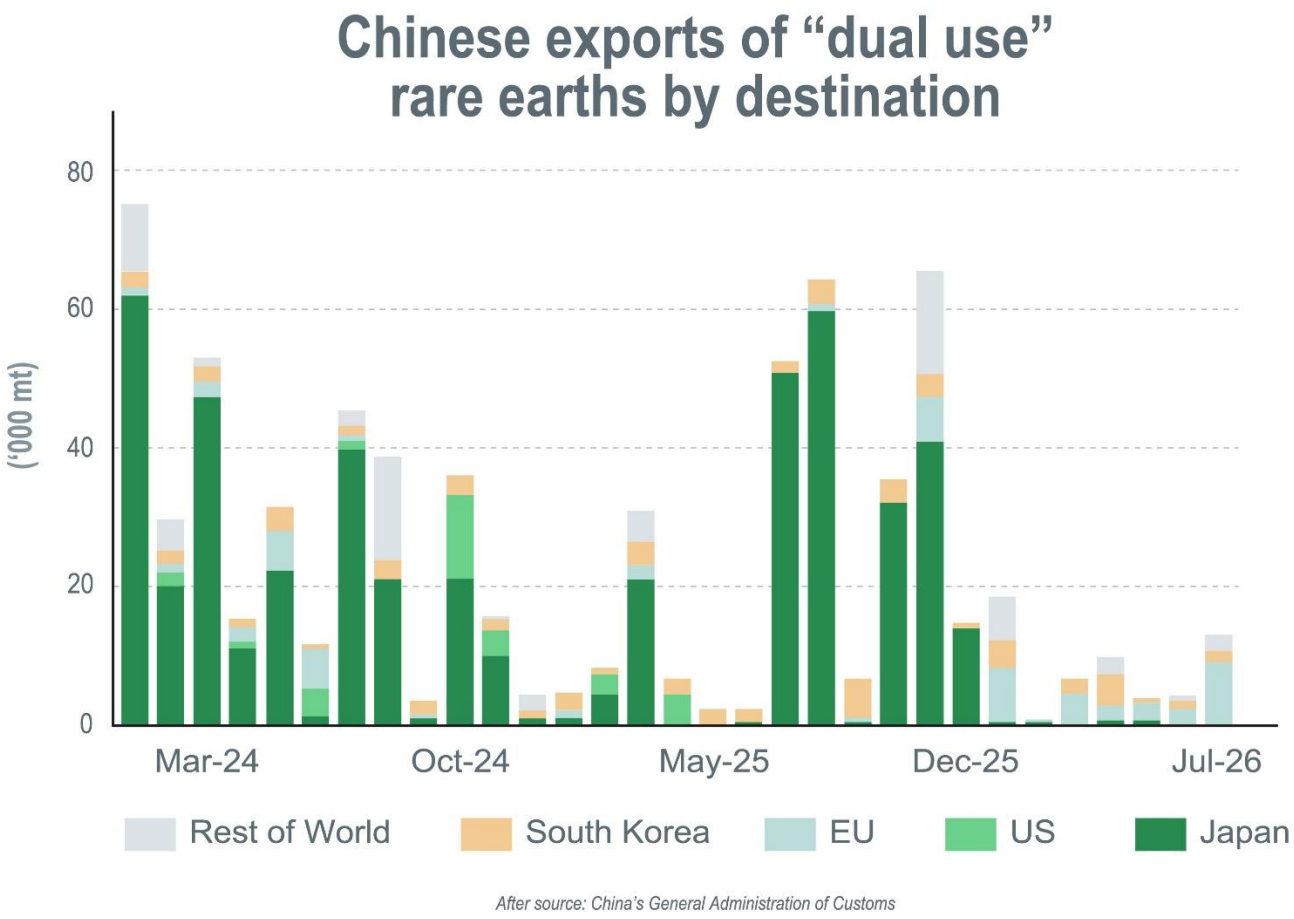


Figure 8: Chinese exports of "dual use" rare earths by destination (after China's General Administration of Customs).

Potential Government Support

The scandium market is increasingly divided by origin and access: material available within China, and supply that US manufacturers can reliably secure outside China's licensing system. Noting that even if restrictions ease further, their potential return gives the US a reason to finance alternative production.

Recent US commitments include:

- Sunrise Energy Metals, Australia — US$400 million conditional loan commitment, August 2026: the Pentagon's Office of Strategic Capital backed development of the Syerston scandium project and downstream processing capabilities. The proposed financing provides a right of first offer on output, but remains subject to conditions before financial close;
- Element USA, Louisiana — US$29.9 million award, November 2025: the Defence Production Act funding supports a demonstration facility to recover gallium and scandium from industrial waste, alongside development work in Texas. The award covers both minerals;
- NioCorp's Elk Creek Resources, Nebraska — up to US$10 million, August 2025: a milestone-dependent award supports a domestic scandium supply chain extending from mining to alloy manufacture and qualification for defence applications; and
- in September 2025, the Defence Logistics Agency announced plans to procure more than 6,000kg of scandium oxide for the National Defence Stockpile from a source in Sorel-Tracy, Quebec, Canada.

Scandium is recognised as a critical mineral by the Australian Government and a number of other major international jurisdictions due to its strategic importance across advanced manufacturing, defence and clean energy technologies.

The Elemental Engineering Study for the KNP notes that, subject to future technical and commercial advancement, scandium recovery, commencing at the Goongarrie Hub may align with the eligibility criteria for Australian Government initiatives designed to support the development of domestic Critical Minerals supply chains. These include the Critical Minerals Strategic Reserve (**CMSR**), which has been established to strengthen sovereign capability and supply chain resilience through a range of potential financial support mechanisms, including offtake agreements, contracts-for-difference and other commercial arrangements. So far, A$1.2 billion has been allocated to the establishment of this reserve.[15]

While no government funding or support has, thus far, been sought or secured by Ardea for the SRC, the Study identifies potential future eligibility for Australian Government Critical Minerals support initiatives, subject to the Project satisfying the applicable eligibility, technical and assessment requirements at the relevant time. These pre-requisites are:

- The operation must extract or process minerals in Australia;
- Must produce critical minerals as defined by the CMSR, of which Scandium is included; and
- Require at least A$20 million in funding, finance or offtake support.

The report also notes that Export Finance Australia (**EFA**) also has the capacity to finance projects involved with extracting critical minerals.[16]

Ardea acknowledges the strong support shown for the Kalgoorlie Nickel Project - Goongarrie Hub, from Australia and ally nations, including the potential funding support for the nickel-cobalt project development from EFA (A$500M) and US Export Import Bank (**EXIM**) (US$350M)[17]. As assessment of the scandium production opportunity continues, Ardea will continue to engage with key stakeholders, including government.

A Differentiated Development Opportunity

Compared with a conventional standalone scandium development, the opportunity evaluated at the Goongarrie Hub has the potential to leverage the planned HPAL processing facility and associated infrastructure to recover an additional Critical Mineral alongside the Project's planned nickel and cobalt production.

The key points of differentiation identified by the Study are summarised in Table 10 below.

Table 10: Goongarrie Hub scandium synergies

Conventional Scandium Development	Goongarrie Hub Opportunity
Standalone mining operation	Built onto existing nickel-cobalt mining operation
Dedicated processing plant	Integrated within the proposed HPAL processing facility
Separate infrastructure	Leverages planned project infrastructure
Single-product operation	Potential to recover an additional Critical Mineral alongside planned nickel and cobalt production
Standalone operating costs	Shared site infrastructure and utilities

[15] Critical Minerals Strategic Reserve," Australian Government - Department of Industry, Science and Resources, 2026. https://www.industry.gov.au/mining-oil-and-gas/minerals/critical-minerals/critical-minerals-strategic-reserve.
[16] E. F. Australia, Australian Government, 2026. https://www.exportfinance.gov.au/how-we-can-help/our-solutions/critical-minerals/.
[17] Ardea ASX announcement 5 February 2026.

Supporting Long-Term Value Creation

Subject to successful metallurgical validation and further engineering studies, the Scoping Study indicates that integration of a SRC has the potential to enhance the long-term value of the Goongarrie Hub by broadening its future Critical Minerals product suite.

Importantly, the potential value of scandium recovery is derived from integration within an existing development concept rather than from the establishment of a standalone scandium project.

If successfully developed, scandium recovery has the potential to:

- Broaden the Goongarrie Hub's future Critical Minerals product suite;
- Utilise the planned HPAL processing infrastructure and common site services;
- Create an additional potential revenue stream alongside planned nickel and cobalt production; and
- Increase the Project's future development flexibility.

Realisation of these potential benefits will depend on successful metallurgical validation, future engineering studies, commercial assessment, financing and all necessary regulatory and contractual approvals. There is no certainty that the proposed scandium recovery circuit will ultimately be implemented.

Conclusions & Recommendations

The independent Scoping Study concluded that development of an integrated scandium recovery circuit at the Goongarrie Hub is commercially feasible and recommends further technical evaluation through a staged program of testwork and engineering.

The Study's principal recommendations are to:

- Undertake laboratory-scale metallurgical testwork using representative Goongarrie Hub process liquor to validate the proposed process flowsheet and key metallurgical assumptions;
- Evaluate commercially available phosphonic-group chelating ion exchange resins to identify the optimum resin for Goongarrie Hub process liquor and validate the preferred ion exchange recovery pathway;
- Optimise the solvent extraction circuit through laboratory-scale testwork to refine scandium recovery performance and evaluate suitable extractants for the preferred process route;
- Incorporate laboratory testwork results into the process model to update key scoping study assumptions with project-specific metallurgical data, enabling refinement of production forecasts together with capital and operating cost estimates;
- Based on detailed metallurgical testwork, complete further engineering to an AACE Class 4 level of definition; and
- Assess the outcomes of the laboratory program to determine whether an integrated scandium recovery circuit should progress to the next stage of technical evaluation as a potential enhancement to the broader Goongarrie Hub development.

Regulatory Disclosures

The following information is provided to satisfy the disclosure requirements applicable to the Scoping Study and should be read in conjunction with the information contained in this announcement.

Scoping Study Basis

The independent Scoping Study prepared by Elemental Engineering provides the technical basis for the assessment presented in this announcement. The Study evaluated the potential recovery of scandium from the Mineral Resources proposed to be developed by the Goongarrie Hub Project HPAL processing facility and concluded that further technical evaluation is recommended. The Scoping Study was completed at an AACE Class 5 level of definition and key assumptions require validation by completing batch and semi-continuous metallurgical testwork and engineering studies.

Forecast Financial Information

The forecast financial information presented in this announcement relates solely to the scandium recovery flowsheet evaluated in the Scoping Study. It does not alter the development strategy or economics of the broader Goongarrie Hub Project and should be read in conjunction with the Important Notice and the Material Assumptions contained in this announcement.

Material Assumptions

The Scoping Study flowsheet and process modelling is based on metallurgical assumptions appropriate to an AACE International Class 5 Scoping Study level of definition. These assumptions are derived from preliminary process modelling, available technical information and standard engineering practices, and remain subject to validation through future metallurgical testwork using representative Goongarrie Hub process liquors.

The principal assumptions include, but are not limited to, the following:

1. Process and Metallurgical Assumptions

- The proposed ion exchange recovery process is based on preliminary process modelling and metallurgical assumptions adopted for the Scoping Study. Process performance remains subject to confirmation through laboratory-scale metallurgical testwork using representative Goongarrie Hub process liquor.
- Assumptions relating to ion exchange resin loading, resin elution, solvent extraction performance, impurity rejection and overall scandium recovery have been adopted for the SRC process model and remain subject to validation through project-specific metallurgical testwork.
- Based on publicly available technical literature under typical HPAL operating conditions >80% Sc extraction is achieved. [HaslamH. and ArnallB. (1999). An investigation into the feasibility of extracting scandium from nickel laterite ores. Proceedings of ALTA 1999 Nickel/Cobalt Pressure Leaching & Hydrometallurgy Forum, Perth, Australia, ALTA Metallurgical Services] and [Kaya Ş. and Topkaya Y.A. (2016). Extraction behaviour of scandium from a refractory nickel laterite ore during the pressure acid leaching process. Rare Earths Industry: Technological, Economic and Environmental Implications. Ismar Borges de Lima and Walter Leal Filho: 171-181.13.
- The Sc flowsheet recovery of <70% is based on a small stream of barren liquor, approximately 300m3/hr is treated via downstream hydrometallurgical processes including ion exchange, two stage pH precipitation, re-leach circuit followed by solvent extraction, oxalate precipitation and scandium oxalate calcination, applying a number of assumptions detailed in the scoping study (including the assumptions set out below) and the application of basic chemistry involved in the separation of key elements modelled in the SysCAD processing model.
- Based on technical literature available in the public domain chelating Ion Exchange (IX) resins, deleterious elements that are co-extracted onto the resins with Sc such as Cr III can be separated during a typical IX cycle by maintaining a 0.15 – 1.5 M H2SO4 eluant (IX strip liquor), which will primarily elute scandium preferentially whilst Cr will be retained on the resin. The Cr is then stripped off the resin with >1.5 M H2SO4 eluant, effectively regenerating the resin for use in the adsorption stage, as detailed in patent US11214849B2, [H. Watanabe, A. Satoshi and M. Kuniaki, “Kinetics Study of Adsorption Behaviors of Trivalent Metal Ions onto Chelating Resin:

Comparison between Scandium(III) and Other Metal Ions," Materials Transactions, vol. 65, no. 1, pp. 61-70, 2024].

- Like IX Cr III exhibits slower reaction kinetics in comparison to Sc, which possesses a much higher affinity for DEHPA extractant during solvent extraction (SX). A single stage extraction efficiency for Sc alongside the co-extraction efficiency of impurities studied in literature, highlights that Cr III loading sits well below 5%. Similarly, Al and Fe loading sit below 10% and 5% respectively. Any Cr III, Al and Fe loaded onto the DEHPA organic is then subjected to a scrubbing stage using 4 mol/L HCl solution, with scrubbing efficiency results from literature, indicating that scrubbing efficiencies of ~95% are achievable, [X. Cao, T.-a. Zhang, W. Zhang and G. Lv, "Solvent Extraction of Sc(III) by D2EHPA/TBP from the Leaching Solution of Vanadium Slag," Metals, vol. 10, no. 6, 2020].

- To conceptualise the precipitation stages, solubility product data for simple hydroxides was used for the modelled species. Based on the solubility products, the first stage – modelled at a pH of 3.5 – should precipitate Al and Th from the solution. A pH of 4.5 – 5 is utilised at the second stage to precipitate Sc. U is assumed to exist as a uranyl sulphate and therefore is not expected to precipitate at either stage, therefore the flowsheet configuration will effectively separate the precipitated species from other impurities, such as U, Ni and Co. Filters are used after each precipitation stage to separate off the residue, with an assumed moisture content of 30 wt.%. A wash water ratio of 3 times the volume of interstitial liquor and wash efficiency of 90% are assumed for both filtration steps. It is expected that the residue from stage 1 precipitation circuit and the filtrate from stage 2 precipitation circuit will be discharged to residue disposal. Two stage pH staged precipitation is considered a reliable hydrometallurgical approach to separating deleterious elements from value metals such as Sc, Ni and Co.

- The filtrate from stage 1 proceeds to stage 2, whilst the cake from stage 2 is re-leached with 10 wt.% H2SO4 solution in preparation for solvent extraction (SX). Sc is assumed to re-leach almost entirely, along with any residual impurities entrained in the re-leach feed. The solvent extraction feed is first conditioned with a 50 g/L caustic solution to achieve a pH of 4 and is then passed to the extraction stage. The modelled process assumes that Sc can be selectively separated from Th and U at the precipitation stages prior to SX and thus are not present as impurities. During operations, there may be some carry over of these species into SX, under these conditions, technical literature indicates that extractants exist that can selectively separate Th and U from Sc. [C. Jin, X. Yang, D. Fang, S. Ni, S. Wang, A. Ding, P. Cen and C. Xiao, "Selective separation of radioactive thorium and uranium from scandium using N-heterocyclic carboxamide ligands," Separation and Purification Technology, vol. 328, 2024]. These extractants can be investigated in testwork.

- Based on the hydroxide solubility product data and the potential for separating the Th and U with adequate extractant selection, Th and U is therefore assumed not to load onto the organic during SX extraction stage. This will be confirmed with testwork, SX extraction efficiencies assumed 95% Sc extraction, 5% Cr, <1% Ni & Co and 1.1% Fe extraction efficiencies respectively. [X. Cao, T.-a. Zhang, W. Zhang and G. Lv, "Solvent Extraction of Sc(III) by D2EHPA/TBP from the Leaching Solution of Vanadium Slag," Metals, vol. 10, no. 6, 2020].
- At the scrubbing and stripping stages, the pH is adjusted to trigger the inverse reaction on the organic. This is performed with hydrochloric acid, as detailed in Reaction 1, Reaction 2 and Reaction 3 shown below:
    - $Org_2M(o) + 2HCl(aq) \rightarrow MCl_2(aq) + 2OrgH(o)$ (Reaction 1);
    - $2\ Org_3M(o) + 6HCl(aq) \rightarrow 2MCl_3(aq) + 6OrgH(o)$ (Reaction 2); and
    - $Org_4M(o) + 4HCl(aq) \rightarrow MCl_4(aq) + 4OrgH(o)$ (Reaction 3).

- The reaction extents utilised for the scrubbing stage are assumed to be 100% for Ca, whilst Cr, U, Th, Al, Ni, Co, and ferrous iron are all assumed to be 95%. Sc is assumed to be 0%. As all impurities at this point in the model are present in trace amounts, the scrubbing stage assumes these impurities are removed from the organic, whilst the scandium is retained. A scrubbing solution of 10g/L HCl is assumed.

- At the stripping stage, 100 g/L HCl solution is applied to remove Sc from the extractant loaded organic. All the loaded metals are assumed to be 100% stripped from the SX loaded organic.

- The SX loaded strip solution is transferred to a precipitation tank, where it is contacted with oxalic acid to produce hydrated scandium oxalate. This reaction is assumed to precipitate all the Sc as per Reaction 4. Assumptions regarding precipitation of impurities are Cr 5%, Al 10%, Ni 20%, Co 20%, Ferrous Fe 100% and Sc 100%. Test work will need to be conducted to verify the extents of precipitation.

- $2ScCl_3(aq) + 3C_2H_2O_4(aq) + 5H_2O(l) \rightarrow Sc_2[C_2O_4].5H_2O(s) + 6HCl(aq)$ (4)

- Industrial grade oxalic acid, typically specified as 99.6% oxalic acid with trace levels of sulphates, was considered satisfactory for use in this process [“SHN Brand Industry Grade Oxalic Acid,” Shnchem]. If required an analytical grade oxalic acid could be used. This can be demonstrated via testwork. The scandium oxalate precipitation tank discharge is then passed to a filter, where the scandium oxalate is separated from the filtrate. A cake moisture of 20 wt.% is assumed, alongside a wash ratio and wash efficiency of 3 times the volume of interstitial liquor and 90% respectively. The precipitated cake is then fed into a furnace, where the scandium oxalate is calcined to produce scandium oxide as the final product as per Reaction 5.
- $Sc_2[C_2O4]_3.5H_2O(s) \rightarrow Sc_2O_3(s) + 5H_2O(g) + 3CO_2(g) + 3CO(g)$ (5)
- The proposed process flowsheet, operating parameters and reagent consumptions will be refined through future metallurgical testwork and engineering studies.
- The assumptions applied in the scandium recovery flowsheet are underpinned by a thorough review of existing technical literature with source documents referenced in the announcement and a sound understanding of the process chemistry. Elemental Engineering (an experienced, specialist engineering team) completed the scoping study supervised by Ardea's Executive Technical Director, Michael Rodriguez, a hydrometallurgical expert who is well known in the industry.

2. Product Assumptions

- The preliminary assessment assumes production of a saleable scandium oxide (Sc_2O_3) product as the preferred product identified by the Scoping Study.
- The product specification, purity and recovery are based on the process assumptions adopted in the Study and remain subject to confirmation through laboratory-scale metallurgical testwork.

- Product quality, purity and market acceptance will require further validation through future metallurgical and engineering studies.

3. Capital and Operating Cost Assumptions

- Capital and operating cost estimates have been prepared to an AACE International Class 5 level of engineering definition and are appropriate for a Scoping Study.
- The estimates are based on the Scoping Study process design, preliminary equipment sizing and engineering estimating methodologies appropriate to this level of study.
- Capital and operating costs will be refined through future metallurgical testwork, engineering design and more detailed cost estimation.
- Accordingly, actual capital and operating costs may differ materially from those presented in the Scoping Study as the Project progresses through subsequent stages of engineering and technical evaluation.

4. Commercial Assumptions

- The preliminary economic assessment is based on commercial assumptions adopted in the Scoping Study, including assumptions relating to scandium product pricing, production profile, operating life and other economic parameters appropriate to an AACE International Class 5 assessment.
- These assumptions support the technical evaluation of the proposed scandium recovery opportunity and will be refined through future engineering studies and commercial assessment.
- Changes to one or more of these commercial assumptions may materially affect the economic outcomes presented in this announcement.

5. Development Assumptions

The preliminary assessment assumes that, if the opportunity is progressed beyond the current Scoping Study:

- the proposed scandium recovery circuit can be successfully integrated within the planned Goongarrie Hub HPAL processing facility;

- future metallurgical testwork and engineering studies continue to support the proposed recovery process;
- the necessary environmental, regulatory and statutory approvals can be obtained;
- funding is available to support future stages of evaluation and, if approved, development; and
- future technical and commercial assessments continue to demonstrate an acceptable basis for progressing the opportunity.

The Company cautions that the material assumptions described above remain subject to validation and refinement through future metallurgical testwork, engineering studies and commercial assessment. Changes to one or more of these assumptions may materially affect the proposed process design, production profile, capital and operating costs, forecast financial information and the economic outcomes presented in this announcement.

Accordingly, there is no certainty that the outcomes of the Scoping Study will ultimately be realised. Investors should read these material assumptions together with the Scoping Study Cautionary Statement at the beginning of this announcement.

Funding

The Scoping Study estimates the preliminary capital cost of the proposed scandium recovery circuit at approximately US$73.5 million. No decision has been made to proceed with development and no funding strategy has been determined. Any future implementation would be subject to successful technical evaluation, Board approval, financing and all required regulatory and contractual approvals.

Competent Person Statement

The process engineering, metallurgical assessment, process modelling and economic assessment contained in this announcement are based on the Scoping Study prepared by Elemental Engineering.

Information in this announcement that relates to Elemental Engineering's Scandium Scoping Study, is based on information reviewed by Mr Michael Rodriguez who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Rodriguez is employed as an Ardea Executive Technical Director and has sufficient experience that is relevant to the processing of this style of mineralisation and type of deposit under consideration and to the activities that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Scoping Study key conclusions and recommendations. Mr Rodriguez has consented to the inclusion in this report of matters based on his information in the form and context in which it appears. Mr Rodriguez owns Ardea shares.

The Mineral Resources underpinning the production target have been prepared by Competent Persons in accordance with the requirements of the JORC Code (2012)[18].

[18] Ardea ASX announcement dated 30 June 2023, page 8.

Previously Reported Information

Exploration Results

This announcement contains references to Exploration Results, previously reported by Ardea Resources Limited in accordance with the JORC Code (2012 Edition).

The references in this announcement to Exploration Results were reported in accordance with Listing Rule 5.7 in the announcements, titled:

- Extensive scandium mineralisation confirmed in re-assay of historic drilling at Goongarrie South, 10 November 2017;
- Extensive scandium mineralisation complements the cobalt-nickel deposits at Goongarrie South, 14 December 2017;
- GNCP High Grade Resource – 60 million tonnes at 1.0% nickel, 15 February 2021;
- Highway Nickel Deposit – Mineral Resource Estimate 92 million tonnes at 0.69% nickel and 0.038% cobalt, 16 June 2021;
- Confirmation of High-Grade Nickel-Cobalt from Goongarrie South Metallurgical Drilling, 16 May 2022;
- Kalgoorlie Nickel Project Mineral Resource Estimate Exceeds 6 Million Tonnes Contained Nickel, 30 June 2023;
- Big Four & Scotia Dam RC Infill Drilling Program Complete, 14 April 2025;
- Highway RC Infill Drilling Complete, 25 June 2025; and
- Goongarrie South RC Infill Drilling Program Complete – High Grade Ni-Co-Sc mineralisation confirmed, 22 September 2025.

Mineral Resource Estimates

This announcement contains references to Mineral Resources previously reported by Ardea Resources Limited in accordance with the JORC Code (2012 Edition).

The Mineral Resource Estimate relevant to this ASX announcement has been previously released on the ASX platform by Ardea on 30 June 2023, in accordance with Listing Rule 5.8.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcements noted above and that all material assumptions and technical parameters underpinning the Mineral Resource Estimate in the previous market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcements.

Forward-Looking Statements

This announcement contains forward-looking statements regarding future technical studies, metallurgical performance, process optimisation, potential scandium recovery, future project development, commercial opportunities and other matters that are not historical facts.

Forward-looking statements are based on current expectations, assumptions and estimates considered reasonable by the Company at the date of this announcement. However, such statements are subject to known and unknown risks, uncertainties and other factors, many of which are beyond the Company's control, that may cause actual results to differ materially from those expressed or implied.

Readers should not place undue reliance on forward-looking statements. Except as required by law or the ASX Listing Rules, Ardea Resources Limited undertakes no obligation to update any forward-looking statements.

Appendices

Historic Scandium Evaluation within the KNP

Significant scandium mineralisation within the Goongarrie Hub nickel laterite deposits has been known to Ardea since 2017 and has been the subject of prior drilling and mineral resource estimate announcements released to the ASX[1 2,] as follows.

"Extensive scandium mineralisation confirmed in re-assay of historic drilling at Goongarrie South" ***10 November 2017***

- Scandium mineralisation is evident throughout all areas of the Goongarrie South cobalt-nickel camp sampled to date.
- Intercepts proximal to the Pamela Jean Deeps deposit include:
  - GSRC0334. 22m @ 118g/t Sc from 27m
  - GSRC0335, 14m at 56.4 g/t Sc from 21m
  - GSRC0524, 18m at 62.5 g/t Sc from 18m
  - GSRC0530, 11m at 84.0 g/t Sc from 15m
  - GSRC0616, 9m at 72.7 g/t Sc from 33m
  - GSRC0656, 12m at 79.5 g/t Sc from 20m

"Extensive scandium mineralisation complements the cobalt-nickel deposits at Goongarrie South" ***14 December 2017***

- Scandium mineralisation is extensive at Goongarrie South, usually sitting above or coincident with the cobalt and nickel mineralisation.
- The two main bodies of scandium mineralisation have been extended:
  - The Pamela Jean / Patricia Anne measures over 3km strike length.
  - The Elsie Tynan line in the west is now over 2.5km strike length.

"GNCP High Grade Resource – 60 million tonnes at 1.0% nickel" ***15 February 2021***

- GNCP Maiden scandium mineral resource estimate (**MRE**) of 74Mt at 35ppm Sc (Page 11, Table 5-2 of the ASX announcement) (Measured 16.7Mt @ 42ppm Sc, Indicated 52.7Mt @ 33ppm Sc, and Inferred 5.0Mt @ 35ppm Sc).
- The nickel mineral resource estimates note the potential for strong cobalt, scandium and aluminium credits.
- Scandium reports to the full nickel laterite profile, highest in the Clay Upper profile.

"Highway Nickel Deposit – Mineral Resource Estimate 92 million tonnes at 0.69% nickel and 0.038% cobalt" ***16 June 2021***

- Scandium in sufficient concentrations can be considered economically viable to extract as a by-product of mining operation focused on nickel (flow-sheet options include ion exchange and solvent extraction).
- Appendix 4 of the ASX announcement contains Highway drill collar locations and Ni-Co-Mn-Sc assay data.

"Confirmation of High Grade Nickel-Cobalt from Goongarrie South Metallurgical Drilling" ***16 May 2022***

- Laterite – Regolith Cycle 2 – Residual. Duricrust at surface above nickel mineralisation is significantly enriched in scandium (50-91ppm).
- Scandium as by-product mineralisation is noted with table of significant scandium intercepts from Goongarrie South metallurgical drilling.
- Appendix 2 contains Ni-Co-Mn-Sc assays.
- Appendix 3 contains scandium drill intercepts >50ppm Sc.

"Kalgoorlie Nickel Project Mineral Resource Estimate Exceeds 6 Million Tonnes Contained Nickel" ***30 June 2023***

- Table 3.2 KNP Goongarrie Hub PFS subset nickel, cobalt and scandium MRE using > 0.5% Ni cut-off grade with total Measured, Indicated and Inferred scandium resources of 158Mt @ 25ppm.

"Big Four & Scotia Dam RC Infill Drilling Program Complete" ***14 April 2025***

- Appendix 2 Big Four significant drill intercepts for Ni-Co-Sc.

"Highway RC Infill Drilling Complete" ***25 June 2025***

- Appendix 2 Highway significant drill intercepts for Ni-Co-Sc.

"Goongarrie South RC Infill Drilling Program Complete – High Grade Ni-Co-Sc mineralisation confirmed" ***22 September 2025***

- Appendix 2 Goongarrie South significant drill intercepts for Ni-Co-Sc.

This announcement is authorised for release by the Board of Ardea Resources Limited.

For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:

Andrew Penkethman,
Managing Director and Chief Executive Officer

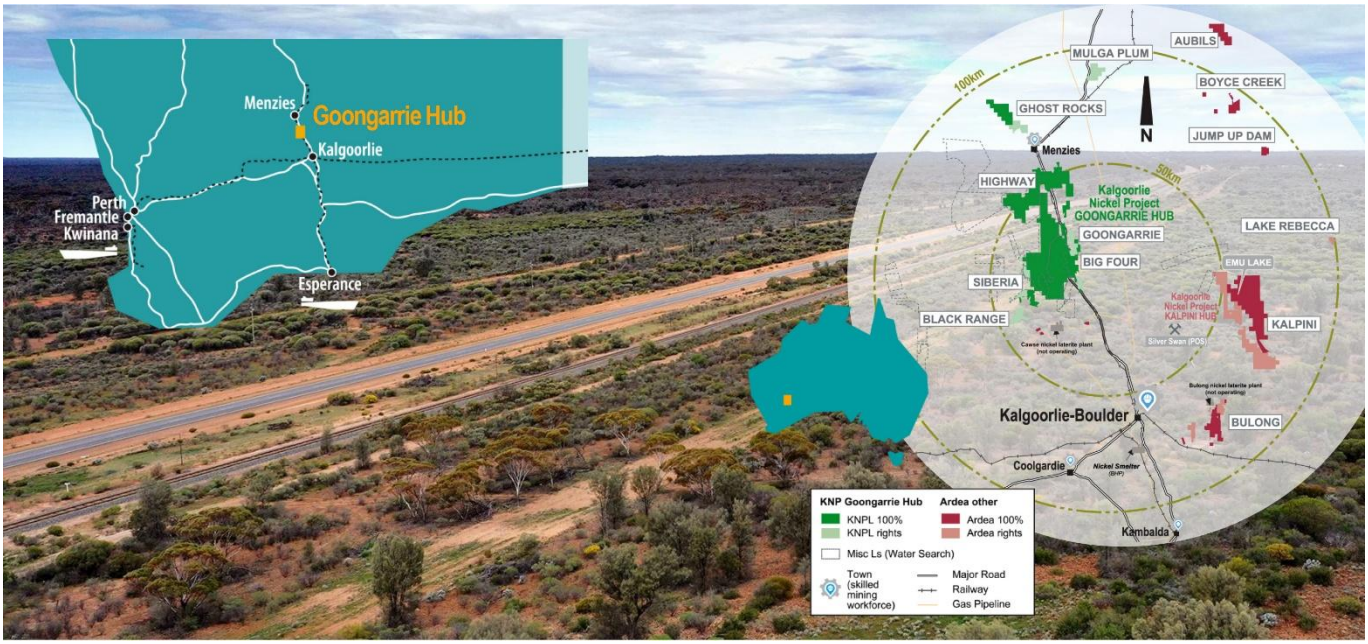
Tel +61 8 6244 5136

Email: ardea@ardearesources.com.au

About Ardea Resources

Ardea (ASX:ARL) is an ASX-listed nickel development company in joint venture with Sumitomo Metal Mining and Mitsubishi Corporation to build, commission and operate a plus 30,000tpa multi-decade nickel operation[19]:

- Development of the Kalgoorlie Nickel Project (**KNP**) and its sub-set the Goongarrie Hub, a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in Australia and one of the largest in the developed World at **854Mt at 0.71% nickel and 0.045% cobalt for 6.1Mt of contained nickel and 386kt of contained cobalt**. Within the KNP, the Goongarrie Hub has 584Mt for 4.0Mt of contained nickel (Consortium right to earn 50%) and Kalpini Hub has 270Mt for 2.1Mt of contained nickel (Ardea 100% unencumbered interest)[20], located in a jurisdiction with exemplary Environmental Social and Governance (**ESG**) credentials.
- Advanced-stage exploration at compelling nickel sulphide targets, such as Kalpini, and Critical Minerals targets including scandium and Rare Earth Elements throughout the KNP Eastern Goldfields world-class nickel-gold province, with all exploration targets complementing the KNP nickel development strategy.



Follow Ardea on social media

Ardea

Australian Federal Government - Major Project Status

KALGOORLIE NICKEL

[19] Ardea Pre-feasibility Study ASX announcement 5 July 2023 - In accordance with ASX Listing Rule 5.19, Ardea confirms that all the material assumptions underpinning the production target, and the forecast financial information derived from the production target continue to apply and have not materially changed. Noting that the PFS included the inclusion of a small amount of nickel Inferred Mineral Resource (20Mt or 9%) spread over the Life of Mine (page 20 of Ardea 5 July 2023 PFS ASX announcement).

[20] Ardea ASX release 30 June 2023

Competent Persons Statement

The Resource Estimation, exploration and industry benchmarking summaries are based on information reviewed or compiled by Mr Ian Buchhorn and Mr Andrew Penkethman. Mr Buchhorn is a Member of the Australasian Institute of Mining and Metallurgy and Mr Penkethman is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Both Mr Buchhorn and Mr Penkethman are full-time employees of Ardea Resources Limited and have sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Buchhorn and Mr Penkethman have reviewed this release and consent to the inclusion in this report of the information in the form and context in which it appears. Mr Buchhorn and Mr Penkethman own Ardea shares.

Ardea wishes to clarify that its current Kalgoorlie Nickel Project (KNP) Mineral Resource Estimate (MRE) following JORC Code (2012) guidelines is:

KNP Hub	Resource Category	Size (Mt)	Ni (%)	Co (%)	Cont. Ni (kt)	Cont. Co (kt)
Goongarrie Hub[1]	Measured	18	0.94	0.085	171	15
	Indicated	277	0.70	0.046	1,923	127
	Inferred	289	0.67	0.037	1,951	108
Sub Total	Combined	**584**	**0.69**	**0.043**	**4,044**	**250**
Kalpini Hub including Yerilla Hub[2]	Measured	4	0.94	0.048	36	2
	Indicated	84	0.83	0.050	699	42
	Inferred	182	0.73	0.051	1,321	92
Sub Total	Combined	**270**	**0.76**	**0.050**	**2,056**	**136**
Kalgoorlie Nickel Project Total	Measured	22	0.94	0.079	207	17
	Indicated	361	0.73	0.047	2,622	169
	Inferred	471	0.70	0.043	3,272	200
	Grand Total	**854**	**0.71**	**0.045**	**6,101**	**386**

1. The Goongarrie Hub is part of KNPL Incorporated Joint Venture. See 30 August 2024 ASX release, KNP Goongarrie Hub Joint Venture Transaction Completion with Japanese Consortium. The Goongarrie Hub Resources are reported on a 100% basis, with Ardea holding a 65% interest.
2. The KNP Kalpini and Yerilla Hubs are known collectively as the Kalpini Hub and remain a 100% owned Ardea asset.

Note: 0.5% nickel cutoff grade used to report resources. Minor discrepancies may occur due to rounding of appropriate significant figures.

The Mineral Resource Estimate information shown in this ASX announcement that relates to the KNP has been previously released on the ASX platform by Ardea in ASX release 30 June 2023, in accordance with Listing Rule 5.8. The Ore Reserve information where shown in this ASX announcement has been previously released on the ASX platform by Ardea in ASX release 5 July 2023, in accordance with Listing Rule 5.9.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcements noted above and that all material assumptions and technical parameters underpinning the Mineral Resource Estimates and Ore Reserve in the previous market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcements.