Australian Government

Australian Trade and Investment Commission

Australian Critical Minerals Prospectus

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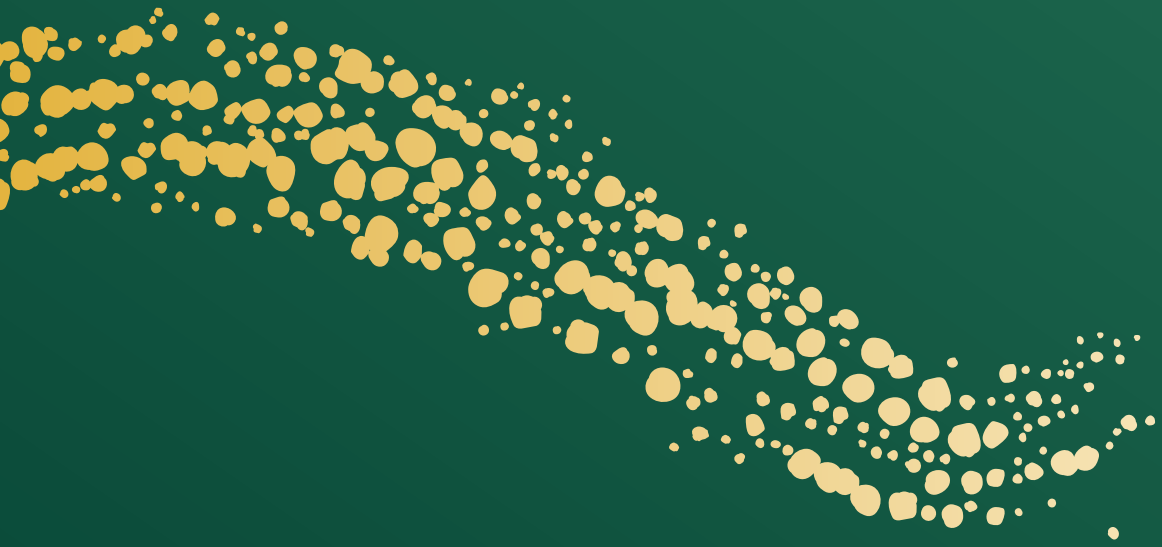

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Foreword

Australia is in the box seat to help meet the world's growing demand for critical minerals and the technologies they enable.

These minerals are essential for modern technologies, from electric vehicles, batteries, solar panels and wind turbines to defence systems and digital infrastructure.

Few nations are better placed to supply them.

Australia is the lucky country, boasting some of the world's largest and richest critical minerals resources, alongside a highly skilled workforce, world-class mining and processing expertise, and a stable, transparent investment environment.

These strengths make Australia a trusted partner for investors in the industries, technologies and supply chains of tomorrow.

The Australian Government is committed to unlocking the opportunities this presents.

Critical minerals are a priority industry under our Future Made in Australia agenda. We are supporting the development of projects across the country to accelerate investment in the mining, processing and refining capabilities that will power future industries.

Our support includes a $5 billion Critical Minerals Facility, $17.5 billion over 13 years for a new production tax incentive and a Critical Minerals Strategic Reserve, to de-risk projects and connect them with capital and partners.

That commitment is already showing results. This latest edition of Austrade's Australian Critical Minerals Prospectus profiles 94 investment-ready projects, including 36 midstream projects and 58 upstream projects.

It is our largest prospectus yet, reflecting the depth and breadth of Australian critical minerals capability and capacity.

The growing section on midstream projects highlights the depth of critical minerals refining and processing opportunities in Australia – underscoring the importance of Australian projects to global critical minerals supply chains.

This prospectus will grow with the sector. And the digital prospectus will be regularly updated to reflect Australia's critical minerals landscape as it continues to flourish and expand.

I invite you to explore the opportunities featured in this prospectus and join us in building the reliable, responsible and resilient critical minerals supply chains that will support global economic growth, energy security and decarbonisation for decades to come.

Senator Don Farrell
Minister for Trade and Tourism

Australia: A secure, reliable source of critical minerals

Australia is home to some of the world's largest reserves of critical minerals, including lithium, cobalt and rare earths. We are a world leader in resources exploration, extraction, production and processing, and our industry has a reputation for safety, high labour standards, First Nations engagement and environmental responsibility. Australia's critical minerals industry is building supply chain security and helping deliver a net zero future.

The Australian Critical Minerals Prospectus is one way Austrade facilitates offtake and investment in critical minerals. This document summarises the 94 investment-ready projects featured in the interactive, online version of the Prospectus, including 29 new projects. To access the latest project information, and learn more about Australia's advantages and government support for critical minerals, visit **international.austrade.gov.au/criticalminerals**.

Expanded Midstream section

This edition of Austrade's Australian Critical Minerals Prospectus expands its Midstream section, which now highlights 36 investable projects. It is not an exhaustive list and will continue to grow as Australian capability expands. Midstream projects add significant value to critical minerals supply chains through the processing, refining and production of high-grade materials needed for advanced technologies. Midstream capability is crucial for creating robust and resilient supply chains, which further increase the strength of Australia's trade network and reinforce economic security. Growth in midstream projects signals a clear investable pipeline that moves beyond mining to create more value onshore. This shift is deliberate. The projects profiled in this prospectus exemplify critical minerals processing in Australia.

Growing global appetite for critical minerals

Demand for critical minerals continues to accelerate, with the International Energy Agency projecting demand will almost double by 2040, as governments and industry build the batteries, clean energy, defence and digital technologies of the future[1]. Investors are focused not only on where these minerals exist, but on who can supply them reliably, responsibly and at scale. There is also a need to diversify trade to avoid vulnerabilities arising from volatile prices or highly concentrated supply chains.

Australia is well positioned to meet this growing demand. We are a globally significant, secure and responsible supplier of raw and processed minerals, with benefits such as:

- a world-class mining industry, including expertise in mining equipment, technology and services (METS)
- a highly skilled workforce
- world-leading environmental, social and governance (ESG) practices
- deep capital markets, with a large and growing number of critical mineral companies listed on the Australian Securities Exchange
- comprehensive financial incentives and whole-of-government support.

Australia's Critical Minerals Strategy

The Critical Minerals Strategy 2023–2030 sets out a vision to grow Australia's critical minerals wealth, create Australian jobs, strengthen global clean energy supply chains and support the path to net zero. It is underpinned by deepening international partnerships, including the Australia–US Framework for Securing Supply in Critical Minerals and Rare Earths.

International Partnerships

International partnerships and foreign investment are central elements of Australia's strategy given our critical minerals are deeply connected to global markets and supply chains. The Australian government is working with partners to build Australia's critical minerals sector and drive project development at scale. Through international partnerships, the Australian Government is:

- leveraging existing bilateral partnerships to mobilise investment and offtake into Australian projects

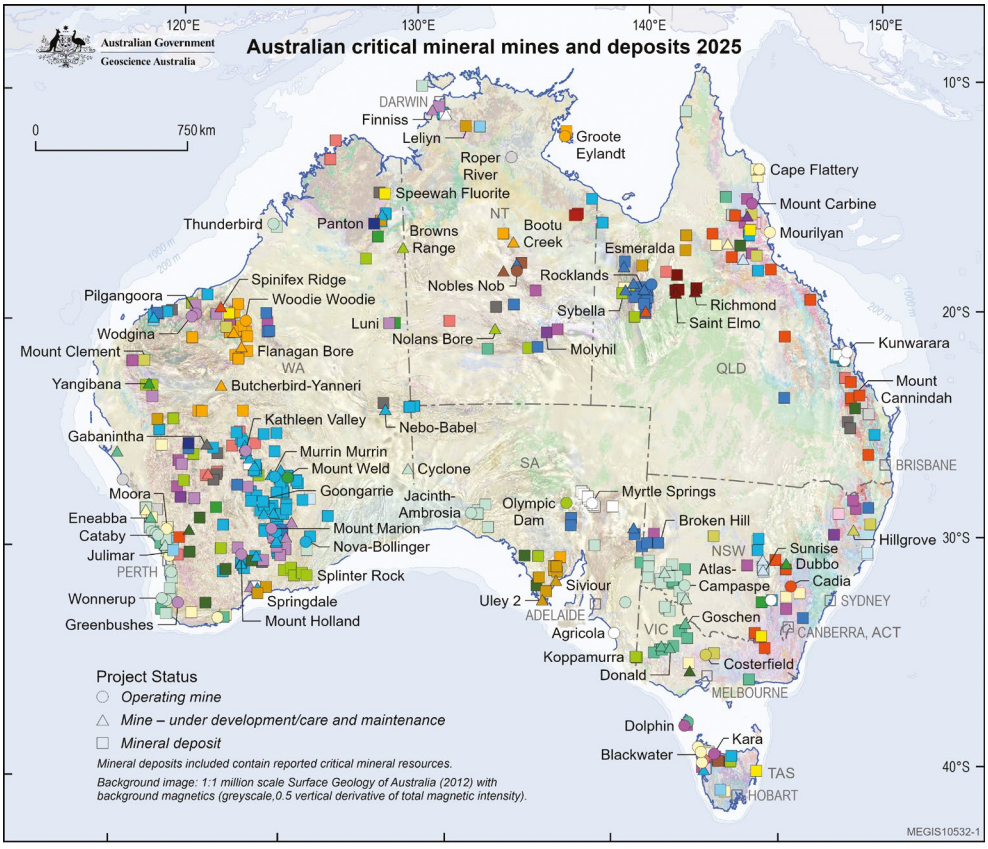
1. IEA (2026) Global Critical Minerals Outlook 2026, IEA Paris.

- deepening technical collaboration with our international partners through R&D across the value chain
- shaping market rules, norms and global approaches to critical minerals by participating in international forums and initiatives
- connecting Australian projects with investors and offtake opportunities in priority markets
- supporting coordinated financing approaches, including joint financing and risk-sharing to improve access to capital for Australian projects.

Future Made in Australia

In the 2024–25 Budget, the Australian Government committed A$22.7 billion over a decade to Future Made in Australia, to maximise the benefits of the net zero transition and secure Australia's place in a changing global landscape. Critical minerals is a priority industry. Government support for critical minerals projects includes:

- the A$5 billion Critical Minerals Facility, administered by Export Finance Australia
- a Critical Minerals Strategic Reserve to strengthen supply security and connect projects with capital and offtake partners
- a legislated Critical Minerals Production Tax Incentive, offering a 10 per cent refundable tax offset for eligible onshore processing and refining costs from 1 July 2027
- up to A$1 billion from the National Reconstruction Fund for value-adding in resources.



Upstream summaries

This is a non-exhaustive list of advanced Australian critical minerals projects. There are more projects than those listed here. Austrade is able to facilitate introductions to other projects according to your specific needs.

For further information, please contact your local Austrade representative or email criticalminerals@austrade.gov.au

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This is a non-exhaustive list of advanced Australian critical minerals projects. There are more projects than those listed here. Austrade is able to facilitate introductions to other projects according to your specific needs.

For further information, please contact your local Austrade representative or email criticalminerals@austrade.gov.au

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Antimony

Hillgrove Antimony-Gold Mine

Larvotto Resources Ltd

ASX-listed (LRV)

larvottoresources.com



Commodity(ies):
Antimony, Gold, Tungsten

Investment summary

Larvotto Resources is at the forefront of building Australia's critical minerals capabilities with its Hillgrove Antimony-Gold Project in NSW recommencing production in late-August 2026, less than three years since Larvotto acquired the asset in December 2023. Hillgrove is on track to become Australia's largest antimony producer and a globally significant new source of antimony amid increasing global focus on secure critical mineral supply. Offtake agreements have been secured for the first 7 years of production for both Gold Concentrate and Antimony Concentrate with Glencore and Wogen Resources respectively.

Project description

The Hillgrove Mine is located approximately 25km from the regional town of Armidale, NSW and has a long history of gold and antimony production. Larvotto completed its Hillgrove DFS in May 2025 demonstrating compelling economics for the project. ~0.525Mtpa ore will be mined from both open-cut and underground and processed in the upgraded on-site processing plant via; a gravity circuit to recover gravity recoverable gold doré, followed by flotation circuits to produce antimony and gold concentrates with demonstrated recoveries from historic production. Hillgrove is expected to produce 4,900tpa of antimony contained in antimony concentrate and 40,500ozpa of gold contained in gold concentrate and gold doré, over an initial eight-year mine-life. Production commenced in late-August 2026 and is currently ramping up to nameplate capacity, becoming only the second antimony producer in Australia, and by far the largest. Production of a tungsten concentrate is also planned. Hillgrove boasts significant exploration upside to extend the current life of mine with over 200 known deposits and occurrences contained within Larvotto's leases, presenting a multi-zone growth strategy.

Mineral Resources as at May 2025 (open-pit: 0.65g/t AuEq cut-off, underground: 2.3g/t AuEq cut-off):

Resource Category	Tonnes (Mt)	Au (ppm)	Sb (%)	AuEq (g/t)
Measured	0.672	3.2	2.8	11.3
Indicated	4.242	4.5	1.1	7.7
Inferred	3.852	3.7	0.8	6.0
Total	**8.766**	**4.0**	**1.1**	**7.2**
Contained		**1,135koz**	**96kt**	

Ore Reserves as at May 2025 (open-pit: 1.90g/t AuEq cut-off, underground stoping: 3.3g/t AuEq cut-off, underground development: 1.3g/t AuEq cut-off):

Reserve Category	Tonnes (Mt)	Au (ppm)	Sb (%)	AuEq (g/t)
Open Pit – Probable	0.36	2.0	1.6	6.6
Underground – Proved	0.40	2.6	2.3	9.1
Underground – Probable	2.48	3.4	0.9	6.1
Total	**3.01**	**3.1**	**1.2**	**6.6**
Contained (kt)		**304koz**	**35.8kt**	

Project status: Feasibility Study completed in May 2025[1]. Production commenced late-August 2026.

Offtake: No offtake available for the first 7 years. Antimony concentrate agreement with Wogen Resources: 5,500t/pa for 7 years. Gold concentrate with Glencore: 15,000tpa gold concentrate for 7 years.

Min Mine Life (yrs): 8[1]

IRR: Post-tax IRR: 102%[1]

Capital cost: A$133m (net of pre-production revenue)[1]

NPV: Post-tax $NPV_{8\%}$: A$694m[1]

Product and average annual production rate:

- **Gold doré and Gold concentrate** (containing 40,500ozpa Au)
- **Antimony concentrate** (containing 4,900tpa Sb)

[1] *Hillgrove Antimony-Gold Project Delivers Compelling Definitive Feasibility Study, LRV announcement (6 May 2025). Mid case results presented (Au A$2,850/oz, Sb A$41,000/t).*

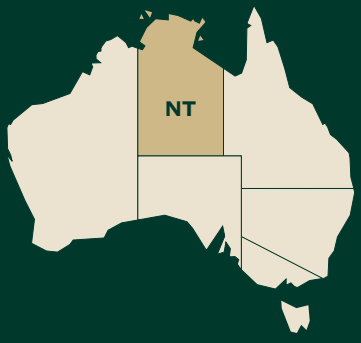
Bismuth, Cobalt

Rover 1 Project

Castile Resources Ltd

ASX-listed (CST), OTC (CLRSF)

castile.com.au



Commodity(ies):

Gold, Copper, Bismuth, Cobalt, Magnetite (Fe_3O_4)

Investment summary

Rover 1 is Castile Resources' 100%-owned copper-gold-bismuth-cobalt-magnetite project in the Northern Territory. Stage 1 will include the mine and on-site processing plant located 75km southwest of Tennant Creek, NT which will produce four separate mineral concentrates. In Stage 2, these concentrates will be refined in a refinery to be constructed at Middle Arm, Darwin. Work on the EIS is nearing completion with EPA referral targeted for late-2026. Castile is working towards a Mining Agreement with the Central Land Council. Rover 1's five-metal revenue stream is unique among Australian IOCG projects. Castile is seeking offtake and welcomes investment discussions.

Project description

Following completion of a 2022 PFS, an Updated Scoping Study was completed in August 2026, incorporating bismuth and confirming robust economics. The Updated Scoping Study is based on an underground mine, accessed via a decline from a box cut, feeding a 750,000tpa concentrator at the Rover 1 site using conventional crush-grind-float processing with gravity gold recovery and magnetic separation. Stage 1 will produce four concentrates for sale to offshore smelters and traders: high-grade copper, gold (pyrite), bismuth and 96.4% Fe_3O_4 magnetite concentrates. Stage 2 adds a downstream refinery at Middle Arm, Darwin, funded from Stage 1 cashflows and commencing in year 4. The Updated Scoping Study is based on production of bismuth concentrate. Final bismuth extraction testwork is underway ahead of the Bankable Feasibility Study, due later in 2026. The Rover 1 deposit remains open at depth and along strike, with further upside from adjacent prospects. Underground mining and paste-fill backfilling minimise surface disturbance and tailings footprint.

Mineral Resources as at October 2025 (1.0g/t AuEq cut-off)**:**

Resource Category	Tonnes (Mt)	Au (%)	Cu (%)	Bi (%)	Co (%)	Fe_3O_4 (%)
Indicated	5.65	1.38	1.30	0.11	0.07	24.2
Inferred	2.21	1.27	1.10	0.12	0.06	23.5
Total	**7.86**	**1.35**	**1.24**	**0.11**	**0.07**	**24.0**
Contained		**341.3koz**	**97.4kt**	**8.9kt**	**5.2kt**	**1,883kt**

Ore Reserves as stated in December 2022 PFS to be updated with 2026 BFS:

Reserve Category	Tonnes (Mt)	Au (%)	Cu (%)	Co (%)	Fe_3O_4 (%)
Probable	3.11	2.02	1.52	0.07	22.9
Total	**3.11**	**2.02**	**1.52**	**0.07**	**22.9**
Contained		**201.8koz**	**47.4kt**	**2.2kt**	**713kt**

Project status: Pre-Feasibility completed in Dec 2022. Scoping Study on Stages 1 and 2, including bismuth, completed Aug 2026.[1]

Offtake: Bismuth, copper, gold and magnetite concentrates: 100% remaining available (no binding offtake yet; informal discussions underway).

Min Mine Life (yrs): 11[1]

IRR: Pre-tax IRR: 59%[1]

Capital cost: A$170.5m[1] *(Stage 1 only. Stage 2 capex funded by operating cash flows)*

NPV: Pre-tax $NPV_{8\%}$: A$1,067.5m[1]

Product and average annual production rate:

Stage 1 (concentrate production) – Year 1 to Year 3[1]

- Bismuth Concentrate; High-Grade Copper Concentrate; Gold (Pyrite) Concentrate: High Grade Magnetite Concentrate

Stage 2 (refinery production) – Year 4 to Year 11[1]

- Bismuth Concentrate; Copper Metal: ~7,200tpa; Au Doré: 26,800ozpa; Cobalt Hydroxide: 300tpa; High Grade Magnetite Concentrate: ~110ktpa at 96.5% Fe_3O_4

[1] *2026 Rover 1 Scoping Study Produces Outstanding Results, CST announcement (20 August 2026)*

Cobalt, Nickel

Broken Hill Cobalt Project

Cobalt Blue Holdings Ltd
ASX-listed (COB)
cobaltblueholdings.com



Commodity(ies):
Cobalt, Sulphur, Nickel

Investment summary

Cobalt Blue Holdings is advancing the Broken Hill Cobalt Project (BHCP), one of Australia's largest undeveloped primary cobalt resources, located near Broken Hill, NSW. The Project holds Commonwealth Major Project Status and is intended to provide upstream feedstock for the Kwinana Cobalt Refinery, creating an integrated Australian mine-to-refinery cobalt supply chain. Environmental assessment and approvals are progressing, with the draft Environmental Impact Statement (EIS) ~80% complete. The Scoping Report outlining the key matters to be addressed in the EIS is being finalised and is expected to be submitted during Q3 2026. Native Title is not expected to apply to the land affected by the project however COB is undertaking a detailed Aboriginal heritage assessment and engagement with Traditional Owners as part of preparation of the EIS. COB welcomes discussions regarding offtake and investment.

Project description

BHCP comprises an open-pit mine and on-site processing plant near Broken Hill, NSW, producing cobalt-rich mixed hydroxide precipitate (MHP) and high-purity elemental sulphur. The proprietary processing flowsheet, validated over five years at the Broken Hill Technology Centre, treats cobalt-pyrite ore via flotation concentration, pressure oxidation, and hydrometallurgical refining. Following completion of the initial BHCP Pre-Feasibility Study (PFS) in 2020, an Updated PFS is underway targeting completion in Q4 2026 aimed at improving project economics by optimising project scale, reducing start-up capex, and examining staged development pathways with a minimum 10-year life. MHP will feed directly to the planned Kwinana Cobalt Refinery in Western Australia for conversion to battery-grade cobalt sulphate and alloy-grade cobalt metal. Commonwealth Major Project Status was extended for 3 years in 2025.

Mineral Resources as at November 2023 (275 ppm CoEq cut-off)**:**

Resource Category	Tonnes (Mt)	Co (%)	S (%)	Ni (%)	CoEq (%)
Measured	23.7	0.091	9.6	0.017	0.114
Indicated	59.9	0.064	7.0	0.013	0.081
Inferred	43.0	0.063	7.0	0.013	0.080
Total	**126.5**	**0.069**	**7.5**	**0.013**	**0.087**
Contained (kt)		**87kt**	**9,510kt**	**16kt**	

Project status: PFS Completed July 2020. Updated PFS in progress targeting completion Q4 2026.

Offtake: 100% available – COB actively seeks binding offtake agreements.

Min Mine Life (yrs): 10–20

IRR: Not available until Updated PFS completed.

Capital cost: Not available until Updated PFS completed.

NPV: Not available until Updated PFS completed.

Product and average annual production rate:

- **Cobalt mixed hydroxide precipitate:** Quantity not available until Updated PFS completed.

Cobalt, Nickel

Kalgoorlie Nickel Project and Goongarrie Hub

Ardea Resources Ltd
ASX-listed (ARL)
ardearesources.com.au



Commodity(ies):
Cobalt, Nickel, Scandium, REE

Investment summary

The 2023 Goongarrie Hub PFS confirmed the Project's status as one of the world's largest, lowest-cost sources of battery materials. Mining leases granted and expanded environmental baseline surveys to be finalised in 2026 for State and Commonwealth referrals. ARL's ESG policies and governance structure ensures Project development will be undertaken to the highest standards with the Company enjoying strong local stakeholder support. Mining and Heritage Protection Agreement negotiations with Traditional Owner groups have commenced. In April 2024, ARL selected Sumitomo Metal Mining and Mitsubishi Corporation as its development partners, who are earning a 50% interest in the Goongarrie Hub.

Project description

The Goongarrie Hub is the developed world's premier nickel-cobalt project (with scandium production potential as a co-product) associated with world-class infrastructure in the well-established, supportive Kalgoorlie mining district in WA. Low strip ratio open-pit mining will feed 3.5Mtpa goethite dominated ore into two high-pressure acid leach autoclaves (HPAL) over a +40 year life. ARL's PFS considered proven hydrometallurgical processing to produce a Ni-Co mixed hydroxide precipitate (MHP) product. Power will be generated utilising the waste steam from the on-site acid plant, reducing CO_2 emissions. The Project DFS is assessing a switch to a higher purity mixed sulphide precipitate (MSP) final product, targeting completion in late 2026. Goongarrie is part of ARL's greater Kalgoorlie Nickel Project (KNP), the largest nickel-cobalt project in the developed world providing optionality to develop multiple processing hubs and expand production, including scandium. Ardea also controls 20km of strike at Kalpini that is highly prospective for other Critical Minerals and primary nickel sulphides.

Mineral Resources as at June 2023 (0.5% Ni cut-off) at Goongarrie Hub**:**

Resource Category	Tonnes (Mt)	Ni (%)	Co (%)	Sc (ppm)
Measured	18	0.94	0.085	40
Indicated	277	0.70	0.046	23
Inferred	289	0.67	0.037	23
Total	**584**	**0.69**	**0.043**	**25**
Contained (kt)		**4,044**	**250**	**4.0**

Ore Reserves as at July 2023:

Reserve Category	Tonnes (Mt)	Ni (%)	Co (%)
Proved	16.7	0.96	0.09
Probable	177.4	0.68	0.05
Total	**194.1**	**0.70**	**0.05**
Contained (kt)		**1,365**	**99**

Project status: Pre-Feasibility Study (July 2023)[1]. Feasibility Study underway targeting completion in late-2026.

Offtake: 25% available.

Min Mine Life (yrs): 40[1]

IRR: Post-tax IRR: 23%[1]

Capital cost: A$3.117b[1]

NPV: Post-tax $NPV_{7\%}$: A$4.980b[1]

Product and average annual production rate:

- **Mixed hydroxide precipitate** (39.9% Ni and 2.9% Co): 145.4ktpa (containing: 29.0ktpa nickel metal and 2.1ktpa cobalt metal)[1]

LOM averages, higher in initial years with Year 1 to 5 (post ramp up) production >34ktpa nickel and >3ktpa cobalt.

[1] *Ardea Kalgoorlie Nickel Project Goongarrie Hub Ore Reserves and PFS, ARL announcement (5 July 2023)*

Cobalt, Nickel

NiWest Nickel Cobalt Project

Alliance Nickel Ltd

ASX-listed (AXN)

alliancenickel.au



Commodity(ies):

Nickel (as nickel sulphate hexahydrate) and Cobalt (as cobalt sulphate heptahydrate)

Investment summary

AXN is an emerging critical metals producer focused on developing its high-grade NiWest Nickel-Cobalt Project, located near Leonora, WA, and adjacent to Glencore's Murrin Murrin Mine. The NiWest Project will produce battery-grade nickel and cobalt sulphates for pCAM/CAM used in Nickel Cobalt Manganese (NMC) EV batteries. EPA referral has been submitted, along with a groundwater licencing application. The Nyalpa Pirniku People are the Native Title claimant group. Major Project Status was awarded in May 2024. A partnership with Stellantis comprises an equity shareholding and offtake for ~40% of production (terms under renegotiation). Additional offtake, equity and project debt are sought.

Project description

The NiWest DFS completed in November 2024 confirmed a long-life battery-sulphate project based on a low-strip (2.0:1) near surface open-pit laterite mine targeting ~2.3 Mtpa ROM ore production at 1.06% Ni and 0.07% Co for the first 27 years, with an opportunity to extend the high-grade profile through potential Inferred Resource conversion. Ore will be processed in an on-site processing plant via crushing, agglomeration and heap leach, then pregnant liquor solution neutralisation, direct solvent extraction and crystallisation to produce high-purity (+99.95%) nickel and cobalt sulphates (~88 ktpa $NiSO_4$ and ~7 ktpa $CoSO_4$), with design recoveries of 78% Ni and 85% Co. The Project is serviced by existing rail, bitumen roads, mining towns and communications. A capital-optimisation program is underway evaluating atmospheric vat leaching as an alternative to the DFS heap-leach flowsheet, targeting lower water demand and water-infrastructure capital. Bulk-sample vat leach testwork is underway, with interim results due Q4 2026.

Mineral Resources as at November 2023
(0.8% Ni cut-off):

Resource Category	Tonnes (Mt)	Ni (%)	Co (%)
Measured	17.77	1.07	0.069
Indicated	58.04	1.06	0.073
Inferred	17.59	0.94	0.060
Total	**93.40**	**1.04**	**0.070**
Contained (kt)		**971**	**65**

Ore Reserves as at November 2024
(0.5% Ni cut-off):

Reserve Category	Orebody	Tonnes (Mt)	Ni (%)	Co (%)
Probable	Mt Kilkenny	37.4	0.95	0.07
Probable	Hepi	4.2	0.99	0.06
Probable	Wanbanna	12.4	0.94	0.06
Probable	Eucalyptus	30.7	0.93	0.06
Total		**84.7**	**0.94**	**0.06**
Contained (kt)			**799**	**55**

Project status: Feasibility Study (November 2024).[1]

Offtake: Stellantis offtake for 40% of production is under renegotiation. Balance of production available. Non-binding Samsung SDI term sheet previously executed.

Min Mine Life (yrs): 27 (mine)[1]
35 (processing)[1]

IRR: Post-tax IRR: 17.64%[1]

Capital cost: A$1,651m[1]

NPV: Post-tax $NPV_{8\%}$: A$1,504m[1]

Product and average annual production rate:

- **Nickel sulphate** (hexahydrate 99.95% purity): 87.8ktpa (containing 20ktpa nickel) (first 27 years production)[1]
- **Cobalt sulphate** (heptahydrate >99.9% purity): 7.2ktpa (containing 1.5ktpa cobalt) (first 27 years production)[1]

[1] *Alliance Delivers Robust NiWest DFS and Ore Reserves Update, AXN announcement (21 Nov 2024)*

Cobalt, Nickel

Wingellina Nickel-Cobalt Project

NiCo Resources Ltd

ASX-listed (NC1)

nicoresources.com.au



Commodity(ies):
Nickel, Cobalt, Scandium

Investment summary

The Wingellina Project is a globally significant, long-life nickel-cobalt project. A PFS was completed in December 2022, demonstrating attractive economics for the Project. Metallurgical testwork has since confirmed the leaching kinetics and suitability of High-Pressure Acid Leaching (HPAL) as the preferred processing option. EPA approval was granted in 2024 and a Project Agreement with the Traditional Owners registered in 2011. The Project was awarded Major Project Status by the Federal Government in November 2024. Wingellina offers a number of development options, and the company welcomes discussions with strategic and offtake partners to assist in the development of the Project.

Project description

The Project is a world-class, nickel-cobalt oxide deposit and forms part of NiCo Resources' Central Musgrave Project (CMP), located near BHP's West Musgrave development in WA. Wingellina is one of the world's largest limonite deposits, ideal for HPAL due to its high Fe content and low Mg grades and excellent leaching kinetics. Low cost open-pit mining operations (1.1:1 LOM strip ratio) will mine ~4.3mtpa ROM to be processed on-site producing a mixed hydroxide precipitate (MHP) at ~40% Ni and ~3% Co, containing around 40ktpa nickel and 3ktpa cobalt. The Project will use up to around 90% renewable energy, limiting CO_2 emissions. The Project has nearby access to significant good quality water resources (2,000tds) and neutraliser (calcrete 40mt) which has been used in all recent metallurgical testwork. Notably, the Project benefits from the A$1.2b in government funding allocated to upgrade and seal the Outback Way – a key transport corridor.

Mineral Resources as at August 2024
(0.4% nickel cut-off)**:**

Resource Category	Tonnes (Mt)	Nickel (%)	Cobalt (%)
Indicated	164.1	0.93	0.06
Inferred	23.3	0.72	0.03
Total	**187.3**	**0.91**	**0.06**
Contained (kt)		**1,698**	**106**

Ore Reserves as at December 2016:

Reserve Category	Tonnes (Mt)	Nickel (%)	Cobalt (%)
Probable	168.4	0.93	0.07
Total	**168.4**	**0.93**	**0.07**
Contained (kt)		**1,561**	**122.6**

- **Project status:** Pre-Feasibility Study (December 2022)[1].
- **Offtake:** 100% available (Nickel and Cobalt).
- **Min Mine Life (yrs):** 40+[1]
- **IRR:** Post-tax IRR (ungeared): 18%[1]
- **Capital cost:** A$2.9b (incl. A$0.5b contingency)[1]
- **NPV:** Post-tax real $NPV_{8\%}$: A$3.34b[1] (US$21,472/t nickel price, A$: US$: 0.67 exchange rate)
- **Product and average annual production rate:**
  - **Mixed hydroxide precipitate** (MHP) (40% Ni and 3% Co): 120,000tpa[1] (containing ~40ktpa nickel and ~3ktpa cobalt metal)

[1] *Wingellina Nickel-Cobalt Project Pre-Feasibility Study, NC1 announcement 22 December 2022*

Fluorine

Speewah Fluorite Project

Japan Australia Fluorite Associates Pty Ltd (JAFA)

ASX-listed Tivan Ltd (ASX: TVN), in joint venture with Sumitomo Corporation, Japanese Government agency JOGMEC, and ETFS Capital. TVN is project manager

tivan.com.au



Commodity(ies):

Fluorite: acid-grade fluorspar (>97% CaF_2) and metallurgical-grade fluorspar

Investment summary

The Speewah Fluorite Project is positioned to become Australia's first integrated fluorite mine and processing facility, establishing an entirely new critical-minerals industry in the East Kimberley, Western Australia. The Project will produce high-grade acid-purity fluorspar (>97% CaF_2) used in semiconductors, EV batteries, and advanced energy systems. Speewah combines a world-class resource, premium low-impurity product, onsite processing that will establish new sovereign capability, and established export logistics. Environmental approval processes are underway, and formal agreements with Traditional Owners are being advanced. The Project is supported by Federal Major Project Status and a A$7.4 million International Partnerships in Critical Minerals grant. The Project is being advanced through a landmark Australia-Japan partnership with Sumitomo Corporation, JOGMEC, and ETFS Capital and has been jointly identified by the Australian and Japanese Governments as a key project capable of materially diversifying critical-mineral supply chains. Sumitomo holds offtake rights to up to 100% of planned production, including 80% on a take-or-pay basis. DFS and project financing are advancing towards FID.

Project description

The Feasibility Study completed in March 2026 confirmed strong project economics for the Project. ~1.15mtpa ore will be mined from a conventional open-pit and processed on site via crushing, grinding, and flotation to produce ~149,000tpa high-purity acidspar and a metallurgical-grade by-product for export through Wyndham Port. Mini-pilot testwork has produced acidspar averaging 98.6% CaF_2, reinforcing product quality and supporting customer qualification. The February 2026 resource update is not reflected in the Feasibility Study, providing upside through mine-plan optimisation and potential underground development. Tivan's permanent Kununurra office supports its commitment to strong ESG performance, sustained local engagement and durable stakeholder alignment.

High-Grade Mineral Resource as at February 2026 (10% CaF_2 Cut-off):

Resource Category	Tonnes (Mt)	CaF^2 (%)
Indicated	6.8	21.9
Inferred	2.8	17.4
Total	**9.6**	**20.6**
Contained (kt)		**1,985**

The Speewah High-Grade Mineral Resource above is included within a broader Speewah Fluorite Mineral Resource at a 2% CaF_2 cut-off grade of 43.2Mt at 8.3%CaF_2, containing 3,588kt CaF_2.

Project status: Feasibility Study (20 March 2026).[1]

Offtake: 0% available (Sumitomo Corporation has the rights to 100% of the offtake (80% on a take-or-pay basis)).

Min Mine Life (yrs): 10[1]. Potential for extension through mine-plan optimisation, resource expansion and underground development.

IRR: Pre-tax IRR: 34.6%[1]; Post-tax IRR: 28.9%[1]

Capital cost: A$301.3m[1]

NPV: Pre-tax $NPV_{8\%}$: A$481.2m[1]
Post-tax $NPV_{8\%}$: A$343.9m[1]

Product and average annual production rate:

- **Acidspar** (98% CaF_2): 149,000 tpa (wet)[1]
- **Metspar byproduct** (85% CaF_2): 15,500 tpa[1]

[1] *Speewah Fluorite Project Feasibility Study (20 March 2026). Base Case results presented.*

Graphite

Battery Anode Material Project

Renascor Resources Ltd

ASX-listed (RNU)

renascor.com.au



Commodity(ies):
Graphite

Investment summary

Renascor's Battery Anode Material (BAM) Project is a vertically integrated graphite project designed to produce purified spherical graphite (PSG) for use in lithium-ion battery anodes. Graphite from the Siviour deposit will be mined and concentrated on the Eyre Peninsula and trucked to Bolivar, SA where it will be processed into PSG. Siviour is development-ready, with a 2023 DFS, Mining Lease, environmental approvals, a registered Indigenous Land Use Agreement and completed early contractor involvement process for the upstream graphite mining and processing operation. The BAM Project holds Australian Government Major Project Status, and the upstream operation has a conditionally approved A$185m Export Finance Australia loan facility. The BAM Project benefits from the large, shallow Siviour resource, favourable geology and vertical integration, providing a competitive and secure Australian mine-to-PSG supply chain. Renascor welcomes discussions with investment and offtake partners.

Project description

The integrated BAM Definitive Feasibility Study completed in 2023 is based on a staged development of the Siviour graphite mine and the Bolivar PSG facility. During Stage 1, ~75ktpa Siviour graphite concentrate will be processed into ~50ktpa of PSG, with capacity doubled in Stage 2. Graphite concentrate will also be sold during initial ramp-up years. Siviour graphite ore will be conventionally mined in a shallow open-pit and processed in an on-site concentrator using crushing, grinding and flotation to produce +95% flake graphite concentrate. A large-scale, continuous purification demonstration plant has been constructed in Adelaide and is processing graphite and reagents through Renascor's integrated HF-free purification flowsheet under operating conditions.

Mineral Resources as at September 2023
(2.3% TGC cut-off)**:**

Resource Category	Tonnes (Mt)	TGC (%)
Measured	16.9	8.6%
Indicated	56.2	6.7%
Inferred	50.5	6.5%
Total	**123.6**	**6.9%**
Contained (kt)		**8,500**

Ore Reserves as at August 2023:

Reserve Category	Tonnes (Mt)	TGC (%)
Proved	16.8	8.2
Probable	45.0	6.6
Total	**61.8**	**7.0**
Contained (kt)		**4,300**

Project status: Feasibility Study – Integrated BAM Study (August 2023).[1]

Offtake: No binding offtake contracted; up to 100% available, subject to existing non-binding arrangements.

Min Mine Life (yrs): 40[1]

IRR:
Stage 1 – Post-tax IRR: 26%[1]
Stage 2 – Post-tax IRR: 26%[1]

Capital cost:
Stage 1 – A$609m (A$215m Mine and Processing, A$395m PSG Facility)[1]
Stage 2 – A$551m (A$173m Mine and Processing, A$377m PSG Facility)[1]

NPV:
Stage 1 – Post-tax $NPV_{10\%}$: A$1.5b[1]
Stage 2 – Post-tax $NPV_{10\%}$: A$1.0b[1]

Product and average annual production rate:
- **Stage 1** – PSG: 50ktpa[1]
- **Stage 2** – PSG: 100ktpa[1]

[1] *Siviour Battery Anode Material Study Results, RNU announcement (8 August 2023)*

Graphite

Esmeralda Graphite Project

Graphinex Pty Ltd

Privately owned, with Idemitsu Australia as a strategic shareholder

graphinex.com.au



Commodity(ies):
Graphite

Investment summary

Graphinex is developing the Esmeralda Graphite Project, approximately 70 km south of Croydon in Queensland, as the upstream foundation of an integrated mine-to-anode material business. Graphite concentrate will be supplied from the Esmeralda mine located near Croydon, for processing into Coated Spherical Purified Graphite (CSPG) in Townsville, QLD. The EIS has been lodged, the project has Coordinated and Prescribed Project status, is under the CAAT Charter and the EPBC referral was determined not to be a controlled action. Remaining approvals are being progressed and First Nations arrangements have been finalised. Graphinex welcomes discussions with strategic investors, financing partners and customers seeking long-term battery anode material supply.

Project description

The Optimised PFS, completed in Feb 2026 on a staged integrated mine-to anode project, demonstrated robust economics over a 51-year mine life. In Stage 1, 1.2 Mtpa ROM ore will be open-cut mined from the large scale, granite-hosted Esmeralda graphite deposit and processed on-site using crushing, grinding and conventional flotation to produce approximately 80ktpa graphite concentrate at 95% TGC. Stage 2 will double the capacity. Concentrate will supply Graphinex's downstream battery anode material facilities, where it will be spheronised, purified and coated to produce CSPG. The staged development targets 50ktpa of CSPG active battery-anode material in Stage 1, expanding to 100ktpa in Stage 2. The orebody has further exploration potential along strike and at depth. The project benefits from a low strip ratio, a long 50+ year operating life and renewable power. Results from Graphinex's commissioned Townsville demonstration facility have validated the flowsheet, product quality and yields used in project development. The DFS is nearing completion.

Mineral Resources as at February 2026
(Total Graphitic Carbon 3% cut-off)**:**

Resource Category	Tonnes (Mt)	TGC (%)
Measured	73.0	6.1
Indicated	88.1	5.9
Inferred	149.3	6.3
Total	**310.4**	**6.1**
Contained (kt)		**19.2**

Ore Reserves as at April 2026:

Reserve Category	Tonnes (Mt)	TGC (%)
Proved	102.89	4.97
Probable	121.43	4.67
Total	**224.32**	**4.81**
Contained (kt)		**10,789**

Project status: Pre-Feasibility Study (February 2026).[1]

Offtake: Coated purified spherical graphite: 100% of binding offtake currently available. Graphinex is progressing product qualification, non-binding arrangements and negotiations with potential customers and strategic partners.

Min Mine Life (yrs): 51[1]

IRR: Post-tax IRR: 32.9%[1]

Capital cost: A$532m[1]

NPV: Post-tax $NPV_{8\%}$: US$2.66b[1]

Product and average annual production rate:

- **CSPG:** 50ktpa in Stage 1 and up to 100ktpa in Stage 2[1]

[1] *Esmeralda Graphite Project – Pre-Feasibility Study (February 2026)*

Graphite

McIntosh Graphite Project

GCM Corporation Ltd (80%), NH3 Clean Energy Ltd (20%)

ASX-listed (GCM), ASX-listed (NH3)

gcmcorporation.com



Commodity(ies):
Graphite

Investment summary

GCM plans to develop an open cut mine and on-site graphite concentrator at its McIntosh Graphite Project to produce graphite concentrate for supply to both traditional industrial and downstream markets. The majority of baseline environmental studies have been completed and regulatory approvals are being progressed. GCM is seeking offtake partners and welcomes investment discussions to support project development and downstream integration.

Project description

The McIntosh Graphite Project is located in WA's Kimberley region and hosts one of Australia's largest flake graphite resources. The Pre-Feasibility Study (PFS) completed in June 2025 demonstrates robust economics for the Project based on mining and on-site processing of 380ktpa ore producing ~6.1ktpa of graphite concentrate at 95% TGC and ~7.4ktpa of micronised graphite concentrate at 95% TGC (~13.5ktpa total concentrate). Ore will be mined via conventional open-pit mining and processed on-site via flotation producing flake graphite concentrate at 95% TGC and recoveries >90%. The Project is amenable to fine flake products and an on-site micronising plant will further process ~55% of the graphite concentrate to produce a micronised graphite concentrate. Metallurgical testwork is continuing, aimed at further refining concentrate for downstream testwork and customer validation. The concentrate produced will also be used for testing with GCM's VHD technology, offering the potential to become a vertically integrated graphite and technology business. McIntosh benefits from significant exploration upside, with an Exploration Target of 111-157Mt @ 3.5-5% TGC. The Project is located near key infrastructure, including sealed roads and the Wyndham deep-water port, providing direct access to global export markets.

Mineral Resources as at June 2025 (2% and 3% TGC cut-off):

Resource Category	Tonnes (Mt)	TGC (g/t)
Indicated	21.7	4.22
Inferred	10.9	4.33
Total	**32.6**	**4.25**
Contained (kt)		**1,385**

Ore Reserves as at June 2025 (2% TGC cut-off):

Reserve Category	Tonnes (Mt)	TGC (g/t)
Probable	11.1	3.88
Total	**11.1**	**3.88**
Contained (kt)		**432**

Project status: Pre-Feasibility Study completed in June 2025.[1]

Offtake: 100% available.

Min Mine Life (yrs): 32.5[1]

IRR: Post-Tax IRR: 25.3%[1]

Capital cost: A$55.2m[1]

NPV: Post-tax $NPV_{8\%}$: A$234m[1]

Product and average annual production rate:

- **Graphite flake concentrate** (95%TGC): 6.1kt/pa[1]
- **Micronised Graphite Concentrate** (95%TGC): 7.4kt/pa[1]

[1] *McIntosh PFS, GCM announcement (30 June 2025)*

Graphite

Uley 2 Project – Quantum Sunlands Eyre Peninsula Graphite Hub (EP Graphite Hub)

Quantum Graphite Ltd (QGL) and Sunlands Pure Investments LLC (SPI)

ASX-listed (QGL) / Oman company controlled by QGL

quantumgraphite.com



Commodity(ies):

Flake Graphite

Investment summary

Quantum Graphite and the Sunlands Pure Group (SPG) are developing an integrated graphite supply chain linking mining from the historic Uley 2 mine and graphite concentrate production at the nearby Eyre Peninsula Graphite Hub in South Australia with downstream purification at SPG's refinery to be built in Oman. The project offers investors exposure to secure graphite supply, downstream value-addition and an independent global critical minerals supply chain directly linked to Li-ion battery anode and thermal energy storage market segments. The project partners are currently negotiating debt capital terms for 50% of the capital cost and welcome enquiries for offtake of the refined graphite production.

Project description

A Value Engineering Assessment and DFS Update completed in Dec 2023 (2023 DFS) confirmed superior returns from the Uley 2 Graphite Project based on open pit mining of ~1.2Mtpa ore from the historic Uley Mine and processing on-site via conventional milling, froth flotation and proprietary sequential polishing to produce ~100ktpa of flake graphite concentrate (>96% TGC). The concentrate will be exported to the SPG refinery being built in Oman, to produce refined purified graphite (returns from SPG refinery are not included in Dec 2023 DFS). Integration of processing and refining operations enhances flake graphite recoveries, maximises flake particle size and achieves a high value purified product. Uley 2 is part of the historic Mikkira graphite province, one of the world's largest natural coarse flake graphite provinces. It is fully permitted and development ready with FEED studies underway. The binding supply agreement between QGL and SPG mandates expansion of production to 500ktpa within seven years of project commencement.

Mineral Resources as at November 2021
(3.5% TGC cut-off)**:**

Resource Category	Tonnes (Mt)	TGC (%)
Measured	0.8	15.6
Indicated	4.2	10.4
Inferred	2.2	8.9
Total	**7.2**	**10.5**
Contained (kt)		**757**

Ore Reserves as at December 2023:

Reserve Category	Tonnes (Mt)	TGC (%)
Proved	0.81	11.66
Probable	3.19	11.95
Total	**4.00**	**11.89**
Contained (kt)		**476**

- **Project status:** Feasibility Study: Stage 1 – graphite concentrate production, completed Dec 2023.[1]
- **Offtake:** 100% offtake committed to Sunlands Pure Buraimi, the Oman-based refiner, for the first twenty years.
- **Min Mine Life (yrs):** 12[1] (Uley 2, Stage 1 only)
- **IRR:** Pre-tax IRR: 41.17%[1]
- **Capital cost:** A$152m[1]
- **NPV:** Pre-tax $NPV_{8.5}$%: A$242m[1]
- **Product and average annual production rate:**
  - **Graphite concentrate** (94% TGC): 100ktpa[1] (comprising: Ex. Large Flake +300µm, 97.8% gC, Large Flake -300+150µm, 97.2% gC, Medium Flake -150+75µm, 96.6% gC)

[1] *Uley 2 DFS Financial Update, QGL announcement (11 December 2023)*

High Purity Alumina

HPA Project

Andromeda Metals Ltd

ASX-listed (ADN)

andromet.com.au



Commodity(ies):
4N+ High Purity Alumina

Investment summary

Andromeda Metals is developing a vertically integrated High Purity Alumina (HPA) project targeting high-growth technology markets including semiconductors, LEDs, lithium-ion battery separators, advanced ceramics, defence and sapphire applications. Feedstock will be sourced from the Company's wholly owned Great White Kaolin (GWK) deposit located on Eyre Peninsula, and processed at a planned HPA facility in SA. The mine is in Pre-Construction with early site works and procurement of long lead time equipment completed. GWK has all key permits and approvals, First Nations heritage clearance and rehabilitation bond in place to commence construction. A non-binding agreement with Traxys provides a pathway to potential HPA US market entry. The Company is seeking strategic investment partners and customers looking to secure long-term supply.

Project description

The GWK deposit has a high aluminium grade (>36%Al_2O_3) and low levels of alkali metals and alkaline earth metals making it ideally suited for making >99.99 purity (4N+) HPA. Following a kaolin only DFS completed in 2023, the HPA Scoping Study completed in September 2025 demonstrated market-leading economics for the HPA project. Ore will be processed on site at GWK using hydro-mechanical processing, with ~30ktpa of processed kaolin transported to a proposed Processing Facility in SA, with a preferred location to be determined by further studies. The Processing Facility will produce ~10,000tpa of 4N+ HPA using Andromeda's proprietary low cost, low carbon technology. 4N+ HPA has been successfully produced at laboratory scale and in continuous pilot plant testwork. Ongoing pilot testwork is focused on flowsheet optimisation and providing product for customer qualification. These activities will also support the planned HPA PFS.

Mineral Resources as at November 2020 (using a cut-off of ISO brightness > 75 % in the < 45 µm)**:**

Resource Category	Tonnes (Mt)	<45 µm (Whole rock) (%)	Kaolinite + Halloysite (Whole rock) (%)	ISO brightness (in <45 µm) (%)	Al_2O_3 (in <45 µm) (%)	Fe_2O_3 (in <45 µm) (%)
Measured	5.7	50.2	46.4	83.9	36.7	0.52
Indicated	14.2	51.1	47.0	82.8	36.6	0.51
Inferred	14.7	49.3	45.2	83.3	36.4	0.51
Total	**34.6**	**50.2**	**46.2**	**83.2**	**36.5**	**0.51**
Contained (kt)		**17,369**	**NA**	**NA**	**6,351**	**NA**

Ore Reserves as at April 2022:

Reserve Category	Tonnes (Mt)	Yield (%)	ISO brightness(%)	Halloysite (%)	Fe_2O_3 (%)
Proved	5.1	45	84	14	84
Probable	10.0	46	83	10	83
Total	**15.1**	**46**	**84**	**11**	**84**
Contained (kt)		**6,946**	**NA**	**NA**	**NA**

Project status: HPA Scoping Study completed in September 2025[1]. Great White Kaolin Mine entered into Pre-Construction stage during 2026.

Offtake: 100% available (2,000tpa allocated to US market).

Min Mine Life (yrs): 22 year[1]. Ore reserve supports a longer 28-year life.

IRR: Post-tax IRR: 69%[1]

Capital cost: A$155m (includes ~30% contingency)[1]

NPV: Post-tax $NPV_{10\%}$: A$1,010m[1]

Product and average annual production rate:

- **4N+ High Purity Alumina** (99.99%+ purity Al_2O_3): 10,000tpa[1]

[1] *HPA Scoping Study, AND announcement (18 September 2025)*

High Purity Alumina

Lake Hope HPA

Impact Minerals Ltd

ASX-listed (IPT) 80%

impactminerals.com.au



Commodity(ies):

High Purity Alumina, Aluminium Chloride Hexahydrate, Sulphate of Potash

Investment summary

Lake Hope is an integrated ore-to-chemical operation project that will produce >99.99% (4N) High Purity Alumina (HPA) with feedstock mined from salt lake sediment at Lake Hope, located 550km east of Perth. Processed at a planned Perth-based facility, Lake Hope HPA will have an ultra-low radiogenic composition suited to semiconductors, technical ceramics, battery separator coatings and LED substrates. The Project is within First Nations Land, with a Mining Lease under application and access negotiations progressing alongside environmental, hydrogeological, geotechnical and engineering studies. Impact is seeking offtake and welcomes discussions with customers and investors as pilot testwork and qualification activities ramp-up.

Project description

Lake Hope comprises sulphate sediments in playa lakes with sub-micron grainsize salts – these unique properties enable purification to 99.99% Al_2O_3. A PFS completed in June 2025 is based on simple surface mining of ~54ktpa unconsolidated salt lake sediments from Lake Hope over a 33 year mine-life. The feedstock will be transported to a facility in the Perth area for processing via a low-temperature alkaline leach and hydrochloric acid purification to produce ~10ktpa of 4N HPA. The innovative, patented processing flowsheet has been demonstrated in Impact's Pilot Plant facility, a co-operative research project with Edith Cowan University. Pilot testwork to date has focused on small-scale batch production, with larger-scale testwork planned for late-2026. This work will inform demonstration plant scale-up through to 2028, targeting 500tpa of 4N HPA production in 2028–2029 to underpin commercial qualification and offtake activities. Commercial-scale production is planned post-2029. Low leach temperatures enable lower-carbon intensity processing and reduced OPEX, with low environmental disturbance free digging activities at the mine site.

Mineral Resources as at November 2024
(no lower cut-off)**:**

Resource Category	Tonnes (Mt)	Al_2O_3 (%)
Measured	0.73	25.8
Indicated	1.88	25.0
Inferred	0.17	23.1
Total	**2.79**	**25.1**
Contained (kt)		**700**

Ore Reserves as at June 2025:

Reserve Category	Tonnes (Mt)	Al_2O_3 (%)
Proved	0.61	25.9
Probable	1.12	26.0
Total	**1.73**	**26.0**
Contained (kt)		**449**

- **Project status:** Pre-Feasibility Study (June 2025).[1]
- **Offtake:** 100% Available.
- **Min Mine Life (yrs):** 33[1]
- **IRR:** Post-tax IRR: 47%[1]
- **Capital cost:** A$259m[1]
- **NPV:** Post-tax $NPV_{10\%}$: A$1,165m (with no by-product revenue)[1]
- **Product and average annual production rate:**
  - **High Purity Alumina** (99.99% Al_2O_3): 10ktpa[1]
  - **Sulphate of Potash by-product** (98.5% K_2SO_4): 20ktpa[1]

[1] *Lake Hope HPA Pre-Feasibility Study, IPT Announcement (17 June 2025)*

High Purity Alumina

premiumHPA®

Cadoux Ltd

ASX-listed (CCM); FSE-listed (SLD); OTC-listed (FYIR)

cadoux.com.au



Commodity(ies):
High Purity Alumina (HPA)

Investment summary

Cadoux Ltd is developing two critical minerals projects positioned for the global transition to electrification, advanced technology and secure supply chains. The Company's core premiumHPA® High Purity Alumina (HPA) project in WA is a vertically integrated staged development designed to produce premium-quality HPA for high-growth applications including lithium-ion battery separators, sapphire glass, LEDs and advanced technology. The premiumHPA® project provides a near-term pathway towards staged commercial production, supported by an established flowsheet, pilot plant testwork, customer qualification and a strong suite of project economics. Cadoux is also developing a rare earths project portfolio through its 50%-owned Minhub downstream processing project in Darwin and its Wimmera Mineral Sands strategy.

Project description

Cadoux completed the HPA project Feasibility Study in 2021 demonstrating compelling economics for the project based on a staged, integrated development of Cadoux kaolin mine located 220km NE of Perth providing feedstock to a HPA processing plant to be constructed at Kwinana, WA. Stage 1 will commence with a Small-Scale demonstration and production Plant (SSP) with initial ~1,000tpa capacity. This will be expanded in stages to achieve final commercial production of 10,000tpa of premium quality (>99.99% Al_2O_3) HPA. Kaolin will be mined in campaigns and beneficiated on-site before being trucked to Kwinana for processing via Cadoux's innovative hydrochloric acid leach and precipitation process to produce a range of premiumHPA® products. FEED studies and detailed design are underway for the SPP targeting FID in mid-2027. Environmental, native title and heritage approvals are in place for the mine site and project permitting has been completed for the Kwinana facility.

Mineral Resources as at March 2020
(20% Al_2O_3 cut-off grade)**:**

Resource Category	Tonnes (Mt)	Al_2O_3 (%)
Measured	0.481	23.56
Indicated	5.743	23.56
Inferred	5.046	21.45
Total	**11.269**	**22.51**
Contained (kt)		**2,537**

Ore Reserves as at March 2020:

Reserve Category	Tonnes (Mt)	Al_2O_3 (%)
Proved	0.290	24.9
Probable	2.914	24.8
Total	**3.205**	**24.8**
Contained (kt)		**795.0**

Project status: Feasibility Study (April 2021)[1]. FEED studies underway.

Offtake: 90% available. Currently qualifying product with potential customers and developing new markets. 10% qualified and earmarked for identified customer.

Min Mine Life (yrs): >50 years

IRR: Post-tax IRR: 55%[1]

Capital cost: US$202m[1]

NPV: Post-tax $NPV_{8\%}$: US$1.014b[1]

Product and average annual production rate:

- Stage 1 (SSP) – **premiumHPA® High Purity Alumina** (>99.995% Al_2O_3): 1,000-3,000tpa[1]
- Commercial Production – **premiumHPA® High Purity Alumina** (>99.995% Al_2O_3): 10,000tpa[1]

[1] *HPA Project Feasibility Study (April 2021)*

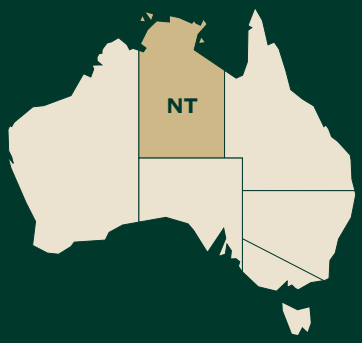
Lithium

Finniss Lithium Operation

Core Lithium Ltd (Core)

ASX-listed (CXO)

corelithium.com.au



Commodity(ies):

Lithium (in spodumene concentrate)

Investment summary

The Finniss Lithium Operation (Finniss) is a fully permitted lithium operation in Australia's Northern Territory and is the country's only lithium operation outside Western Australia. Finniss has existing open-pit and underground mining approvals, an operating processing plant, and established export infrastructure to Darwin Port, providing a significant development advantage. Core Lithium reached a Final Investment Decision in March 2026 and secured a fully funded restart supported by global strategic partners. Finniss offers a 20-year mine life, annual production of ~214ktpa of SC6 spodumene concentrate at steady state production and substantial exploration upside across the broader resource inventory. Core retains flexibility regarding future long-term offtake arrangements.

Project description

Finniss is located ~88 km south of Darwin in the Northern Territory and comprises both the Grants open-pit operation and BP33 underground development. Ore is processed through the on-site Dense Media Separation plant, producing spodumene concentrate for export through Darwin Port. The restart project targets annual production of ~214ktpa of spodumene concentrate (SC6 equivalent) over an initial 20-year mine-life. Finniss' processing plant has ~1.2Mtpa nameplate throughput capacity. The crushing circuit has capacity of 2.4Mtpa and processing throughput should not be constrained by crushing capacity. Key project advantages include existing operating infrastructure, direct port access, full project funding, and a low-cost brownfield restart pathway. Significant exploration upside exists across Finniss, including BP33, Blackbeard and other regional targets. Future growth opportunities include resource expansion and increased plant utilisation and expansion. Core maintains strong engagement with local communities, operates under established environmental and mining approvals, and remains committed to responsible ESG practices.

Mineral Resources as at April 2025 (0.5% Li_2O cut-off):

Resource Category	Tonnes (Mt)	Li_2O (%)
Measured	6.33	1.41
Indicated	21.9	1.29
Inferred	20.3	1.18
Total	**48.5**	**1.26**
Contained (kt)		**610**

Ore Reserves at October 2025:

	Grants[1]		BP33[2]		Carlton[3]		TSF/stockpiles[2]		Total	
Reserve Category	Tonnes (Mt)	Li_2O (%)	Tonnes (Mt)	Li_2O (%)	Tonnes (Mt)	Li_2O (%)	Tonnes (Mt)	Li_2O (%)	Tonnes (Mt)	Li_2O (%)
Proved	1.18	1.43	2.6	1.27	1.7	1.19	–	–	5.4	1.28
Probable	0.5	1.41	6.7	1.32	2.8	1.19	0.3	0.68	10.2	1.27
Total	**1.53**	**1.42**	**9.3**	**1.31**	**4.5**	**1.19**	**0.3**	**0.68**	**15.6**	**1.27**
Contained (kt)		**22**		**121**		**53**		**2**		**198**

[1] Effective date for Grants is 30 October 2025. [2] Effective date of the BP33 and TSF/stockpiles Ore Reserves is 30 April 2025.
[3] Effective date of the Carlton Ore Reserves is 5 September 2025.

Project status: FID and Restart Study completed in March 2026[1]. Production restarted in September 2026.

Offtake: 100% of spodumene concentrate available.

Min Mine Life (yrs): 20[1]

IRR: Post-tax IRR: 76.5%[1]

Capital cost: A$208m (restart capital including contingency)[1]

NPV: Post-tax $NPV_{8\%}$: A$837m[1]

Product and average annual production rate:

- **SC6 spodumene concentrate:** ~214ktpa at steady-state production

[1] FID and Funding Secured for Finniss Restart, CXO announcement (18 March 2026)

Lithium

Manna-Nova Lithium Project

Global Lithium Resources

ASX-listed (GL1)

globallithium.com.au



Commodity(ies):

Lithium (SC5.5 spodumene concentrate and 1.5% Li_2O DSO)

Investment summary

GL1 completed its Manna-Nova Lithium Project development Integration Study (to a feasibility study level) in September 2026. The Project combines the 100%-owned Manna Lithium Project with the Nova Operation being acquired from IGO, reducing required pre-production funding to A$180m and targeting FID in December quarter 2026, first DSO shipment in May 2027 and first spodumene concentrate in mid-2027. All permits and approvals and Traditional Owner agreements are in place for mining operations at Manna. GL1 seeks partners for unallocated concentrate (30% of total production) and DSO offtake and welcomes investment and funding discussions.

Project description

Manna Lithium Project is located 110 km east of Kalgoorlie in WA's Eastern Goldfields. Conventional open-pit mining will start in March 2027, and transition to underground mining from 2031. Ore mined from Manna will be hauled 135 km after road upgrades to Nova, where the existing crushing, milling and flotation plant will be converted for pegmatite ore processing using added ore sorting, magnetic separation, desliming and a brine pond. ~2.1mtpa ore will be mined at Manna and processed at the upgraded Nova plant to produce ~257ktpa of SC5.5 (5.5% Li_2O) spodumene concentrate over the first 7 years and a total of 2.684mt of SC5.5 spodumene concentrate over a 13-year producing life. Direct shipping ore will be sold initially, while the Nova plant modification is being completed. The project has a total Mineral Resource of 51.6Mt at 1.00% Li_2O and a Probable Ore Reserve of 20.96Mt at 0.89% Li_2O. Mineralisation remains open at depth, along strike and down dip. Reusing Nova's plant, power, water, camp, airport and tailings infrastructure reduces new construction and environmental disturbance.

Mineral Resources as at June 2024 (0.6% Li_2O cut-off)**:**

Resource Category	Tonnes (Mt)	Li_2O (%)
Indicated	32.9	1.04
Inferred	18.7	0.92
Total	**51.6**	**1.00**
Contained (kt)		**514.2**

Ore Reserves as at September 2026:

Reserve Category	Tonnes (Mt)	Li_2O (%)
Probable	20.9	0.89
Total	**20.9**	**0.89**
Contained (kt)		**185.2**

Project status: Feasibility Study completed in September 2026. Manna-Nova Integration Study completed in September 2026.[1]

Offtake: Spodumene concentrate: 70% contracted (Lopal 40%; Canmax 30%) and 30% unallocated. Advanced, non-binding DSO offtake and prepayment discussions.

Min Mine Life (yrs): 13

IRR: Post-tax IRR: 119.6%[1]

Capital cost: A$180m (funded)[1]

NPV: Post-tax $NPV_{8\%}$ real: A$946m[1]

Product and average annual production rate:

- **Spodumene concentrate** (5.5% Li_2O): 257,000tpa (average for the first seven years)
- **Direct shipping ore** (1.5% Li_2O): 337kt total campaign from March 2027 to early-2028 prior to concentrate production.

[1] *Manna-Nova Integration Study, GL1 announcement (16 September 2026)*

Lithium, Tantalum

Pilgangoora Operation

PLS Group Ltd

ASX-listed (PLS)

pls.com



Commodity(ies):

Lithium (spodumene concentrate), Tantalum (tantalite concentrate)

Investment summary

The Pilgangoora Operation is PLS' flagship hard rock lithium asset, located 140 kilometres south-east of Port Hedland in Western Australia's Pilbara region, on Nyamal and Kariyarra Country. Pilgangoora is the world's largest independently owned hard rock lithium operation and is fully permitted, with spodumene concentrate production capacity of ~1Mtpa. A June 2024 Pre-Feasibility Study confirmed a Pilgangoora 2Mtpa expansion (P2000 project) demonstrated highly accretive economics. PLS is now progressing the P2000 Feasibility Study targeting a FID in 2026 December Quarter. If approved, P2000 would double spodumene concentrate production capacity to ~2Mtpa. In June 2026, PLS approved a pre-FID capital expenditure of A$175m to progress early work on the P2000 project critical path. Existing long-term offtake agreements are in place and PLS welcomes discussions with potential customers and strategic partners.

Project description

Pilgangoora hosts one of the world's largest hard rock lithium deposits, with a Mineral Resource of 440Mt at 1.28% Li_2O and an Ore Reserve of 202.7Mt at 1.16% Li_2O, supporting an estimated 31 year mine-life. Currently, ~6.8Mtpa ore is mined from the Pilgangoora open-pit and processed on site via crushing and ore sorting circuit, pre-floatation magnetic separation and tantalum by-product recovery to produce ~1Mtpa spodumene concentrate at ~5.2% Li_2O for export through Port Hedland to leading lithium chemical converters. The P2000 project under assessment includes increasing open-pit mining capacity to 12.4Mtpa and doubling spodumene concentrate production capacity to ~2Mtpa using a similar process flowsheet. The operation benefits from established infrastructure, exploration upside, strong environmental, safety and community performance, and longstanding partnerships with Nyamal and Kariyarra Traditional Owners.

Mineral Resources as at June 26 (0.2% Li_2O cut-off):

Resource Category	Tonnes (Mt)	Li_2O (%)	Ta_2O_5 (ppm) (%)	Fe_2O_3 (%)
Measured	16.0	1.27	104.0	0.50
Indicated	354.0	1.28	120.0	0.62
Inferred	70.0	1.25	134.0	0.58
Total	**440.0**	**1.28**	**122.0**	**0.61**
Contained (kt)		**5,632**	**53.7**	**2,684**

Ore Reserves as at June 2026 (using 0.3% Li_2O cut-off):

Reserve Category	Tonnes (Mt)	Li_2O (%)	Ta_2O_5 (ppm) (%)	Fe_2O_3 (%)
Proved	10.1	1.24	116.0	1.05
Probable	192.6	1.16	101.0	1.13
Total	**202.7**	**1.16**	**101.0**	**1.13**
Contained (kt)		**2,351**	**20.5**	**2,291**

Project status: P2000 Expansion Project Pre-Feasibility Study completed June 2024.

Offtake: Existing long-term offtake agreements in place for current production.

Min Mine Life (yrs): 31

IRR: Not available

Capital cost: Not available

NPV: Not available

Product and average annual production rate:

- **Spodumene concentrate:** ~1Mtpa installed capacity (~2Mtpa potential future capacity)

Lithium, Tantalum

Tabba Tabba Project

Wildcat Resources Ltd

ASX-listed (WC8)

wildcatresources.com.au



Commodity(ies):

Lithium (spodumene and petalite concentrates), Tantalum (tantalum concentrate)

Investment summary

Wildcat Resources is progressing development of its 100%-owned Tabba Tabba Project – an advanced lithium and tantalum project located on granted Mining Leases, ~80 km by road from Port Hedland, Western Australia. Wildcat is advancing workstreams for the Tabba Tabba Definitive Feasibility Study (DFS) targeting completion in 2026 H2. Federal and State approvals, and an application for Commonwealth Major Project Status are currently under assessment following extensive environmental and heritage surveys. A Native Title Agreement was signed with the Nyamal Aboriginal Corporation in 2025. Wildcat invites discussions on offtake, equity, and strategic investments to support FID in 2027 H1.

Project description

The Tabba Tabba Project is located near the Pilgangoora and Wodgina lithium operations and benefits from an established mining region, infrastructure, technical expertise and established concentrate supply chains. A July 2025 PFS demonstrated a technically and financially robust project based on a staged development commencing with open-pit mining of 2.2mtpa ore and on-site processing using whole of ore flotation to produce a spodumene concentrate (Stage 1). Stage 2, commencing in year 6 and funded by Stage 1 cashflows, includes expansion of mining capacity to 4.5mtpa ore from open-pit and underground mining with expanded processing and concentrate production. Wildcat is advancing a Definitive Feasibility Study (DFS) targeting a larger, earlier and more efficient development, with first production targeted for CY2028. The development is targeting production of spodumene, petalite and tantalum concentrates, with onsite processing. Wildcat has discovered lithium mineralisation at Bolt Cutter, 10 km from Tabba Tabba, and holds highly prospective surrounding tenure, providing potential for further resource growth and additional production or mine-life extensions.

Mineral Resources as at November 2024 (0.45% Li_2O cut-off)**:**

Resource Category	Tonnes (Mt)	Li_2O (%)	Ta_2O_5 (ppm)	Fe_2O_3 (%)
Indicated	70	1.01	53	0.64
Inferred	4.1	0.76	65	0.88
Total	**74.1**	**1.00**	**54**	**0.65**
Contained (kt)		**740**	**4.84**	

Ore Reserves as at July 2025 (0.30% Li_2O open pit cut-off, 0.70% Li_2O underground cut-off)**:**

Reserve Category	Tonnes (Mt)	Li_2O (%)	Ta_2O_5 (ppm)	Fe_2O_3 (%)
Probable	46.3	0.99	60.2	1.02
Total	**46.3**	**0.99**	**60.2**	**1.02**
Contained (kt)		**456**	**2.79**	

The Ore Reserve is based on the November 2024 MRE but does not include the Chewy, Han, Hutt or Tabba Tabba pegmatites, which collectively account for approximately 15% of the Lithium MRE.

- **Project status:** Pre-Feasibility Study (July 2025).[1]
- **Offtake:** 100% offtake available.
- **Min Mine Life (yrs):** 17[1]
- **IRR:** Post-tax IRR: 23%[1]
- **Capital cost:** A$687m (US$485m equivalent)[1]
  Updated Capex estimate: US$485m (July 2025)
- **NPV:** Post-tax $NPV_{8\%}$: ~A$1.2b[1]
- **Product and average annual production rate:**

Stage 1

- **Spodumene Concentrate** (5.5%Li_2O): 295ktpa[1]

Stage 2

- **Spodumene Concentrate** (5.5%Li_2O): 565ktpa[1]

[1] *Tabba Tabba PFS Confirms Potential for Long-Life Lithium Mine, WC8 announcement (29 July 2025). NPV and IRR based on US$1,384/t spodumene concentrate (6% Li_2O) price.*

Manganese

Butcherbird High Purity Manganese Project

Element 25 Ltd
ASX-listed (E25)
element25.com.au



Commodity(ies):
Manganese, Silicon

Investment summary

E25 is constructing the Butcherbird Expansion Project, with first production targeted for Q1 CY2027. The project is fully permitted, has binding concentrate offtake secured for up to 1.1Mtpa for five years, and is supported by a definitive financing facility agreement with NAIF for up to A$50 million. E25 also plans to build an EV battery-grade High-Purity Manganese Sulphate Monohydrate (HPMSM) refinery in Louisiana, USA. HPMSM Offtake agreements are in place with leading vehicle OEMs and E25 is seeking additional HPMSM offtake customers across EV and grid storage markets, together with strategic investment to complement the US$166 million U.S. Department of Energy grant awarded for the planned US HPMSM refinery. The project also has strong support from the Louisiana State Government with a US$53m incentive package.

Project description

Element 25 Ltd's 100%-owned Butcherbird Manganese Project is located approximately 130km south of Newman in Western Australia's Pilbara region and hosts Australia's largest onshore manganese resource. The fully approved Butcherbird Expansion Project is designed to lift manganese concentrate production capacity to approximately 1.1Mtpa from Q1 CY2027, supported by a 101.4Mt Ore Reserve at 10.4% manganese and a mine life exceeding 18 years. The expansion uses open-pit mining and an upgraded on-site concentrator flowsheet incorporating crushing, dense media separation, screening and tailings infrastructure. Engineering, procurement and construction are progressing, with mechanical completion and commissioning and first production targeted for Q1 CY2027. Product will supply traditional steel markets and provide future feedstock for E25's planned Louisiana HPMSM refinery, supporting battery, industrial and defence supply chains. The planned US HPMSM refinery will produce up to 130ktpa of HPMSM in two stages for US EV supply chains using E25 patented proprietary technology.

Mineral Resources as at October 2024 (7% Mn Cut-off (Measured and Indicated), 8% Mn cut-off (Inferred))**:**

Resource Category	Tonnes	Mn (%)	Si (%)	Fe (%)	Al (%)
Measured	13.0	11.3	20.50	11.5	5.7
Indicated	116.2	10.1	21.0	11.4	6.0
Inferred	145.2	9.8	20.6	11.5	5.9
Total	**274.4**	**10**	**20.8**	**11.5**	**5.9**
Contained (kt)		**27.4**			

Ore Reserves as at January 2025:

Reserve Category	Tonnes	Mn (%)
Proved	11.9	11.8
Probable	89.5	10.2
Total	**101.4**	**10.4**
Contained (kt)		**10.5**

Project status: Butcherbird Expansion: Updated Butcherbird Expansion Feasibility Study (January 2025) – mine and concentrator expansions only.[1] **HPMSM US Refinery:** HPMSM Feasibility Study (April 2023) based on 130,000tpa HPMSM with manganese concentrate supplied at arm's length market price.[2]

Offtake: Butcherbird Expansion: No – 100% of production up to 1.1Mt/a committed under binding offtake (5 years).
HPMSM US Refinery: Yes – 30Ktpa available

Min Mine Life (yrs): >18 years (manganese concentrate)[1]

IRR: Butcherbird Expansion: Pre-tax IRR: 96%[1]
HPMSM US Refinery: Pre-tax IRR: 29%[2]

Capital cost: Butcherbird Expansion: A$64.8m[1] **HPMSM US Refinery:** US$289m (Train 1)[2]; US$187m (Train 2)[2]

NPV: Butcherbird Expansion: Pre-tax, real $NPV_{8\%}$: A$561m[1]
HPMSM US Refinery: Pre-tax (real) $NPV_{8\%}$: US$1,662m[2]

Product and average annual production rate:

- **Manganese concentrate** (30-33% Mn): ~1.1mtpa[1]
- **HPMSM** (battery grade 99.99% purity): 65,000tpa expanding to 130,000tpa in Stage 2[2]

[1] *Updated Butcherbird Expansion Project Feasibility Study, E25 announcement (22 January 2025)*

[2] *HPMSM Facility Feasibility Study, E25 announcement (12 April 2023)*

Nickel, Cobalt

Avebury Nickel Mine

Allegiance Mining Pty Ltd

Unlisted. Hartree Metals LLC (EU) / Hartree Partners (US)



Commodity(ies):
Nickel, Cobalt

Investment summary

Fully-built, fully-permitted and proven nickel-cobalt sulphide mining and processing operation, currently on Care and Maintenance, having closed due to the significant drop in global nickel price in 2024. A Pre-Feasibility Study is underway to optimize, debottleneck and right-size the operation, ensuring the restarted mine is profitable at current prices. A partner is sought to acquire a material share of the project and lead the restart as the current owner is a financier and trading company, not an operator. Discussions on investment are welcomed from parties seeking to take an equity position and operating lead.

Project description

Avebury Nickel Mine, located in Western Tasmania, has a large underground nickel-cobalt sulphide resource. The orebody is shallow and wide with large stopes supporting scalable production. The Mine is serviced by grid (hydro, wind) power and sealed road and has an accommodation camp and full services in the nearby town of Zeehan. Prior to closure in 2023, the mine and on-site sulphide flotation plant operated to nameplate capacity of 900ktpa producing ~38,000tpa nickel concentrate trucked to the Port of Burnie for export. Economic life >20 years, proven producer of nickel and cobalt in concentrate with studies underway to optimize, debottleneck and expand the project to significantly reduce unit costs. Globally significant nickel sulphide deposit, amongst Australia's largest, with extremely low carbon-intensity nickel (1.9t/CO_2 per t Ni). Significant resource growth upside and large JORC Exploration Target in addition to the resource. Restart-ready in 6-12 months depending on restart path chosen. At nameplate produces ~6,500tpa Ni and 90tpa Co contained in concentrate with scope to expand.

Mineral Resources as at March 2024 (0.4%Ni cut-off)**:**

Resource Category	Tonnes (Mt)	Nickel (%)	Cobalt (ppm)
Measured	11.1	0.77	174
Indicated	10.5	0.72	163
Inferred	13.0	0.74	137
Total	**34.6**	**0.74**	**157**
Contained (kt)		**256**	**5.4**

Ore Reserves as at July 2023 ($120/t NSR cut-off)**:**

Reserve Category	Tonnes (Mt)	Nickel (%)	Cobalt (ppm)
Probable	6.43	1.02	232
Total	**6.43**	**1.02**	**232**
Contained (kt)		**65.6**	**1.5**

Note: the Ore Reserve is based on a previous mineral resource.

Project status: Mine and processing plant placed on Care and Maintenance in 2024. Restart Pre-Feasibility Study underway.

Offtake: LOM offtake with Hartree Metals LLC, open to discussion.

Min Mine Life (yrs): 20

IRR: TBA

Capital cost: A$50-150m (TBA when PFS is complete)

NPV: TBA

Product and average annual production rate:

- **Nickel/Cobalt concentrate** (19% Ni, 0.25% Co): 36,000tpa at nameplate. Scope to expand.

Nickel

Baker and Foster Nickel Project

Lunnon Metals Ltd

ASX-listed (LM8)

lunnonmetals.com.au



Commodity(ies):

Nickel, Copper, Cobalt, and Palladium/Platinum

Investment summary

Baker and Foster nickel sulphide deposits are advanced assets within Lunnon's broader Kambalda Gold & Nickel Project (KGNP) which has a global MRE of 4.2Mt @ 2.7% Ni (113Kt contained Nickel). The high-grade of these assets makes the Project (assuming processing ore at BHP's Kambalda Concentrator) robust at current nickel prices. Located on granted mining leases, the Baker Mining Proposal is approved by the WA government. A Land Access Agreement is in place with the Ngadju People. BHP's Kambalda Concentrator was placed on care/maintenance in 2024, so no current processing facility is available for the project. Lunnon is open to a strategic collaboration or partnership to monetise its nickel interests.

Project description

The KGNP is located in Kambalda, Australia's best endowed nickel sulphide belt, serviced by excellent infrastructure. Following completion of a PFS on the Baker deposit in May 2023, a Scoping Study was completed in July 2025 on underground mining and third-party processing of the Baker and Foster deposits. The July 2025 Scoping Study assumes underground mining of ~210,000tpa high-grade ore from each deposit and third-party processing at BHP's Kambalda Concentrator, to produce up to ~45-50,000ktpa nickel concentrate at 11.9% to 15.1% Ni (~7,000tpa payable contained nickel). Metallurgical testwork demonstrates a clean, high-grade sulphide concentrate, with excellent by-product credits and characteristics for downstream smelters (high Fe:MgO ratio), minimal deleterious elements and low carbon intensities. Underground mining in an area already rich in surface infrastructure after 60 years of historical production results in limited environmental disturbance.

Mineral Resources as at June 2026 (>1.0% Ni cut-off)**:**

BAKER

Resource Category	Tonnes (Mt)	Ni (%)	Cu (%)	Co (%)	As (ppm)
Measured	0.110	3.4	0.28	0.07	9
Indicated	0.622	3.7	0.31	0.07	81
Inferred	0.298	2.4	0.15	0.05	8
Total	**1.030**	**3.3**	**0.26**	**0.06**	**53**
Contained (kt)		**33.7**	**2.6**	**0.66**	

FOSTER 85H

Resource Category	Tonnes (Mt)	Ni (%)	Cu (%)	Co (%)	As (ppm)
Indicated	0.395	3.2			
Inferred	0.294	1.2			
Total	**0.689**	**2.4**			
Contained (kt)		**16.4**			

FOSTER SOUTH

Resource Category	Tonnes (Mt)	Ni (%)	Cu (%)	Co (%)	As (ppm)
Indicated	0.264	4.7	0.41	0.1	17
Inferred	0.111	4.7	0.50	0.1	22
Total	**0.375**	**4.7**	**0.44**	**0.1**	**18**
Contained (kt)		**17.6**	**1.65**	**0.375**	

Project status: Scoping Study – Baker & Foster, assumes 3rd party concentrator (July 2025).[1] Updated technical study now including Foster and Baker deposits placed on hold but can be restarted immediately if offtake solution possible.

Offtake: 100%, subject to BHP Nickel West's right of first refusal. In light of closure of Nickel West, considered likely that BHP will not pre-empt and will elect to receive 1% NSR.

Min Mine Life (yrs): 3-4 years (mining both deposits simultaneously).[1] If Baker is mined first, then Foster, LoM is up to 7 years.

IRR: Pre-tax IRR: Baker 78.8% to 150.6%[1] Foster 9.7% to 30.7%[1]

Capital cost: Baker: A$27m[1]; Foster: A$57m[1]

NPV: Pre-tax NPV_8%: Baker: A$53m to A$108m[1] Foster: A$4m to A$60m[1]

Product and average annual production rate:

- **Nickel concentrate** (Baker 14.6% Ni, Foster 85H 11.9% Ni, Foster South 15.1% Ni):
  Baker: 33.5ktpa (~4,900tpa contained Ni)[1];
  Foster: 40.2ktpa (~5,400tpa contained Ni)[1]

[1] *Lunnon Metals Nickel Scoping Study Results, LM8 announcement (21 July 2025)*

Platinum Group Elements, Nickel, Cobalt

Gonneville PGM-Ni-Cu-Co Project

Chalice Mining Ltd

ASX-listed (CHN)

chalicemining.com



Commodity(ies):

Palladium, Platinum, Nickel, Copper, Cobalt, Gold

Investment summary

Chalice Mining (ASX: CHN) is developing its flagship 100%-owned Gonneville Project, the largest and lowest-cost undeveloped PGM-nickel-copper-cobalt reserve in the Western world, and the largest PGM discovery in Australian history. Gonneville is a tier-1 resource containing ~17Moz PGMs, 960kt nickel, 540kt copper and 96kt cobalt. Gonneville is recognised as a Major Project by the Commonwealth Government, and a Strategic Project under WA's Lead Agency Framework. Submission of Environmental Review documents is targeted in Q4 CY26 and all native title claims for the Project area were settled in 2021. Chalice has a strong balance comprising $59M in cash and listed investments and welcomes discussions on strategic investment for construction of the project and offtake.

Project description

A Pre-Feasibility Study completed in December 2025 confirmed a long-life, globally competitive operation generating ~A$4.7b pre-tax free cashflow over a 23-year mine life, with a 2.7-year payback period, A$820m pre-production capital and US$370/oz AISC. In Stage 1, ~5mtpa ore will be mined from a conventional open-pit. Stage 2, funded from Stage 1 cashflows, will expand mining and processing throughput to ~15Mtpa. An on-site processing plant will process sulphide ore via sequential flotation to produce a copper-PGM-gold concentrate and a nickel-cobalt-PGM concentrate, with the remaining feed blended with oxide ore and processed via leaching to produce a PGM-Gold doré for sale to base metal smelters and precious metal refineries. The flowsheet has been optimised with an investment of $15M in extensive metallurgical testwork over 3 years. The resource has significant exploration upside which could support a larger open pit or underground expansion in future. Chalice is advancing feasibility work, approvals, and financing discussions, targeting FID in H1 CY28.

Mineral Resources as at April 2024 ($25/t NSR cut-off)**:**

Resource Category	Tonnes (Mt)	3E* (g/t)	Ni (%)	Cu (%)	Co (%)
Measured	2.9	1.20	0.21	0.17	0.018
Indicated	400	0.79	0.15	0.087	0.015
Inferred	250	0.80	0.15	0.076	0.014
Total	**660**	**0.79**	**0.15**	**0.083**	**0.015**
Contained		**17MOz**	**960kt**	**540kt**	**96kt**

Ore Reserves as at December 2025:

Reserve Category	Tonnes (Mt)	3E* (g/t)	Ni (%)	Cu (%)	Co (%)
Proved	2.5	1.40	0.22	0.18	0.018
Probable	260	0.85	0.16	0.098	0.017
Total	**260**	**0.86**	**0.16**	**0.098**	**0.017**
Contained		**7.1Mkoz**	**400kt**	**260kt**	**43kt**

**** 3E grades are the combined total grade of the 3 precious metals; Platinum (Pt), Palladium (Pd) and Gold (Au)***

Project status: Pre-Feasibility Study completed in December 2025.[1]

Offtake: 100% available

Min Mine Life (yrs): 23[1] (initial open-pit phase)[1]

IRR: Pre-tax IRR: 23% IRR (base case – Pd: US $1,300/oz, Ni:US$18,750/t, Cu:US$10,500/t)[1]

Capital cost: A$820m[1]

NPV: Pre-tax $NPV_{8\%}$: A$1.4b (base case – Pd:US$1,300/oz, Ni:US$18,750/t, Cu:US$10,500/t)[1]

Product and average annual production rate:

- **Copper-PGM-Gold concentrate** (~20% Cu, 45-60g/t PGM+Au): 44ktpa
- **Nickel-Cobalt-PGM concentrate** (~8% Ni, 0.8% Co, 18-20g/t PGM): 96ktpa
- **PGM-Gold doré:** 75kozpa (contained metal in all 3 products: 220kozpa PGM 3E, 7ktpa Ni, 8ktpa Cu, 1ktpa Co)

[1] *Gonneville Palladium-Nickel-Copper Project PFS, CHM Announcement (8 December 2025)*

Rare Earth Elements

Browns Range Heavy Rare Earths Project

Northern Minerals Ltd

ASX-listed (NTU)

northernminerals.com.au



Commodity(ies):

Mixed Heavy Rare Earth Concentrate: Containing Dysprosium (Dy), Terbium (Tb), Yttrium (Y)

Investment summary

Northern Minerals Ltd (ASX: NTU) is advancing its 100%-owned Browns Range Heavy Rare Earths Project in Western Australia's East Kimberley, one of the most significant dysprosium (Dy), terbium (Tb) and yttrium (Y) projects outside China. The Definitive Feasibility Study (DFS) was completed in September 2025, with FEED activities underway and FID targeted for Q3 2026. With the Mining Lease granted, key environmental approvals and Native Title agreements in place, the Project is positioned for development subject to funding. Browns Range offers strategic exposure to critical heavy rare earths for magnet supply chains outside China. Northern Minerals welcomes discussions regarding project investment, strategic partnerships and project financing opportunities.

Project description

Browns Range is in the East Kimberley region, which hosts the high-grade Wolverine deposit. The September 2025 DFS is based on mining an average of ~0.65Mtpa, initially from open-pit, and subsequently from underground, over a 11-year life-of-mine (LOM). Run of mine (ROM) ore will be beneficiated on-site using a proven flowsheet including crush, mill, magnetic separation and flotation, which upgrades ROM feed by ~25 times to produce ~17,500tpa of Mixed Heavy Rare Earth Concentrate (MHREC) grading ~25% TREO (~181,000 tonnes of MHREC over the 11-year LOM). The Project is strategically aligned with Iluka Resources' Eneabba Rare Earths Refinery through a MHREC supply agreement. Browns Range hosts an emerging exploration terrain with strong prospectivity for rare earth elements, positioning Northern Minerals as an increasingly attractive investment to advance the Company as a long-term, responsible supplier of critical heavy rare earths essential for defence, clean energy and advanced manufacturing technologies.

Wolverine Deposit and Pilot Plant Stockpiles Mineral Resources as at January 2025 (0.15% TREO cut-off)**:**

Resource Category	Tonnes	TREO (%)	Dy_2O_3 (kg/t)	Y_2O_3 (kg/t)	Tb_4O_7 (kg/t)	HREO/TREO (%)
Measured	0.1	0.91	0.84	5.4	0.12	92
Indicated	5.1	1.12	0.99	6.68	0.15	91
Inferred	2.4	0.63	0.54	3.57	0.08	86
Total	**7.5**	**0.96**	**0.84**	**5.64**	**0.12**	**90**
Contained (kt)		**72**	**6.3**	**42**	**1**	**65**

Wolverine Deposit and Pilot Plant Stockpiles Ore Reserves Estimate as at September 2025:

Reserve Category	Tonnes	TREO (%)	Dy_2O_3 (kg/t)	Y_2O_3 (kg/t)	Tb_4O_7 (kg/t)
Probable	5.18	0.88	0.78	5.25	0.12
Total	**5.18**	**0.88**	**0.78**	**5.25**	**0.12**
Contained (kt)		**45.8**	**4.0**	**27.2**	**0.6**

Project status: Feasibility Study completed in September 2025.[1]

Offtake: Strategic partnership with Iluka including agreement to supply HRE rich concentrate complementary to Eneabba Refinery feed blends. The Supply Agreement covers the first 30,500t of Browns Range's estimated 45,000t TREO in concentrate production.

Min Mine Life (yrs): 11[1]

IRR: Base Case Pre-tax IRR: 12%[1]

Capital cost: A$592m[1]

NPV: Base Case Pre-tax $NPV_{8\%}$: A$187m[1]

Product and average annual production rate:

- **Mixed Heavy Rare Earth Concentrate** (25% TREO): 17,500tpa[1]

[1] *Definitive Feasibility Study – Browns Range Heavy Rare Earths Project, NTU announcement (15 September 2025)*

Rare Earth Elements, Zirconium, Titanium

Donald Rare Earth and Mineral Sands Project

Astron Ltd

ASX-listed (ASX.ATR)

astronlimited.com.au



Commodity(ies):

Rare Earth Elements, Titanium, Zirconium

Investment summary

The Donald Rare Earth and Mineral Sands Project (Donald Project) is a Tier 1 asset containing the world's largest zircon resource and one of the largest rare earth resources outside China, with strategic heavy rare earths comprising ~56% of product basket value. Astron has entered a joint-venture with US company Energy Fuels, which is contributing $A183m for a 49% interest and 100% rare earth offtake, to be processed into oxides, metals and magnets at US facilities. Phase 1 is shovel-ready with all major approvals in-hand.

Project description

The Donald Project is located 300km from Melbourne, Victoria. Mining operations will consist of conventional open-pit dry-mining methods. Ore will be processed on-site in a Wet Concentration Plant producing a raw Heavy Mineral Concentrate (HMC) via gravity separation, that will be further processed in a Concentrate Upgrade Plant producing Rare Earth Element Concentrate (REEC) via flotation and upgrading the HMC. An updated Feasibility Study for Phase 1 was completed 1 in March 2026 based on production of 192ktpa of HMC containing zircon and titanium feedstock, and 7ktpa of REEC bearing rare earth minerals of monazite and xenotime. An Updated Pre-Feasibility Study for Phase 2 was completed in June 2026, which will double mining throughput and extend the mine-life to 52 years. Extensive metallurgical test work has produced a flowsheet with high recoveries, proven at a pilot-plant scale. Astron is targeting a FID for Phase 1 in 2026 Q3. Procurement of long-lead time items is progressing. Donald has an attractive mineral assemblage, a large proportion of the zircon resource is premium grade, and a significant heavy rare earth component crucial for permanent magnets.

Total Mineral Resources as at December 2025 where VHM data is available above a 1% total HM cut-off grade:

Resource Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	Rutile+Anatase (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)	Xenotime (%)
Measured	585	4.6	18	8	22	25	2	0.4
Indicated	1,232	4.5	17	8	18	31	2	0.0
Inferred	822	4.7	18	9	17	33	2	0.0
Total	**2,639**	**4.6**	**18**	**8**	**18**	**31**	**2**	**0.1**
Contained (kt)		**122,432**	**22,009**	**9,999**	**22,491**	**37,464**	**2,364**	**136**

Donald Project Phase 1 MIN5532 only Ore Reserves as at December 2025:

Reserve Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	TiO_2 (%)	Pr_6O_{11} (%)	Nd_2O_3 (%)	Dy_2O_3 (%)	Tb_4O_7 (%)	TREO (%)
Proved	255	4.5	17	34	0.056	0.2	0.042	0.0065	1.4
Probable	39	4.3	16	32	0.056	0.2	0.040	0.0062	1.4
Total	**293**	**4.5**	**17**	**34**	**0.056**	**0.2**	**0.041**	**0.0064**	**1.4**
Contained (kt)		**13,185**	**2,241**	**4,483**	**7.4**	**26**	**5.4**	**0.8**	**185**

Donald Project Phase 2 RL2002 only Ore Reserves as at December 2025:

Reserve Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	Rutile+Anatase (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)
Proved	128	5.7	21	9.4	19	31	1.8
Probable	306	4.3	17	7.5	19	33	1.6
Total	**435**	**4.7**	**18**	**8.2**	**19**	**32**	**1.7**
Contained (kt)		**20,445**	**3,680**	**1,676**	**3,885**	**6,542**	**348**

Note: Valuable Heavy Mineral grades are reported as a percentage of THM for mineral resources and ore reserves above.

Project status: Phase 1 Updated Feasibility Study completed in March 2026[1]. Phase 2 Updated Pre-Feasibility Study completed in June 2026[2]. Currently entering Pre-Construction stage.

Offtake: REEC: No – 100% REEC offtake agreed with Energy Fuels in June 2024. HMC: offtake available – discussions underway.

Min Mine Life (yrs): Phase 1: 40 years[1]
Phase 2: 52 years[2]

IRR: Phase 1: Post-tax, real IRR: 15.6%[1]
Phase 1+2: Post-tax, real IRR: 20.8%[2]

Capital cost: Phase 1: A$450m[1]
Phase 2 (incremental): A$557m[2]

NPV: Phase 1: Post-tax, real $NPV_{8\%}$: A$462m[1]
Phase 1+2: Post-tax, real $NPV_{8\%}$: A$1,480m[2]

Product and average annual production rate:

- **Heavy mineral concentrate** (HMC) (95% THM, 42% TiO_2, 19% ZrO_2)**:** Phase 1: 192ktpa[1] Phase 2: 376ktpa[2]
- **Rare Earth Element concentrate** (REEC) (>60% TREO, NdPr 17.7%, DyTb 3.1%, Y 19.0%)**:** Phase 1: 7.1ktpa[1] Phase 2: 14.4ktpa[2]

[1] *Bankable Feasibility Study – Donald Phase 1, ATR announcement (31 March 2026)*

[2] *Donald project Phase 2 Ore Reserves and Revised Economics Study, ATR announcement (9 June 2026)*



Rare Earth Elements, Zirconium, Niobium, Hafnium

Dubbo Project

Australian Strategic Materials Ltd (ASM)

Wholly owned subsidiary of Energy Fuels Inc.

asm-au.com



Commodity(ies):

Rare Earth Elements (Neodymium, Praseodymium, Dysprosium, Terbium), Zirconium, Niobium and Hafnium

Investment summary

ASM was acquired by – and became a wholly owned subsidiary of – Energy Fuels Inc. in August 2026. Energy Fuels is a leading US-based critical materials company focused on rare earth elements (REE), uranium, heavy minerals sands, vanadium and medical isotopes. The Group has a long-term growth strategy to build an integrated mine-to-magnet rare earth platform, and the Dubbo Project now forms part of Energy Fuels' pipeline of potential REE development projects.

Project description

The Dubbo Project is a globally significant resource of light and heavy rare earths, zirconium, niobium and hafnium. Located 25km from Dubbo, NSW, the project is close to established infrastructure and within the Orana Renewable Energy Zone. The project has all major approvals and permits in place and the Company continues to engage regularly with the community and relevant stakeholders via its Community Consultative Committee. Following completion of an Optimisation Feasibility Study (OFS) on an advanced flowsheet for the full product basket in 2021, ASM released a Heap Leach (HL) Scoping Study in July 2025, exploring a potential accelerated pathway to rare earth production that offers a simplified flowsheet with lower capital and operating costs and de-risks project execution. The HL Scoping Study is based on rare earth oxide production using a heap leach purification, separation and refining flowsheet. A PFS for the HL Option is now underway, evaluating two potential development pathways: production of separated oxide products, and production of an intermediate mixed rare earth hydroxide product (MREP). The PFS for the HL Option is due for completion in H2 2026.

Mineral Resources as at September 2017:

Resource Category	Tonnes (Mt)	ZrO_2 (%)	HfO_2 (%)	Nb_2O_5 (%)	Ta_2O_5 (%)	TREO (%)
Measured	42.81	1.89	0.04	0.45	0.03	0.88
Inferred	32.37	1.90	0.04	0.44	0.03	0.88
Total	**75.18**	**1.89**	**0.04**	**0.44**	**0.03**	**0.88**
Contained (kt)		**1,421**	**30**	**331**	**23**	**662**

Ore Reserves as at September 2017:

Reserve Category	Tonnes (Mt)	ZrO_2 (%)	HfO_2 (%)	Nb_2O_5 (%)	Ta_2O_5 (%)	TREO (%)
Proved	18.9	1.85	0.04	0.44	0.03	0.87
Total	**18.9**	**1.85**	**0.04**	**0.44**	**0.03**	**0.87**
Contained (kt)		**350**	**8**	**83**	**5**	**165**

Project status: Optimisation Feasibility Study, Dec 2021 (OFS Case).[1] Heap Leach Scoping Study, July 2025 (HL Case).[2]

Offtake: Yes available.

Min Mine Life (yrs): OFS Case: >20[1]; HL Case: >20[2]

IRR: OFS Case: Pre-tax IRR: 23.5%[1]
HL Case: Pre-tax IRR: 22.9%[2]

Capital cost: OFS Case: A$1,678m including contingency[1].
HL Case: A$740m including contingency[2]

NPV: OFS Case[1]: Pre-tax $NPV_{8\%}$: A$2,361m
Post-tax $NPV_{8\%}$: A$1,581m
HL Case[2]: Pre-tax $NPV_{8\%}$: A$1,468m
Post-tax $NPV_{8\%}$: A$921m

Product and average annual production rate:

OFS Case[1]:

- **Rare Earth Oxides:** 1,506tpa including: **NdPr Oxide:** 1,342tpa; **Tb Oxide:** 22tpa; **Dy Oxide:** 142tpa; **Zirconia:** 16,000tpa; **FerroNiobium:** 2,650tpa; **Hafnium Oxide:** 30tpa

HL Case[2]:

- **Rare Earth Oxides:** 1,242tpa including: **NdPr Oxide:** 1,157tpa; **Tb Oxide:** 13tpa; **Dy Oxide:** 72tpa

[1] *Dubbo Project Optimisation Feasibility Study (OFS Case), ASM announcement (7 Dec 2021)*

[2] *Heap Leach Scoping Study (HL Case), ASM announcement (11 July 2025)*

Rare Earth Elements, Zirconium, Titanium

Fingerboards

Gippsland Critical Minerals Ltd

Private (a Joint Venture between REZir Ltd and Appian Capital Advisory)

gippslandcriticalminerals.com



Commodity(ies):

Rare Earth Elements, Zircon, Titanium

Investment summary

Awarded Major Project Status by the Australian Government, the Fingerboards Project is one of Australia's most significant undeveloped zircon, heavy and light rare earth projects. The project is progressing through a new Victorian Environment Effects Statement (EES), following significant design changes developed in partnership with the community, and is also being assessed under the federal EPBC Act. There is no Native Title over the project, however GCM is working closely with Traditional Owners. Fingerboards is a Victorian based critical minerals projects and has 100% offtake available. GCM welcomes discussions with offtakers, investors and downstream partners seeking to build diversified critical minerals supply chains.

Project description

A Pre-Feasibility Study (PFS) on the revised project was completed in August 2026 and a Revised Project Definitive Feasibility Study (DFS) is underway targeting completion in 2027 H2 based on 7.2 Mtpa of shallow progressive open-pit mining via dozer operations using two on-site mining units. Ore will be slurry-pumped to an on-site wet concentration plant where it will be processed via traditional gravity separation to produce 280ktpa of Heavy Mineral Concentrate (HMC) containing:

- 75ktpa of zircon (7.2% of current global supply)
- 200–300tpa of dysprosium and terbium oxides (7.1% of current global supply)
- 1,800tpa of neodymium-praseodymium oxides
- 150ktpa of titanium minerals.

HMC will be transported via existing rail to Melbourne Port for export. A Mining and Rehabilitation Demonstration Pit was completed during 2026 to test excavation and rehabilitation methods under real-world conditions.

Mineral Resources as at April 2026; 0.2% Zr equivalent cut-off:

Resource Category	Tonnes (Mt)	Zircon (%)	TiO_2 (%)	TREO + Y_2O_3 (ppm)
Measured	108.5	1.06	1.63	949
Indicated	284.1	0.65	1.12	957
Inferred	114.7	0.60	0.99	583
Total	**507.3**	**0.73**	**1.20**	**673**
Contained (kt)		**3,683**	**6,069**	**341**

Ore Reserves as at August 2018:

Reserve Category	Tonnes (Mt)	Zircon (%)	TiO_2 (%)	TREO + Y_2O_3 (ppm)
Proved	73	1.20	1.80	0.11
Probable	100	1.20	1.90	0.11
Total	**173**	**1.20**	**1.90**	**0.11**
Contained (kt)		**2,110**	**3,230**	**191**

Project status: Revised pre-feasibility completed in August 2026.[1]

Offtake: 100% available.

Min Mine Life (yrs): 22[1]

IRR: Post-tax IRR: 34%[1]

Capital cost: A$319m[1]

NPV: Post-tax $NPV_{8\%}$: A$954m[1]

Product and average annual production rate:

- **HMC** (2.6% TREO in monazite and xenotime, 18.0% ZrO2+HfO2, 25.2% TiO_2 in ilmenite; 7.5% TiO_2 in rutile): 280ktpa[1] (containing 75ktpa of Zr, 200-300tpa of DyTb oxides, 1,800tpa of NdPd oxides, and 150ktpa of titanium minerals)

[1] *Revised Fingerboards Pre-Feasibility Study (August 2026)*

Rare Earth Elements, Zirconium and Titanium

Goschen Rare Earths and Mineral Sands Project

VHM Ltd

ASX-listed (VHM)

vhmltd.com.au



Commodity(ies):

Rare Earth Elements (neodymium, praseodymium, terbium, dysprosium, yttrium), Zirconium, Titanium

Investment summary

VHM Ltd is advancing the Goschen Rare Earths and Mineral Sands Project in northwest Victoria. The project is a fully permitted 5Mtpa development with all key federal and state approvals in place. Goschen will produce dual product streams; a Rare Earth Concentrate (REC) and a zircon-titania Heavy Mineral Concentrate (HMC). VHM has secured binding life-of-mine REC offtake and A$40m funding package with Iluka Resources. VHM has also received a non-binding Letter of Support from EFA for up to A$75m and Letter of Interest from EXIM for up to US$200m. VHM welcomes investment and financing discussions as it progresses towards FID.

Project description

Mining is conventional shallow open pit, truck and shovel above water table with progressive rehabilitation. Process flowsheets are fully piloted, proven and conventional. Ore will be processed on-site through a wet concentrator plant using a series of spirals to produce HMC which will be further refined through a flotation circuit to produce REC and zircon-titania HMC products. REC contains both light (Neodymium-Praseodymium) and heavy (Terbium, Dysprosium and Yttrium) rare earths. The project is underpinned by a large mineral resource base and the current approved Mining Licence utilises less than 50% of Ore Reserves and less than 12% of Mineral Resource. Under a long-term strategic partnership with Iluka Resources, REC will be supplied to Iluka's Refinery being constructed at Eneabba, expected to become Australia's first refinery for rare earth oxides. VHM is progressing key project workstreams and finalising funding prior to FID.

Mineral Resources as at October 2025:

Resource Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)	Xenotime (%)
Measured	25	3.6	28	13	10	27	4.1	0.8
Indicated	360	3.3	20	10	8.7	25	3.4	0.7
Inferred	500	2.7	20	12	16	13	3.4	0.7
Total	**890**	**2.9**	**21**	**11**	**12**	**19**	**3.4**	**0.7**
Contained (kt)		**26,100**	**5,390**	**2,900**	**3,200**	**4,900**	**890**	**180**

Ore Reserves as at October 2025:

Reserve Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)	Xenotime (%)
Proved	16	4.1	28	13	11	27	4.0	0.8
Probable	200	3.5	21	10	8.5	26	3.5	0.7
Total	**220**	**3.6**	**22**	**10**	**8.6**	**26**	**3.5**	**0.7**
Contained (kt)		**7,900**	**1,720**	**810**	**680**	**2,040**	**280**	**55**

Note: Valuable Heavy Mineral grades are reported as a percentage of THM in MRE and Ore Reserves

Project status: 5Mtpa Feasibility Study completed March 2023. DFS Refresh and Project economics completed Sept 2026.[1]

Offtake: Rare earth concentrate: 100% life-of-mine binding offtake with Iluka Resources.
Zircon-titania HMC: All offtake available.

Min Mine Life (yrs): 20[1]

IRR: Pre-tax IRR: 33%[1]

Capital cost: Project execution: A$283m[1]
Total funding: A$482m[1]

NPV: Pre-tax $NPV_{8\%}$: A$807m[1]

Product and average annual production rate:

- **Rare earth concentrate:** 8,300tpa[1] (containing ~4,900tpa total rare earth oxides)
- **Zircon-titania HMC:** 131,000tpa[1]

[1] *VHM DFS Refresh ASX Release 21 September 2026*

Rare Earth Elements

Koppamurra Rare Earths Project

Australian Rare Earths Ltd

ASX-listed (AR3)

ar3.com.au



Commodity(ies):

Mixed Rare Earth Oxide (MREO) containing Rare Earth Elements including Nd, Pr, Dy, Tb, Sm, Gd, Y and Lu

Investment summary

AR3 has completed a Pre-Feasibility Study for its 100%-owned Koppamurra Rare Earths Project in South Australia. Koppamurra is one of Australia's most advanced ionic clay rare earth projects and will produce high-purity Mixed Rare Earth Oxide with first production targeted for 2029. A SA Government-endorsed Scoping Report has defined studies required for the Mining Lease Application with submission planned for 2026. The project is located on freehold land where native title has been extinguished. AR3 commissioned its Pilot Plant at ANSTO in August 2026 and is advancing pilot-scale processing and product qualification. The Company welcomes discussions with strategic equity, debt and project investment partners and offtake partners.

Project description

Koppamurra is located on South Australia's Limestone Coast. The project combines shallow, free-dig open-pit mining with progressive rehabilitation and on-site processing including; heap leaching and an oxalate precipitation to produce high-purity Mixed Rare Earth Oxide (MREO). The MREO product contains an enriched portion of strategically vital magnet rare earths Nd, Pr, Dy, Tb, and other supply constrained elements such as Sm, Gd, Y and Lu. The June 2026 PFS is based on mining and processing 3mtpa over an initial 12-year mine life, with substantial Mineral Resource and Exploration Target upside supporting staged expansion and a potential multi-decade operation. A technically simple flowsheet delivers a low initial capex for the project of A$178m. Key ESG features include progressive backfilling and rehabilitation to agricultural and forestry use, process-water recycling, established regional infrastructure and no permanent mine camp.

Mineral Resources as at June 2026 (325ppm TREO-CeO_2 cut-off)**:**

Resource Category	Tonnes (Mt)	TREO (%)	NdPr oxides (%)	Dy_2O_3 (%)	Tb_4O_7 (%)	Y_2O_3 (%)
Measured	0.9	0.0773	0.0171	0.0020	0.0004	0.0102
Indicated	113.0	0.0766	0.0170	0.0020	0.0004	0.0106
Inferred	130.0	0.0737	0.0164	0.0019	0.0003	0.0102
Total	**243.0**	**0.0751**	**0.0167**	**0.0019**	**0.0004**	**0.0104**
Contained (kt)		**182.49**	**40.58**	**4.62**	**0.97**	**25.27**

Ore Reserves as at June 2026:

Reserve Category	Tonnes (Mt)	TREO (%)	NdPr oxides (%)	Dy_2O_3 (%)	Tb_4O_7 (%)	Y_2O_3 (%)
Probable	26.0	0.0920	0.0210	0.0025	0.0004	0.0125
Total	**26.0**	**0.0920**	**0.0210**	**0.0025**	**0.0004**	**0.0125**
Contained (kt)		**23.92**	**5.46**	**0.650**	**0.117**	**3.25**

Project status: Pre-Feasibility Study (25 June 2026).[1]

Offtake: MREO: 100% offtake currently available; Product qualification and offtake discussions are advancing. Non-binding MOU with Neo Performance Materials for 50% of stage 1 production.

Min Mine Life (yrs): 12 (initial Stage 1)[1]

IRR: Post-tax IRR: 99%[1]

Capital cost: $178m [1]

NPV: Post-tax $NPV_{8\%}$: A$858m [1]

Product and average annual production rate:

- **Mixed Rare Earth Oxide** (>98.4% TREO target purity): 1,890tpa[1] (containing 1,860tpa TREO including 435tpa NdPr, 48tpa Dy, 9tpa Tb, 238tpa Y, 69tpa Sm, 67tpa Gd and 4tpa Lu)

[1] *Koppamurra Pre-Feasibility Study, AR3 announcement (25 June 2026)*

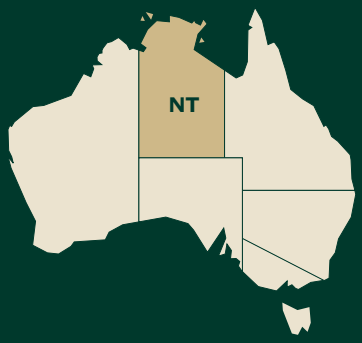
Rare Earth Elements

Nolans Rare Earths Project

Arafura Rare Earths Ltd

ASX-listed (ARU)

arultd.com



Commodity(ies):

Rare Earth Elements (Neodymium and Praseodymium (NdPr) oxide and SEG/HRE oxide).

Investment summary

Following the Company announcing FID in May 2026 and all requisite primary approvals in place, construction at Nolans commenced in September 2026. Nolans is a fully integrated mine-to-oxide rare earths project that will produce radionuclide-free rare earth oxides from the mine and on-site processing facilities comprising beneficiation, extraction, and separation plants. Nolans will be instrumental in meeting global NdPr demand for high-performance magnets and future facing technologies. Robust project economics and lowest quartile operating expenditure have Arafura positioned to withstand market volatility. The Company has executed a comprehensive funding and offtake strategy resulting in a fully funded project with strong global support. 21% of the offtake currently remains available.

Project description

Located 135km north of Alice Springs, Nolans is strategically located near existing infrastructure (water, roads, gas, rail, port facilities). Domiciled in Australia, Nolans is aligned with leading ESG practices.
As one of a handful of construction-ready projects, Arafura has completed essential mineralogy and process flowsheet testwork. Phase one will produce separated rare earth oxides, principally NdPr oxide (4,440tpa) and a mixed SEG / Heavy Rare Earth (HRE) Oxide (573tpa), and 140,000tpa of Phosphoric Acid. Construction activities are focused on critical path work programs, compliance, and optimisation activities to mitigate capital and construction risks. Further studies are advancing to improve HRE recovery from waste and alternative heavy rare earths separation technologies. As a 38-year long-life, scalable project, Nolans is a multigenerational asset, contributing to the social and economic development of the region. Arafura's oxide strategy is a core differentiator, positioning Arafura as a strategic alternative rare earth supplier outside of the existing concentrated supply chain.

Mineral Resources as at June 2017 (1% TREO cut-off)**:**

Resource Category	Tonnes (Mt)	TREO (%)	P_2O_5 (%)	NdPr Enrichment (%)
Measured	4.9	3.2	13	26.1
Indicated	30	2.7	12	26.4
Inferred	21	2.3	10	26.5
Total	**56**	**2.6**	**11**	**26.4**
Contained (kt)		**1,456**	**6,160**	**384**

Ore Reserves as at March 2020:

Reserve Category	Tonnes (Mt)	TREO (%)	P_2O_5 (%)	NdPr Enrichment (%)
Proved	5.0	3.0	13	26.2
Probable	24.6	2.8	13	26.5
Total	**29.5**	**2.9**	**13**	**26.4**
Contained (kt)		**856**	**3,835**	**226**

Project status: Construction commenced September 2026 following a Final Investment Decision in May 2026.

Offtake: Approximately 79% in binding offtake agreements has been secured with ~21% remaining available.

Min Mine Life (yrs): 38 years initial life of mine[1]

IRR: Post-tax IRR: 18.1% (base case)[1]

Capital cost: US$1,226m[1]

NPV: Post tax $NPV_{8\%}$: US$1,859m (base case)[1]

Product and average annual production rate:

- **NdPr oxide:** 4,440tpa[1]
- **SEG/HRE oxide** (containing Dy and Tb): 573tpa[1]
- **Phosphoric acid** (fertilizer-grade, 54% P_2O_5): 144,393tpa[1]

[1] *Refer to ASX Announcement titled Investor Presentation dated 22 May 2026*

Rare Earth Elements

North Stanmore

Victory Metals Ltd

ASX-listed (VTM)

victorymetalsaustralia.com



Commodity(ies):

Heavy Rare Earths Enriched Mineral Concentrate

Investment summary

VTM is advancing North Stanmore, its flagship Western Australian Heavy Rare Earth project, beyond the recently released Pre-Feasibility Study and proven continuous pilot plant operations providing concentrate for product qualification. North Stanmore is Australia's largest measured and indicated clay-hosted heavy rare earth Mineral Resource; with a commissioned pilot plant producing 7.1% TREO concentrate with a 40% heavy rare earth oxide to total rare earth oxide ratio. A Traditional Owner agreement and PFS level environmental studies have been completed and preparation of the Mining Licence application is well advanced. Victory is seeking offtake partners in supporting the project's development and future supply, as VTM considers further downstream options.

Project description

VTM's 100%-owned North Stanmore Project is located 6 km northwest of Cue in Western Australia, adjacent to the sealed Great Northern Highway. It is a clay-hosted heavy rare earth deposit suited to shallow, conventional free-dig open-pit mining without drill and blast. The PFS completed in August 2026 proposes mining 2.4mtpa ore to be processed in an on-site beneficiation plant via flotation. The base case produces approximately 29,000 wet tonnes annually of a ~7.1% TREO heavy rare earth-enriched mineral concentrate. Concentrate will be sold for third-party refining, to recover strategically important heavy rare earths; dysprosium, terbium, yttrium and hafnium. Future hydrometallurgical processing could produce mixed rare earth oxides. Project highlights include a Probable Ore Reserve, 20-year operating case, A$155m initial capital, A$1.21b post-tax $NPV_{8\%}$ and approximately 1.5-year payback. Next steps include completion of the DFS underway, increasing the scale of the pilot plant and ongoing product-qualification.

Mineral Resources as at August 2026 (high-grade resource at 0.06% TREO cut-off)**:**

Resource Category	Tonnes (Mt)	TREO (%)	HREO (%)	LREO (%)	HREO/ TREO (%)
Measured	18.4	0.1035	0.0329	0.0706	32.1
Indicated	19.6	0.1008	0.0331	0.0677	32.3
Inferred	15.3	0.1029	0.0335	0.0694	32.7
Total	**53.3**	**0.1024**	**0.0332**	**0.0692**	**32.4**
Contained (kt)		**54.6**	**17.7**	**36.9**	

The high-grade resource above is part of a global resource of 278.8Mt at 0.0483% TREO at a 0.03% TREO cut-off.

Ore Reserves as at August 2026:

Reserve Category	Tonnes (Mt)	TREO (%)	HREO (%)	LREO (%)	HREO/ TREO (%)	HfO_2 (%)
Probable	47.0	0.0692	0.0248	0.0444	35.8	0.0006
Total	**47.0**	**0.0692**	**0.0248**	**0.0444**	**35.8**	**0.0006**
Contained (kt)		**32.5**	**11.7**	**20.9**		**0.3**

Project status: Pre-Feasibility Study completed in August 2026.[1]

Offtake: 100% offtake available.

Min Mine Life (yrs): 20 (10 years mining and processing +10 years processing stockpiles)[1]

IRR: Post-tax IRR: 240%[1]

Capital cost: A$155m[1]

NPV: Post-tax $NPV_{8\%}$: A$1.21b[1]

Product and average annual production rate:

- **Heavy rare earth-enriched mineral concentrate** (Approx 7.1% TREO): 29,000tpa (wet tonnes)[1]

[1] *Maiden Ore Reserve, Updated MRE and PFS, VTM announcement (18 August 2026)*

Rare Earth Elements, Zirconium, Titanium

Wimmera

Iluka Resources Ltd

ASX-listed (ILU)

iluka.com



Commodity(ies):

Rare Earth Elements, Zircon and Titanium Dioxide feedstocks

Investment summary

Iluka is advancing a Definitive Feasibility Study for the Wimmera Project, a proposed long-life mineral sands and rare earths development in western Victoria. The project will produce zircon, titanium dioxide feedstocks and rare earth concentrate containing light and heavy rare earths. The rare earth concentrate will be further processed into separated rare earth oxides at Iluka's Eneabba refinery in Western Australia, due for commissioning in 2027. Preparation of an Environment Effects Statement is underway for submission to the Victorian Government. Iluka is engaging with Barengi Gadjin Land Council, representing Traditional Owners. Iluka welcomes discussions with prospective customers regarding future offtake.

Project description

The Wimmera Project is located approximately 35km south-west of Horsham and 25km north-east of Balmoral. Development of the WIM100 deposit will comprise of an open pit mine, wet mining operation, on-site processing, tailings storage and supporting infrastructure. Ore will be separated on site into zircon products and titanium dioxide feedstocks for export to customers and a rare earth concentrate for transport to Iluka's Eneabba refinery in Western Australia, where it will be further processed into separated light and heavy rare earth oxides. Following completion of a PFS in 2022, detailed engineering is now underway, with the Definitive Feasibility Study targeted for completion in 2027. Wimmera is planned as a long-life development, with an indicative mine life of 23 years. The January 2026 Mineral Resource update increased the scale of the resource following further exploration and deposit modelling. Iluka's other WIM-style deposits in the region provide longer-term development potential. Rehabilitation will be undertaken progressively as mining advances.

Mineral Resources as at January 2026 (1.0% HM cut-off)**:**

Resource Category	Tonnes (Mt)	Total HM (%)	Ilmenite(%)	Zircon(%)	Rutile(%)	Leucoxene(%)	Monazite + Xenotime(%)
Measured	250	5.2	33	17	6	7	2.5
Indicated	240	4.1	34	19	7	6	3.1
Inferred	60	3.7	34	20	9	5	2.8
Total	**540**	**4.6**	**34**	**18**	**7**	**6**	**2.7**
Contained (kt)			**8,240**	**4,390**	**1,640**	**1,530**	**670**

Ore Reserves as at December 2025:

Reserve Category	Tonnes (Mt)	Total HM (%)	Ilmenite(%)	Zircon(%)	Rutile(%)	Leucoxene(%)	Monazite + Xenotime(%)
Probable	180	5.4	29	17	6	3	2.6
Total	**180**	**5.4**	**29**	**17**	**6**	**3**	**2.6**
Contained (kt)			**2,820**	**1,650**	**580**	**290**	**250**

Note: Valuable Heavy Mineral grades are reported as a percentage of THM for mineral resources and ore reserves above.

Project status: Pre-Feasibility study completed December 2022. Feasibility Study underway targeting completion in 2027 – results of 2023 not included as no longer representative.

Offtake: Rare earth concentrate: intended to supply Iluka's Eneabba rare earths refinery for upgrading into separated rare earth oxides, including NdPr and Dy/Tb oxides, with 100% of Wimmera-derived oxides available for offtake. Zircon and titanium dioxide feedstocks to be sold directly to customers, with 100% production available for offtake.

Min Mine Life (yrs): 23

IRR: N/A

Capital cost: N/A

NPV: N/A

Product and average annual production rate:

- **Zircon products:** ~64ktpa
- **Titanium dioxide feedstocks:** ~138ktpa
- **Rare earth concentrate:** ~15ktpa

Product volumes and mix remain subject to completion of the DFS and final processing configuration.

Rare Earth Elements, Niobium

Yangibana Rare Earths & Niobium Project

Wyloo Gascoyne Pty Ltd (Wyloo) 60% (Manager) & Hastings Technology Metals (Hastings) 40% Unincorporated Joint Venture

Wyloo (Private Company)
ASX-listed (HAS)

hastingstechmetals.com



Commodity(ies):
Rare Earth Elements (Neodymium and Praseodymium (NdPr)), Niobium

Investment summary

Located 250km NE of Carnarvon, WA, the Yangibana Project is underpinned by one of the world's most enriched (37% NdPr:TREO ratio), and highly valued deposits of neodymium and praseodymium (NdPr). Yangibana will become a globally significant source of NdPr, a critical component in permanent magnets used in advanced technology, including EVs and wind turbines. The updated Yangibana Stage 1 DFS completed in July 2026 confirmed a de-risked pathway for development of Stage 1 of the Project – production of Rare Earth Concentrate. Stage 1 is fully permitted and has a mining development agreement with the TMWTJ Aboriginal group. Yangibana is operated by Wyloo, owned by Dr Andrew and Nicola Forrest, focused on strategic investments supporting the energy transition, with strong ESG credentials.

Project description

In Stage 1, ~1.2mtpa ore will be mined from a conventional open pit, with selective mining around the ore zone. Ore will be processed in an on-site beneficiation plant via crushing, ore sorting, grinding, flotation, thickening, filtering and drying to produce ~32,000tpa rare earth concentrate (~27% TREO). Tailings are managed through dedicated storage facilities with water recycling. Stage 1 project execution has been de-risked with A$158m invested to date including; a 300-person village, borefields, pumping stations, water treatment plants, site earthworks and procurement of long lead critical path equipment. Stage 1 construction is ~33% complete. A planned Stage 2 involves construction of a hydrometallurgical plant producing up to 15,000tpa of Mixed Rare Earth Carbonate (MREC) (~ 59% TREO). Approximately 80% of Stage 2 long lead critical path equipment has been procured.

REE Mineral Resources as at October 2022 (0.24% TREO cut-off (6 deposits), 0.2% Nd_2O_3+Pr_6O_{11} cut-off (4 deposits))**:**

Resource Category	Tonnes (Mt)	TREO (%)	Nd_2O_3 + Pr_6O_{11} (%)
Measured	4.97	0.96	0.37
Indicated	19.51	0.88	0.32
Inferred	5.45	1.05	0.31
Total	**29.93**	**0.93**	**0.32**
Contained (kt)		**277**	**96**

Niobium Mineral Resources as at September 2024 (0.24% TREO cut-off (2 deposits)[2]**:**

Resource Category	Tonnes(Mt)	Nd_2O_3 + Pr_6O_{11} (%)
Measured	2.37	1,035
Indicated	4.36	2,995
Inferred	0.01	1,435
Total	**6.74**	**2,305**
Contained (kt)		**15.2**

Ore Reserves as at February 2023:

Reserve Category	Tonnes (Mt)	TREO (%)	Nd_2O_3 + Pr_6O_{11} (%)
Proved	4.89	0.95	0.37
Probable	16.03	0.88	0.32
Total	**20.93**	**0.90**	**0.33**
Contained (kt)		**188**	**69**

Project status: Stage 1 Updated Feasibility Study (July 2026) – Rare Earth Concentrate production[1]. Stage 1 currently in Pre-Construction.

Offtake: Yangibana JV Project has MoU's and Heads of Agreements with various companies in place (refer to HAS ASX Announcements).

Min Mine Life (yrs): 19[1]

IRR: Pre-tax IRR (ungeared): 34%[1]

Capital cost: A$333m (remaining capital cost)[1]

NPV: Pre-tax $NPV_{8\%}$: A$649m[1]

Product and average annual production rate:

Stage 1

- **Rare Earth Concentrate** (27% TREO and 37% NdPr:TREO): 31,570tpa
- (containing 8,524tpa TREO including 3,090tpa NdPr)[1]

Stage 2

- **MREC** (~59% TREO): 15,000tpa planned (not included in the July 2026 Updated DFS)

[1] *Updated DFS Confirms De-Risked Pathway to Yangibana Stage 1 Production (13 July 2026)*

[2] *Niobium MRE has been estimated as an additional resource on top of the existing Rare Earth Element MRE.*

Scandium, Cobalt, Nickel

Burra Scandium Project

Rio Tinto Ltd

ASX-listed (RIO)

riotinto.com/en/products/scandium



Commodity(ies):
Scandium, Cobalt, Nickel

Investment summary

The Burra Scandium Project (BSP) seeks to produce a high-quality scandium oxide product and has the potential to produce a scandium master alloy both for domestic and global markets. It has the potential to establish itself as a leading, globally significant scandium operation with a multi-generational mine life. The previous owners of the Project, Platina Resources Ltd, completed a successful DFS on the Project in December 2018. RIO is updating the Feasibility Study targeting completion in early-2027. Formal approval applications to regulators have commenced with the approval for the mine likely in late-2026 and processing plant in early-2027. RIO continues to work with the Wiradjuri Traditional Owners ensuring that heritage is well managed and prospective economic opportunities are maximised locally. The BSP adds to Rio Tinto's existing scandium production operation located in Quebec, where scandium is extracted from titanium refining wastes.

Project description

The proposed mine, near Tullamore, New South Wales, will be a shallow, open-cut operation with a minimum footprint and no blasting mining of <100ktpa ore. Ore feed will be trucked ~70km to a processing plant to be located in the Parkes Special Activation Precinct, close to workforce which minimises greenfield land disturbance, whilst maximising logistics, and energy and water infrastructure currently in place. Ore will be processed to final products using proven high pressure acid leach and solvent extraction technology. Processed solids will be neutralised and returned to the mined pit which will be progressively rehabilitated – there is no tailings storage facility.

Mineral Resources as at August 2018 (300ppm Sc cut-off)**, Platina Resources Ltd:**

Resource Category	Tonnes (Mt)	Sc (ppm)	Co (%)	Ni (%)	Pt (g/t)
Measured	7.8	435	0.07	0.13	0.42
Indicated	12.5	410	0.06	0.11	0.26
Inferred	15.3	380	0.05	0.08	0.22
Total	**35.6**	**405**	**0.06**	**0.10**	**0.28**
Contained (kt)		**22.0 Kt Sc_2O_3**	**20.5**	**35.7**	**317 Koz**

These Mineral Resources were reported by the previous owner, Platina Resources Ltd, in its 13-Dec-2018 announcement to the ASX titled "Increase to the Owendale Mineral Resource". Rio Tinto is yet to verify these Mineral Resource estimates.

Project status: Feasibility Study completed by previous owners Platina Resources in Dec 2018. Updated Feasibility Study underway targeting completion in early-2027.

Offtake: 100% available.

Min Mine Life (yrs): 30 (initial permit). Potential for an extensive mine life based on current endowment understanding.

IRR: Under evaluation in Updated FS underway.

Capital cost: Under evaluation in Updated FS underway.

NPV: Under evaluation in Updated FS underway.

Product and average annual production rate:

- **Scandium oxide** (99.99% purity): ~40tpa anticipated capacity

Scandium

Nyngan Scandium

Scandium International Mining Corp

TSX-V listed (SCY)

scandiummining.com



Commodity(ies):
Scandium

Investment summary

SCY is advancing the fully permitted Nyngan Scandium Project with an Updated DFS commenced in June 2026 targeting completion in 2026 Q4. The Updated DFS will update capital and operating costs using the same basic parameters as the existing 2016 DFS. Early construction works commenced in October 2023 including surveying of the site, removal and stockpiling of topsoil and construction of a temporary site office. Nyngan is fully permitted with EIS approval and Aboriginal Heritage clearances in place and the Mining Lease Granted in October 2025. SCY welcomes discussion regarding financing and offtake for the Nyngan Scandium project. The Company is actively progressing offtake agreements focusing on solid-oxide fuel cells, 3D printing, and aluminium-scandium master alloy sales.

Project description

The Nyngan Scandium Project, located in Western NSW, is based on a shallow, surface-mineable lateritic clay deposit with attractive scandium enrichment. 75,000tpa ore will be mined in short 4-6 week campaigns each year. Ore will be ground and sized prior to processing on-site including; continuous High-Pressure Acid Leaching (HPAL), Solvent Extraction (SX), scandium oxalate precipitation, calcination finishing, and packaging to produce a final scandium oxide product (Sc_2O_3, or scandia). Considerable bench scale and small pilot metallurgical test work has been conducted with third party laboratories to finalise the flowsheet and SX specifics. A pilot testwork program completed in 2020 assessed production of aluminium-scandium master alloy (aluminium alloys containing 2% scandium) from scandium oxide using SCY's proprietary process (patent awarded in 2021). Resource extension drilling undertaken in 2024 provided encouraging results, demonstrating the potential to increase the Mineral Resource with further infill drilling.

Mineral Resources as at May 2016 (100ppm Sc cut-off)**:**

Resource Category	Tonnes (Mt)	Sc (ppm)
Measured	5.7	256
Indicated	11.2	225
Total	**16.9**	**235**
Contained (kt)		**4.0**

Ore Reserves as at May 2016:

Reserve Category	Tonnes (Mt)	Sc (ppm)
Proved	0.8	394
Probable	0.6	428
Total	**1.4**	**409**
Contained (kt)		**0.6**

Project status: Feasibility Study (May 2016).[1]

Offtake: Yes offtake available.

Min Mine Life (yrs): 20[1]

IRR: Post-tax IRR: 33%[1]

Capital cost: US$87m[1]

NPV: Post-tax $NPV_{8\%}$: US$225m[1]

Product and average annual production rate:

- **Scandium Oxide** (Sc_2O_3): 38.3tpa[1]
  (Also potential to further refine scandium oxide to produce aluminium-scandium master alloys)

[1] *Nyngan Scandium Project – Feasibility Study (May 2016)*

Scandium

Syerston Scandium Project

Sunrise Energy Metals Ltd
ASX-listed (SRL); OTCQX (SREMF)
sunriseem.com



Commodity(ies):
Scandium (as scandium oxide, Sc_2O_3)

Investment summary

A Feasibility Study for the Syerston Scandium Project was completed in March 2026, confirming a long-life, low-cost operation producing 60tpa of high-purity scandium oxide from an integrated open-pit mine and on-site processing plant. Early works have commenced including detailed engineering, water infrastructure and long-lead procurement. SRL is targeting FID in 2026 Q3 and commencement of commercial production in mid-2028. Mining Lease granted, Development Consent, approved EIS and secured water licences are all in place. Scandium uses include Scandium Enhanced Solid Oxide Fuel Cells (SOFC) powering AI data centres, aluminium-scandium aerospace and defence alloys, and AlScN semiconductor thin films. The US Government has conditionally committed to US$400 million of debt support. With restrictions on exports of scandium, Sunrise offers Western supply and welcomes discussions on both offtake and investment.

Project description

Syerston, near Fifield in central-west New South Wales, is a shallow (35–40m) scandium deposit. Ore will be mined from a small open pit and processed on-site via comminution and beneficiation, pressure acid leaching, resin-in-pulp ion exchange and elution, and multi-stage precipitation to produce >99.9% purity scandium oxide. The plant treats 64,000tpa of ore at a life-of-mine average grade of 656ppm Sc (690ppm in the first decade), supporting 60tpa of scandium oxide production over a 32-year life – 21 years of mining plus 11 years drawing down stockpiles. Sunrise is advancing studies on a second 120tpa train and evaluating a metallisation facility to supply scandium metal.

Mineral Resources as at September 2025
(300ppm Sc cut-off):

Resource Category	Tonnes (Mt)	Sc (ppm)
Measured	5.10	444
Indicated	40.83	410
Inferred	5.73	364
Total	**51.66**	**408**
Contained Sc (kt)		**21.1**

Ore Reserves as at September 2025
(550ppm Sc cut-off):

Reserve Category	Tonnes (Mt)	Sc (ppm)
Proved	0.53	661
Probable	1.51	638
Total	**2.04**	**644**
Contained Sc (kt)		**1.3**

Project status: Feasibility Study completed in March 2026.[1] Pre-Construction commenced in 2026.

Offtake: 100% (scandium oxide).

Min Mine Life (yrs): 32[1]

IRR: Post-tax IRR: 76%[1]

Capital cost: US$120m[1]

NPV: Post-Tax $NPV_{8\%}$: US$890m[1]

Product and average annual production rate:

- **Scandium oxide** (>99.9% Sc_2O_3): 60tpa[1]

[1] *Syerston Scandium Project Completed Feasibility Study, SRL announcement (3 March 2026)*

Silicon

Arrowsmith North Silica Sand

VRX Silica Ltd
ASX-listed (VRX)
vrxsilica.com.au



Commodity(ies):
Silica Sand

Investment summary

VRX Silica (ASX: VRX) holds five high-grade, low-impurity silica sand projects in WA with a combined Mineral Resource exceeding 1.4 billion tonnes at 99.6%–99.9% SiO_2. Arrowsmith North is the first project to be developed. All regulatory approvals are in place, including Mining Leases, Native Title and Aboriginal Heritage agreements, Environment Ministerial Consent, Mining Proposal and Works Approval and the project is now in Pre-Construction. Silica sand is a critical input for glassmaking, foundry manufacturing, electronics, filtration, solar, wind and battery supply chains. Six offtake contracts for 960ktpa are signed for foundry uses. Balance of 2Mtpa capacity is available. VRX welcomes discussions on project equity investment and debt finance.

Project description

Arrowsmith North is located 270km north of Perth with direct highway connection to Geraldton Port. Exploration, metallurgical testwork, process circuit design and detailed engineering are complete. With completion of an Updated BFS in May 2026, and FID on the project targeted later in 2026, Arrowsmith North is now in Pre-Construction stage with early site works planned to commence Q4 2026. Loose sand will be mined from surface to 8–12m depth, with loaders feeding a mobile feed trommel, then on-site processing by attritioning, flotation and sizing classification to produce a range of product grades. Mining incorporates a progressive Vegetation Direct Transfer program for continuous rehabilitation to native vegetation. The project targets 2Mtpa of high-grade silica sand (99.7% SiO_2, 500-600 ppm Fe_2O_3) for foundry and glassmaking markets. With a post-tax IRR of 31% and $NPV_{8\%}$ of A$179m, Arrowsmith North presents a compelling investment case and VRX are targeting production commencement by Q4 2027.

Mineral Resources as at June 2024:

Resource Category	Tonnes (Mt)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Measured	10	95.9	1.90	0.70	0.30	0.70
Indicated	237	97.7	1.00	0.40	0.20	0.50
Inferred	266	98.4	0.69	0.29	0.23	0.36
Total	**513**	**98.0**	**0.86**	**0.35**	**0.22**	**0.43**

Ore Reserves as at June 2024:

Reserve Category	Tonnes (Mt)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Proved	7.4	99.4	0.47	0.08	0.05	0.10
Probable	177.8	99.4	0.47	0.07	0.05	0.10
Total	**185.2**	**99.4**	**0.47**	**0.07**	**0.05**	**0.10**

See tech data on Reserve products https://vrxsilica.com.au/resources/tech sheets/

Project status: Updated Feasibility Study (May 2026).[1] Now in Pre-Construction.

Offtake: Six offtake contracts signed for 960ktpa. Balance of 2Mtpa capacity available. Active discussions with additional customers.

Min Mine Life (yrs): 25 years[1]

IRR: Post-tax IRR: 31% (ungeared)[1]

Capital cost: ~A$74.5m (inc. contingency)[1]

NPV: Post-tax $NPV_{8\%}$: A$179m (ungeared)[1]

Product and average annual production rate:

- **Silica sand** (99.7% SiO_2 and 500-600ppm Fe_2O_3 – foundry and glassmaking sand): 2Mtpa[1]

[1] *Arrowsmith North 2026 Updated BFS, VRX announcement (27 May 2026)*

Silicon

Muchea Silica Sand Project

VRX Silica Ltd
ASX-listed (VRX)
vrxsilica.com.au



Commodity(ies):
Very high-grade Silica Sand

Investment summary

VRX Silica holds five high-grade, low-impurity silica sand projects in Western Australia with a combined Mineral Resource exceeding 1.4 billion tonnes at 99.6%–99.9% SiO_2. The very high-grade Muchea Project will be the second project developed. Silica sand is a critical input for glassmaking, foundry manufacturing, filtration, solar, wind and battery supply chains. Muchea has an outstanding high-grade purity of 99.9% SiO_2 and <150ppm Fe_2O_3 making it ideal for premium clear glass markets. One Mining Lease has been granted with a second under application. Native Title and Aboriginal Heritage agreements are in place. Most environmental studies are completed with work on additional surveys underway, targeting EPA referral in 2027 Q1. Demand for solar panels and construction glass is expected to drive exponential growth in demand for high-quality silica sand, with customer interest in Muchea sand exceeding planned capacity.

Project description

Muchea is located 50km north of Perth, adjacent to the Brand Highway and existing rail infrastructure, with direct truck access to Kwinana and Geraldton Ports. Exploration, metallurgy and process circuit design is complete and detailed engineering is underway. Loose sand will be mined from the surface to 12–20m deep with loaders feeding a mobile trommel and progressive rehabilitation. Sand will be processed on site by attritioning and sizing to produce high-grade (99.9% SiO_2) low iron sand. In June 2026, the WA Government confirmed support for VRX's land swap proposal that will substantially increase volume of high-grade silica sand accessible for mining over a lower environmental impact area. The 2019 BFS is being updated targeting completion in 2027 Q1.

Mineral Resources as at June 2024:

Resource Category	Tonnes (Mt)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Indicated	29	99.6	0.09	0.03	0.07	0.22
Inferred	172	99.6	0.05	0.02	0.10	0.23
Total	**208**	**99.6**	**0.06**	**0.02**	**0.10**	**0.23**

Ore Reserves as at June 2024:

Reserve Category	Product	Tonnes (Mt)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Probable	F80	10.2	99.9	0.02	0.008	0.03	0.1
	F80C	4.25					
	F150	4.25	99.8	0.07	0.015	0.035	0.1
Probable	**Total**	**18.7**					
Total		**18.7**					

See tech data on Reserve products: vrxsilica.com.au/resources/tech sheets

- **Project status:** Feasibility Study completed in Oct 2019.[1]
- **Offtake:** 100% offtake available.
- **Min Mine Life (yrs):** 25[1]
- **IRR:** Post-tax IRR: 96% (ungeared)[1]
- **Capital cost:** A$50m[1]
- **NPV:** Post-tax $NPV_{10\%}$: A$338m (ungeared)[1]
- **Product and average annual production rate:**
  - **High grade silica sand** (99.9% SiO_2 with <150ppm Fe_2O_3): 2Mtpa[1]

[1] *Muchea BFS and Maiden Ore Reserve, VRX announcement (18 October 2019)*

Silicon

Sugarbag Hill Ultra High Purity Quartz Sand (UHPQS) Project

High Purity Quartz Ltd (UltraHPQ)

Public, Unlisted Company

ultrahpq.com



Commodity(ies):
99.0% Quartz

Investment summary

UltraHPQ is developing its vertically integrated Sugarbag Hill UHPQS critical minerals project across 3 locations in Queensland. Quartz will be mined and processed to make UHPQS used to manufacture solar PV grade Fused Quartz Crucibles used in the CZ process to make mono-crystalline silicon for solar PV wafers. Finished UHPQS is scarce globally and UltraHPQ's product provides global supply diversification. The Sugarbag Hill minesite has a granted Mining Lease and First Nations agreement in place. Workstreams across all sites are mapped out for Mining Lease and environmental approval applications required at the Mount Garnet pre-processing site and for permitting of the Lansdown Eco Industrial Precinct (LEIP) processing site. QLD Government Prescribed Project Status supports this process. Engagement with First Nations People and local communities across all sites is underway. Conditional Offtake is in place for up to 80% of product, on funding of min 50% of Construction Phase. Funding of ~A$20m is currently required for completion of the DFS/FEED stage over the next 15 months. Funding via debt, equity and/or strategic partner investment is sought for the construction phase.

Project description

PFS completed in March 2025 demonstrated attractive economics. ~100ktpa quartz ore will be mined from a small conventional open-cut and crushed and screened at UltraHPQ's Sugarbag Hill deposit. Quartz will be transported to Mt Garnet for pre-processing (crushing, comminution, separation, flotation, drying) producing ~50ktpa of sand concentrate that will be transported to LEIP, Townsville, for advanced processing to produce ~36ktpa finished UHPQS with total impurities <40ppm. The Sugarbag Hill resource remains open at depth and along strike, with significant exploration potential.

Mineral Resources as at 2025 (99.0% Quartz cut-off)**:**

Resource Category	Tonnes (Mt)	SiO_2 (%)
Measured	0.7	99.1
Indicated	0.5	98.9
Inferred	0.3	99.1
Total	**1.5**	**99.0**
Contained (kt)		**N/A**

Ore Reserves: Under review during DFS.

Project status: Pre-Feasibility Study completed March 2025.[1]

Offtake: 100% offtake potentially available. Max 80% LOM offtake with party is conditional on receipt of 50% Construction stage funding from the party. Min 20% LOM offtake provides for additional volumes not taken by Conditional Offtaker.

Min Mine Life (yrs): 12.4

IRR: Pre-tax IRR: 37%[1]

Capital cost: A$520m[1]

NPV: Pre-tax $NPV_{10\%}$: A$1.4b[1]

Product and average annual production rate:

- **UHPQS** (99.996% SiO_2): 36ktpa[1]

[1] *Sugarbag Hill Ultra High Purity Quartz Sand (UHPQS) Project Pre-Feasibility Study (March 2025)*

Titanium, Zirconium, Rare Earth Elements

Copi Project

RZ Resources Ltd

Unlisted Public Company, Australian owned

rzresources.com



Commodity(ies):

Titanium, Zirconium, Rare Earth Elements

Investment summary

Copi is an advanced mineral sands and rare earths development in the Murray Basin, south-west NSW. It combines a large, long-life resource with RZ's existing Mineral Separation Plant (MSP) in Brisbane, being upgraded, offering an Australian source of products for diverse global markets. NSW development consent has been granted and native title has been extinguished for the initial development. Other approvals are progressing. The Enhanced DFS is nearing completion, with FID targeted for H1 2027 and first production for 2030. RZ has signed an indicative term sheet with the Export-Import Bank of the United States (EXIM) for a US$550m loan and is backed by strategic investors JX Advanced Metals and Marubeni Corporation. RZ is seeking offtake partners and welcomes discussions on investment in the project.

Project description

~24Mtpa ore will be dredge mined with progressive rehabilitation. On-site gravity separation will produce heavy mineral concentrate, from which magnetic separation will recover primary and secondary ilmenite and a rare earth concentrate plant will produce monazite and xenotime concentrates for export. The zircon and rutile-rich non-magnetic concentrate will be transported to the Brisbane MSP for separation into zircon and rutile products. Previously operated by Sibelco and CRL, the MSP is being prepared for early recommissioning using third-party feedstock. Copi has a proposed mine life of more than 50 years, with open resource boundaries offering exploration upside.

Mineral Resources as at July 2026 (0.3% HM cut-off)**:**

Resource Category	Tonnes (Mt)	Total HM (%)	Ilmenite (%)	Leucoxene (%)	Rutile95 & HiTI92 (%)	Zircon (%)	Monazite (%)	Xenotime (%)
Measured	160	2.7	52	4.4	14	16	1.08	0.14
Indicated	3,210	1.3	47	7.9	15	14	0.95	0.12
Inferred	50	0.9	45	8.6	16	12	0.78	0.1
Total	**3,420**	**1.3**	**47**	**7.6**	**15**	**14**	**0.96**	**0.12**
Contained (kt)		**44,460**	**20,896**	**3,379**	**6,669**	**6,224**	**427**	**53**

Ore Reserves as at December 2025:

Reserve Category	Tonnes (Mt)	Total HM (%)	Ilmenite (%)	Leucoxene (%)	Rutile95 & HiTI92 (%)	Zircon (%)	Monazite (%)	Xenotime (%)
Proven	22	2.9	54	3.2	13	18	1.1	0.14
Probable	1,405	1.6	48	7.5	15	16	1.1	0.13
Total	**1,427**	**1.7**	**48**	**7.4**	**15**	**16**	**1.1**	**0.13**
Contained (kt)		**24,259**	**11,644**	**1,795**	**3,639**	**3,881**	**267**	**32**

Valuable Heavy Mineral grades are reported as a percentage of THM

Project status: Feasibility Study – Copi Mine and MSP Upgrade (January 2024). Enhanced DFS nearing completion.[1]

Offtake: MOUs in place for ~80% of production, subject to formal offtake agreements. Remainder subject to discussion with potential customers.

Min Mine Life (yrs): 47[1]

IRR: Pre-tax IRR: 20%[1]

Capital cost: ~A$1,390m[1]

NPV: Pre-tax $NPV_{8\%}$: A$2,060m[1]

Product and average annual production rate:

Copi (on-site processing):

- **Sulphate Ilmenite** (54.5% TiO_2): 110ktpa
- **Chloride Ilmenite** (61.5% TiO_2): 155ktpa
- **Monazite Concentrate** (55.4% TREO): 6ktpa
- **Xenotime Concentrate** (44.3% TREO): 1ktpa

Brisbane MSP:

- **Premium Zircon** (>66% ZrO_2+HfO_2): 70ktpa
- **Standard Zircon** (65% ZrO_2+HfO_2): 15ktpa
- **Zircon Concentrate:** 30ktpa
- **Metal Grade Rutile** (97% TiO_2): 10ktpa
- **Pigment Grade Rutile** (92% TiO_2): 30ktpa

[1] *Enhanced DFS Provisional Report – Copi Mine and Mineral Separation Plant (MSP) (November 2026)*

Titanium, Vanadium

Medcalf

Audalia Resources Ltd
ASX-listed (ACP)
audalia.com.au



Commodity(ies):
Titanium, Vanadium, Iron

Investment summary

Audalia is developing the Medcalf Project located 470km east of Perth, WA. An Updated Pre-Feasibility Study (UPFS) completed in January 2026 demonstrated attractive economics for the Project, with two options; a low capex, high opex (LCHO) option ($31.1m capex) and a high capex, low opex (HCLO) option ($120.9m capex), producing high-grade titanium lump ore (HTLO) and high-grade titanium fine ore (HTFO) for use in blast furnace hearth liners. The variation of the capex is largely due to the standard of access road built. Preparation of the Mine Development and Closure Plan is underway, targeting submission for approval by end Q3, 2026. Medcalf HTLO & HTFO sample products have been sent to potential customers for testing and offtake discussions have commenced. The Project has a granted Mining Lease, environmental approval granted by the WA EPA in July 2024 and an agreement in place with the Traditional Owners.

Project description

The Medcalf UPFS included declaration of a maiden Ore Reserve (see below) and is based on mining 1.0Mtpa ore from 6 shallow (<50m depth) open-pit mines over a 9-10 year life, with no dewatering. Ore will be crushed and screened to produce 960ktpa HTLO (10-60mm sizing) and HTFO (3-10mm sizing) at 11.0% TiO_2, 0.6% V_2O_5, and 53.8% Fe_2O_3, with 82% lump recovery and 7.6% fines recovery. Products will be trucked 220km to Esperance Port for export to Asia. Audalia is targeting Final Investment Decision (FID) at end of Q3, 2026 along with contract mining partner selection and submission of remaining regulatory approvals. Commencement of production is targeted for Q2, 2027.

Mineral Resources as at September 2025 (6% TiO_2 cut-off)**:**

Resource Category	Tonnes (Mt)	V_2O_5 (%)	TiO_2 (%)	Fe_2O_3 (%)
Indicated	20.3	0.54	10.17	51.5
Inferred	3.8	0.38	7.85	43.1
Total	**24.2**	**0.52**	**9.80**	**50.2**
Contained (kt)		**126**	**2,372**	**12,148**

Ore Reserve as at January 2026 (7.5% TiO_2 cut-off):

Reserve Category	Tonnes (Mt)	V_2O_5 (%)	TiO_2 (%)	Fe_2O_3 (%)
Probable	11.77	0.61	11.01	53.80
Total	**11.77**	**0.61**	**11.01**	**53.80**
Contained (kt)		**71**	**1,299**	**6,348**

Project status: Updated Pre-Feasibility Study (Jan 2026) with two options evaluated; Low Capex / High Opex (LCHO) Option.[1]
High Capex / Low Opex (HCLO) Option.[1]

Offtake: 100% (Lump and Fines).

Min Mine Life (yrs): 9–10[1]

IRR: LCHO Option: Pre-tax IRR: 164%[1]
HCLO Option: Pre-tax IRR: 64%[1]

Capital cost: LCHO Option: A$31m[1]
HCLO Option: $120m[1]

NPV: LCHO Option: Pre-tax $NPV_{8\%}$: A$141m[1]
HCLO Option: Pre-tax $NPV_{8\%}$: A$227m[1]

Product and average annual production rate:

- **High titanium lump ore (HTLO) & High titanium fine ore (HTFO)** (11.0% TiO_2, 0.6% V_2O_5 and 53.8% Fe_2O_3): 960ktpa[1]

[1] *Medcalf Project – Jan 2026 PFS Update and Maiden Ore Reserve, ACP announcement (30 January 2026)*

Titanium, Zirconium

McLaren Titanium Project

McLaren Minerals Ltd

ASX-listed (MML)

mclarenminerals.com.au



Commodity(ies):

Titanium (ilmenite, rutile, leucoxene); Zirconium (zircon)

Investment summary

The McLaren Titanium Project is a 100%-owned, mineral sands project in Western Australia's Eucla Basin. The PFS completed in January 2026 outlines a 15.9-year operation producing approximately 407ktpa ilmenite concentrate and 32ktpa non-magnetic concentrate, with pre-tax $NPV_{8\%}$ of A$252m and pre-tax IRR of 26%. In 2026, McLaren drilled 663 holes for 11,568m, expected to support an updated Mineral Resource, maiden Ore Reserve and BFS. Heritage surveys and clearances have been completed with the Ngadju People for exploration areas. Work on environmental studies and development approvals is progressing. 100% of the planned production is uncommitted, and McLaren welcomes strategic investment and offtake discussions.

Project description

The McLaren Titanium Project is located 40 km west of Balladonia in the western Eucla Basin, adjacent to the Eyre Highway, and hosts a shallow mineral sands deposit suited to dry mining. The PFS is based on an 11.8mtpa mining and processing rate through an on-site wet concentrator and concentrate upgrade plant using screening, desliming, gravity and magnetic separation. Products are sulphate ilmenite concentrate and a non-magnetic concentrate containing zircon, rutile and leucoxene. Ilmenite concentrate will be transported to Esperance Port for export, with non-magnetic concentrate transported to Bunbury for sale to end users. The November 2025 JORC Mineral Resource is 529Mt @ 4.5% HM for 23.7Mt in-situ HM. The PFS conceptual pit contains 185.7Mt @ 5.85% HM, leaving more than 60% of the Resource outside the initial development case. Current work covers updating the Mineral Resource, metallurgical optimisation, engineering, environmental studies, co-disposal optimisation and inputs for the future Ore Reserve, BFS and Mining Lease grant.

Mineral Resources as at November 2025 (>2% HM and <38% slimes cut-off)**:**

Resource Category	Tonnes (Mt)	HM (%)	Ilmenite (% of HM)	Rutile (% of HM)	Leucoxene (% of HM)	Zircon (% of HM)
Indicated	249	4.70	29.8	0.7	1.9	0.6
Inferred	280	4.20	27.8	0.7	1.8	0.5
Total	**529**	**4.50**	**28.7**	**0.7**	**1.8**	**0.5**
Contained (kt)		**23,700**	**6,825**	**166**	**438**	**130**

Note: Valuable Heavy Mineral grades are reported as a percentage of HM. *Contained mineral tonnes are derived from the published in-situ HM tonnes and mineral assemblage percentages.*

Ore Reserves: No Ore Reserve has been declared.

- **Project status:** Pre-Feasibility Study (January 2026).[1]
- **Offtake:** 100% of planned production currently uncommitted; no binding offtake announced.
- **Min Mine Life (yrs):** 15.9[1]
- **IRR:** Pre-tax IRR: 26.0%[1]
- **Capital cost:** A$179.3m (including contingency)[1]
- **NPV:** Pre-tax $NPV_{8\%}$: A$252.2m[1]
- **Product and average annual production rate:**
  - **Ilmenite concentrate** (sulphate ilmenite): 407ktpa[1]
  - **Non-magnetic concentrate** (rutile, leucoxene and zircon): 32ktpa[1]

[1] *McLaren Titanium Project Pre-Feasibility Study, MML announcement (13 January 2026)*

Tungsten

Dolphin Tungsten Mine Underground Development and Exploration

Group 6 Metals Ltd
ASX-listed (G6M)
g6m.com.au



Commodity(ies):
Tungsten

Investment summary

The 100%-owned Dolphin Tungsten Mine located near Grassy on King Island, Tasmania, is an operating tungsten concentrate producer transitioning from completed open-cut mining and stockpile processing to underground mining and ramp-up of concentrate production. Underground development and production services commenced at the end of June 2026. FY26 production was 88,911 MTU WO_3, with 92,964 MTU WO_3 sold. Existing offtake arrangements support sales. The Company welcomes strategic investment discussions supporting underground ramp-up, exploration, productivity initiatives and secure Western supply.

Project description

The Dolphin operation comprises of a partially mined open-cut, historic underground workings being rehabilitated and developed, existing ore stockpiles, and an on-site gravity and flotation processing plant. Ore is crushed, screened and ground before being upgraded through gravity separation, spirals, multi-gravity separation, flotation and concentrate dressing to produce tungsten concentrate for export. Following completion of the current open-cut mining sequence in early FY26, the plant has been processing blended stockpiles, with an FY27 opening stockpile balance of ~295,000t at 0.26% WO_3, which is expected to be supplemented by ore generated through underground development. Underground construction commenced in June 2026, with first underground production targeted for the September Quarter FY27. Planned underground development will target high-grade ore zones (~1% WO_3) within the resource and may subsequently be extended to access the adjacent Bold Head deposit over the medium term. At 30 June 2026, remaining inventory comprised a Mineral Resource of 10.55Mt at 0.89% WO_3 and an Ore Reserve of 4.07Mt at 0.92% WO_3. Ore sorting, fine tungsten recovery, exploration and power-generation initiatives are also being assessed to improve productivity, metallurgical recovery and unit operating costs.

Dolphin and Bold Head Mineral Resources as at June 2026 (0.2% WO_3 cut-off)**:**

Resource Category	Tonnes (Mt)	WO_3 (%)
Indicated	10.55	0.89
Total	**10.55**	**0.89**
Contained (kt)		**94.3**

Dolphin and Bold Head Ore Reserves as at June 2026 (Open-Cut: 0.2% WO_3 cut-off, Underground: 0.7% WO_3 cut-off)**:**

Reserve Category	Tonnes (Mt)	WO_3 (%)
Probable	4.07	0.92
Total	**4.07**	**0.92**
Contained (kt)		**37.3**

Project status: Construction (underground activities commenced late June 2026, balance of project completed).

Offtake: Tungsten concentrate: 0% currently available (committed under existing index-linked offtake arrangements). As production ramps up, ~20% of production may be available for spot market or other opportunities.

Min Mine Life (yrs): ~6-8 years minimum depending on cut-off grade and exploration upside.

IRR: N/A – In production

Capital cost: N/A

NPV: N/A – In production (market capitalisation ~A$900M+)

Product and average annual production rate:

FY26 production

- **Tungsten concentrate** (~50%WO_3): 1,778 tonnes (containing 889.1 tonnes WO_3 / 88,911 MTU WO_3)

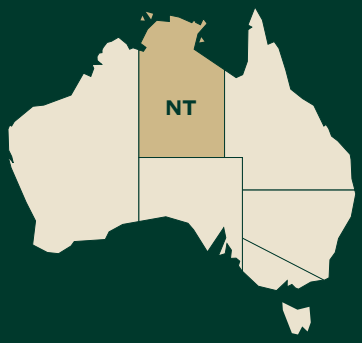
Underground production

- **Tungsten concentrate** (~60%WO_3): expected to ramp up significantly with commencement of underground ore production.

Tungsten, Molybdenum

Molyhil Tungsten Project

Tivan Ltd
ASX-listed (TVN)
tivan.com.au



Commodity(ies):
Tungsten (scheelite concentrates) and Molybdenum concentrate

Investment summary

Molyhil is an advanced brownfield tungsten-molybdenum project positioned to anchor a new critical minerals precinct in Central Australia. Tungsten and molybdenum are used in defence, semiconductor, clean energy and aerospace industries. A DFS was completed by Thor Energy in 2018. Following acquisition in January 2026, Tivan recommenced studies at scoping level to update and validate the technical, economic and cost assumptions supporting a contemporary development case. The April 2026 Scoping Study confirmed strong economics and a relatively low-risk development pathway. A PFS is progressing on a fast-track pathway towards a DFS and targeted FID in 2027. Environmental studies and Traditional Owner agreement considerations are underway. Molyhil has NT Major Project Status. MOUs with Sumitomo Corporation and ETFS Capital contemplate staged project funding and up to 100% offtake.

Project description

Located ~220km north-east of Alice Springs, and adjacent to Tivan's Sandover Fluorite Project, Molyhil is an advanced brownfield project with an established Mineral Resource and extensive drilling, metallurgical and feasibility datasets. The Scoping Study envisages mining approximately 3.5 Mt of ore from a conventional open pit over seven years, including pre-strip, followed by approximately three years of underground mining averaging 0.162 Mtpa. Ore will be processed via flotation, gravity and magnetic separation in an on-site processing facility to produce high-value scheelite and molybdenum concentrates. Molyhil hosts a JORC Code 2012 Mineral Resource of 4.65Mt at 0.26% WO_3 and 0.09% Mo, with significant exploration potential. Tivan's landmark community development initiative with the Central Land Council and partnership MOU with Aboriginal Investment NT creates pathways for investment, employment, training, procurement and contracting.

Mineral Resources as at May 2024 (0.05% WO_3 cut-off, above 150 mRL) (restated by Tivan July 2026)**:**

Resource Category	Tonnes (Mt)	WO_3 (%)	Mo (%)
Measured	1.16	0.34	0.11
Indicated	1.67	0.27	0.10
Inferred	1.82	0.20	0.08
Total	**4.65**	**0.26**	**0.09**
Contained (kt)		**12.1**	**4.4**

Ore Reserves: No Ore Reserve has been declared.

- **Project status:** Scoping Study completed April 2026.[1]
- **Offtake:** Offtake for up to 100% of planned production is contemplated through Sumitomo Corporation, subject to binding agreements.
- **Min Mine Life (yrs):** 7 years; potential underground production in years 8 and 9.
- **IRR:** Pre-tax IRR: 114.2%[1]; Post-tax IRR: 79.1%[1]
- **Capital cost:** A$187.3m[1]
- **NPV:** Pre-tax $NPV_{8\%}$: A$534m[1]
  Post-tax $NPV_{8\%}$: A$355m[1]
- **Product and average annual production rate:**
  - **Primary scheelite concentrate** (50% WO_3): 1,830tpa[1]
  - **Secondary scheelite concentrate** (30% WO_3): 190tpa[1]
  - **Molybdenum concentrate** (51% Mo): 560tpa[1]

[1] *Molyhil Tungsten Project Scoping Study (29 April 2026). Base Case results presented.*

Tungsten

Mount Carbine Tungsten Mine Expansion

EQ Resources Ltd
ASX-listed (EQR)
eqresources.com.au



Commodity(ies):
Tungsten

Investment summary

Mt Carbine is EQR's flagship Australian tungsten operation and a cornerstone of its broader Western tungsten platform, combining EQR-owned production in Australia and Spain, regional growth in Queensland, and its 10% interest in the Springer APT processing plant JV in Nevada. Tungsten is a critical mineral with highly concentrated supply, increasing the strategic importance of Western production. As an S&P/ASX 300 constituent and one of the few established Western tungsten producers, EQR offers rare on-market exposure to this supply shift. EQR welcomes on-market investment and strategic partnerships at a time when secure Western tungsten supply is more important than ever.

Project description

Located ~130km northwest of Cairns, Mt Carbine is an operating open-pit tungsten mine and processing hub producing concentrate through crushing, screening, XRT ore sorting and gravity concentration. The approved A$39m expansion is under construction to increase crushing capacity from ~1Mtpa to ~2Mtpa, with commissioning targeted by March 2027. Mt Carbine produced 28,281 mtu WO_3 in FY2026, with an aspirational operational objective of 225,000 mtu pa WO_3 supported by the expansion and increased processing capacity. A 7,700m infill and expansion drilling program is underway to support resource growth and reserve conversion, while ~1,136km^2 of regional tenure underpins a hub-and-spoke growth pathway across Wolfram Camp, Mt White and adjacent tenements, with potential to expand resources, extend mine life and maximise Mt Carbine's processing infrastructure.

Mineral Resources as at June 2026 (Low Grade Stockpiles: 0.05% WO_3 cut-off, In-Situ: 0.08% WO_3 cut-off)**:**

Mt Carbine In-Situ and Low-Grade Stockpile	Tonnes (Mt)	WO_3 (%)
Indicated	26.72	0.21
Inferred	14.05	0.24
Total	**40.80**	**0.22**
Contained (kt)		**90.61**

Ore Reserves as at June 2026 (LGS + open cut)**:**

Mt Carbine In-Situ and Low-Grade Stockpile	Tonnes (Mt)	WO_3 (%)
Probable	13.85	0.15
Total	**13.85**	**0.15**
Contained (kt)		**21.21**

Project status: Operating. Expansion in Construction (2026).[1]

Offtake: EQR has multiple long-term offtake arrangements in place across its global operations, with pricing linked to prevailing tungsten market benchmarks, and remains open to additional strategic offtake discussions as production grows.

Min Mine Life (yrs): 8. Current reserve mine life; only 23% of the current Resource converted to Reserve; ~7,700m infill and expansion drilling underway to support further resource growth, reserve conversion and mine-life extension.

IRR: N/A

Capital cost: A$39m[1]

NPV: N/A

Product and average annual production rate:

- **Tungsten concentrate** (~50% WO_3): ~4,500tpa (containing ~2,250tpa WO_3 / 225,000 mtu pa WO_3)

Aspirational operational objective; not production guidance.

[1] *EQR Approves Mt Carbine Expansion, EQR announcement (3 June 2026)*

Tungsten

Mt Lindsay Tin-Tungsten Project

Critica Ltd

ASX-listed (CRI)

critica.limited



Commodity(ies):

Tin, Tungsten, Magnetite and potentially Copper

Investment summary

Critica Ltd's 100%-owned Mt Lindsay Tin-Tungsten Project in north-west Tasmania is advancing from a 2026 Scoping Study towards a Definitive Feasibility Study. The Scoping Study outlines a 1.0Mtpa underground development on a granted Mining Lease, leveraging established road, power and export infrastructure and using paste backfill to reduce surface tailings storage. Environmental baseline work and confirmation of the State and Commonwealth approvals pathway are progressing. Historical Aboriginal cultural heritage work will be reviewed and updated. No binding offtake is in place. Critica welcomes discussions with potential customers, strategic partners and investors regarding offtake, project funding and development participation.

Project description

Mt Lindsay is located ~32 km west of Tullah in north-west Tasmania and has a historic (2012) Feasibility Study. A Scoping Study completed in September 2026 demonstrates robust economics for a low-footprint development. ~1.0Mtpa ore will be mined from an underground mine using longhole open stoping with paste backfill and dual declines. Ore will be processed at a plant to be built nearby via; crushing, grinding, magnetic separation, gravity concentration and flotation to produce tin, scheelite and magnetite concentrates. Over the 13.5 year mine life, ~10.9Mt will be mined and processed, with 92% from Indicated Mineral Resources. Development will minimise surface disturbance by using existing disturbed areas and infrastructure corridors where practical, while paste backfill reduces surface tailings storage. The project benefits from granted tenure, road access, proximity to predominantly renewable grid power and port infrastructure at Burnie. Next steps include resource drilling, metallurgical validation, approvals, product qualification, commercial engagement and a Definitive Feasibility Study including evaluation of copper and other by-products.

Mineral Resources as at September 2026 (0.4% SnEq cut-off)**:**

Resource Category	Tonnes (Mt)	SnEq (%)	Sn (%)	WO_3 (%)
Measured	–	0.00	0.00	0.00
Indicated	12.3	1.22	0.26	0.16
Inferred	6.9	0.86	0.25	0.11
Project Total	**19**	**1.09**	**0.26**	**0.15**
Contained (kt)		**–**	**49**	**28**

Ore Reserves: No Ore Reserve has been declared.

- **Project status:** Scoping Study completed September 2026.[1]
- **Offtake:** 100% of forecast tin, scheelite and magnetite concentrate production remains available; no binding offtake agreements.
- **Min Mine Life (yrs):** ~13.5 years[1]
- **IRR:** Post-tax IRR: 55.6%[1]
- **Capital cost:** A$244.5m[1]
- **NPV:** Post-tax $NPV_{8\%}$: A$1,006m[1]
- **Product and average annual production rate:**
  - **Tin concentrate** (46.5% Sn): ~2,700dmtpa[1]
  - **Scheelite concentrate** (65% WO_3): ~1,700dmtpa[1]
  - **Magnetite concentrate** (65% Fe): ~185,000dmtpa[1]

[1] *Mount Lindsay Scoping Study, CRI announcement (29 September 2026)*

Tungsten, Molybdenum

Mt Mulgine

Tungsten Mining NL

ASX-listed (TGN); OTCQB: TGNMF

tungstenmining.com



Commodity(ies):

Tungsten, Molybdenum, Gold, Silver, Copper

Investment summary

Tungsten Mining is focused on becoming the largest producer of tungsten in the Western world. A Pre-Feasibility Study, released in September 2026, confirmed the potential of the Company's flagship Mt Mulgine Tungsten Project to be the world's largest, lowest-cost tungsten development. The base case 8Mtpa development returns a pre-tax $NPV_{8\%}$ of A$6,823m and a pre-tax IRR of 55%, on initial capital of A$870m, supported by a 21-year mine life from a 144Mt Probable Ore Reserve. Results at spot pricing include a pre-tax $NPV_{8\%}$ of A$15,553m and pre-tax IRR of 113%. An all-in sustaining cost of US$127/mtu WO_3 (net of by-products) positions the Project among the world's lowest-cost tungsten producers, with molybdenum and copper-gold-silver by-products adding further value. A Definitive Feasibility Study is underway, targeting FID in Q1 2028 and first production in Q2 2029. Mining Leases granted and no Native Title or claims or significant heritage issues identified. A native vegetation clearing approval was submitted in April 2026 and is under assessment. Submission of the Mine Development and Closure Proposal for approval is planned for Q1 2027. The Company will seek offtake partners for Mt Mulgine's tungsten and by-product production ahead of first production.

Project description

Mt Mulgine is located approximately 330km north-northeast of Perth in Western Australia's Murchison region. The Project comprises open-pit mining and processing via crushing, gravity concentration and flotation to produce separate tungsten, molybdenum and copper-gold-silver concentrates. The base case contemplates an 8Mtpa operation, with planned infrastructure to support future expansion to 16Mtpa. TGN continues to progress toward a DFS, underpinned by ongoing resource drilling and metallurgical testwork.

Mulgine Trench Mineral Resources as at May 2020 (0.05% WO_3 cut-off)**:**

Resource Category	Tonnes (Mt)	WO_3 (%)	Mo (ppm)	Au (g/t)	Ag (g/t)	Cu (%)
Measured						
Indicated	175	0.11	290	0.14	6	0.04
Inferred	72	0.11	250	0.10	5	0.03
Total	**247**	**0.11**	**280**	**0.13**	**6**	**0.04**
Contained		**270 Kt**	**69 Kt**	**1,000 Koz**	**44 Moz**	**92 Kt**

Ore Reserves as at September 2026 (0.05% WO_3 cut-off)**:**

Reserve Category	Tonnes (Mt)	WO_3 (%)	Mo (ppm)	Au (g/t)	Ag (g/t)	Cu (%)
Probable	144	0.10	287	0.12	6.2	0.04
Total	**144**	**0.10**	**287**	**0.12**	**6.2**	**0.04**
Contained		**144 Kt**	**41 Kt**	**555 Koz**	**29 Moz**	**58 Kt**

- **Project status:** Pre-Feasibility Study (Sept 2026).[1]
- **Offtake:** Yes Available.
- **Min Mine Life (yrs):** 21+[1]
- **IRR:** Pre-tax IRR: 55%[1]
- **Capital cost:** A$870m[1]
- **NPV:** Pre-tax $NPV_{8\%}$: A$6,823m[1]

Product and average annual production rate:

- **Tungsten Concentrate** (~50% WO_3): ~11,300tpa (containing 5,600tpa WO_3)[1]
- **Molybdenum Concentrate** (~50% Mo): ~2,800 tpa (containing 1,400 tpa Mo)[1]
- **Copper-gold-silver Concentrate** (~20% Cu): ~4,500 tpa (containing 900 tpa Cu with Au and Ag Credits)[1]

[1] *Mt Mulgine PFS, TGN announcement (1 September 2026). Base case results presented*

Tungsten

O'Callaghans Tungsten Project

Greatland Resources Ltd
ASX-listed (GGP)
greatland.com.au



Commodity(ies):
Tungsten, Copper, Zinc, Lead

Investment summary

O'Callaghans Tungsten Project is a globally significant project as one of the world's largest high-grade tungsten Mineral Resources with significant copper, zinc and lead by-products. The project is located on an existing Mining Lease within Greatland's Paterson Province portfolio in Western Australia, ~485km south-east of Port Hedland and 10km from Greatland's Telfer gold-copper operations and has an existing Indigenous Land Use Agreement in place. O'Callaghans' proximity to Telfer offers potential synergies such as road access, non-processing infrastructure, logistics and power. Tungsten is globally recognised as a critical mineral, reflecting its importance in aerospace, defence and industrial applications. Greatland welcomes discussions with potential strategic investors and development partners.

Project description

Greatland updated the O'Callaghans Mineral Resource Estimate (MRE) in March 2026 based on 71km of historic drilling. The updated MRE is one of the world's largest high-grade tungsten projects with a JORC (2012) MRE of 70Mt at 0.35% tungsten trioxide (WO_3), 0.30% copper (Cu), 0.57% zinc (Zn) and 0.28% lead (Pb), containing 246Kt WO_3, 207Kt Cu, 371Kt Zn and 182Kt Pb. ~95% of the resource is in the higher-confidence Indicated category. O'Callaghans MRE uses US$450/MTU APT price, relative to current tungsten price of over US$3,000/MTU. Significant technical and study work has been completed by O'Callaghans previous owner, Newcrest Mining Ltd including initial baseline environmental studies. A 2014 Pre-Feasibility Study outlined a 2.0Mtpa underground mine and processing via sequential flotation (copper, lead, zinc, and pyrite), followed by magnetic separation and gravity recovery of tungsten concentrate, through a new on-site processing facility. Greatland is a gold-copper producer and therefore assessing strategic options for O'Callaghans.

Mineral Resources as at 31 December 2025 (Cutoffs are based on a NSR using metal prices of US$25.74 lb W (equivalent to ~US$450/MTU APT), US$4.54 lb Cu, US$1.27 lb Zn and US$0.93 lb Pb)**:**

Resource Category	Tonnes (Mt)	WO_3 (%)	Cu (%)	Zn (%)	Pb (%)
Indicated	65	0.35	0.30	0.58	0.28
Inferred	4	0.31	0.28	0.39	0.19
Total	**70**	**0.35**	**0.30**	**0.57**	**0.28**
Contained (kt)		**246**	**207**	**371**	**182**

No Ore Reserves Available

- **Project status:** Pre-Feasibility Study (2014, by Newcrest Mining Ltd, not released publicly).
- **Offtake:** Yes, 100% of product offtake is available for tungsten, copper, zinc and lead for suitable and qualified parties globally.
- **Min Mine Life (yrs):** ~25 yr mine life at 2.0Mtpa processing capacity.
- **IRR:** N/A (no published study)
- **Capital cost:** N/A (no published study)
- **NPV:** N/A (no published study)
- **Product and average annual production rate:**
  - **Tungsten Concentrate**

Tungsten

Tallebung Project

Sky Metals Ltd
ASX-listed (SKY)
skymetals.com.au



Commodity(ies):
Tin, Tungsten, Silver

Investment summary

Sky Metals (ASX: SKY) is advancing its 100%-owned Tallebung Tin-Tungsten-Silver Project located approximately 70km northwest of Condobolin in central-western New South Wales. A recently completed Pre-Feasibility Study (PFS) demonstrates strong economics for the project which is distinguished by its shallow, large-scale tin resource with valuable tungsten and silver by-products. Tallebung is progressing through the NSW State Significant Development approval process, with EIS studies underway targeting mining approval in late-2027 and first production in mid-2028. SKY has an ongoing access agreement with First Nations stakeholders over the portion of the tenement where Native Title has not been extinguished and continues to foster a collaborative and constructive partnership with these parties. Sky is actively engaging potential offtake and financing partners and welcomes discussions regarding strategic investment and project development.

Project description

The August 2026 PFS is based on mining ~3.0mtpa ROM ore from a shallow, conventional open-cut, with processing on-site via ore sorting and pre-concentration followed by chemical-free gravity processing along with concentrate dressing via magnetic, electrostatic and gravity separation, to produce saleable tin and tungsten concentrates and a silver doré by-product. Key strengths include a 32.7Mt Mineral Resource, outstanding metallurgical performance, low capital intensity, strong margins, rapid payback and robust Pre-Feasibility Study economics. Ore sorting is expected to significantly reduce processing costs, energy consumption, water use and tailings volumes. The mineralised system and MRE remains open in all directions, with ongoing drilling targeting resource growth, resource upgrades and mine life extensions. ESG benefits include reduced water, energy and tailings intensity, chemical-free processing and redevelopment of a historic mining site.

Mineral Resources as at July 2026 (US$20/t NSR cut-off)**:**

Resource Category	Tonnes (Mt)	Sn Eq (%)	Sn (%)	WO_3 (%)	Ag (g/t)
Measured	0.5	0.22	0.19	0.033	8.3
Indicated	12.3	0.17	0.14	0.029	8.5
Inferred	19.9	0.15	0.09	0.039	10.1
Total	**32.7**	**0.16**	**0.11**	**0.035**	**9.5**
Contained			**36.8kt**	**11.39kt**	**9,940koz**

Project status: Pre-Feasibility Study (August 2026).[1]

Offtake: 100% offtake available.

Min Mine Life (yrs): 7.3[1]

IRR: Pre-tax IRR: 69% (base case)[1]

Capital cost: AU$139m[1]

NPV: Pre-tax $NPV_{8\%}$: A$438m (base case)[1]

Product and average annual production rate:

- **Tin concentrate** (60% Sn): 3,400tpa (containing 2,040tpa Sn)[1]
- **Tungsten concentrate** (55% tungsten trioxide): 579tpa (containing 31,700mtu pa WO_3)[1]
- **Silver doré** (+90% silver): 315kozpa[1]

[1] *Tallebung PFS Confirms Low-Cost, High-Margin Project, SKY announcement (10 August 2026)*

Tungsten

Watershed Tungsten Project

Tungsten Mining NL

ASX-listed (TGN); OTCQB: TGNMF

tungstenmining.com



Commodity(ies):
Tungsten

Investment summary

Tungsten Mining NL (ASX: TGN) is advancing its 100%-owned Watershed Tungsten Project in Queensland, with a Definitive Feasibility Study now underway following a Preliminary Economic Evaluation completed in June 2026 confirming a pre-tax $NPV_{8\%}$ of A$1,309m and a pre-tax IRR of 198% for A$274m pre-production capital. All primary approvals are secured, including the Mining Leases, Environmental Authority, Indigenous Land Use Agreement and Progressive Rehabilitation and Closure Plan. A 15,000m RC drilling program is progressing to support resource growth and improved definition ahead of FID, targeted for Q4 2026, with first production targeted for H1 2027. The Company has appointed debt advisors to structure project financing, and while no binding offtake is yet committed, discussions with potential partners across Asia, Europe and North America are well advanced.

Project description

Watershed is located 130km north of Cairns in Far North Queensland. The Project is planned as a conventional open-pit mining operation mining ~3Mtpa of ROM ore at a low 1.3:1 strip ratio. Ore will be crushed and processed on-site by an ore sorter, reducing on-site beneficiation plant throughput to ~1.1Mtpa. Further processing via gravity separation and flotation in the beneficiation plant will produce ~5,600tpa of scheelite (tungsten) concentrate at a target grade of 50% WO_3 through the first 8 years of production (2,800tpa contained WO_3). The current Mineral Resource is 69.7Mt at 0.11% WO_3 (76,000t contained WO_3), supporting an 8-year mine-life.

Mineral Resources as at June 2026 (0.04% WO_3 cut-off)**:**

Resource Category	Tonnes (Mt)	WO_3 (%)
Measured	12.5	0.13
Indicated	41.9	0.10
Inferred	15.3	0.11
Total	**69.7**	**0.11**
Contained (kt)		**76**

Ore Reserves: No Ore Reserve has been declared.

- **Project status:** Preliminary Economic Evaluation (June 2026) – equivalent to PFS classification.[1]
- **Offtake:** Advanced offtake discussions underway.
- **Min Mine Life (yrs):** 8
- **IRR:** Pre-tax IRR: 198%[1]
- **Capital cost:** A$274m (±25% accuracy)[1]
- **NPV:** Pre-tax $NPV_{8\%}$: A$1,309m[1]
- **Product and average annual production rate:**
  - **Tungsten Concentrate** (~50% WO_3): ~5,600tpa (containing 2,800tpa WO_3)[1]

[1] *Watershed Preliminary Economic Evaluation, TGN announcement (18 June 2026)*

Vanadium

Australian Vanadium Project

Australian Vanadium Ltd

ASX-listed (AVL)

avl.au



Commodity(ies):

Vanadium, Iron Concentrate coproduct

Investment summary

The Australian Vanadium Project is a world-class vanadium asset in Western Australia. AVL is advancing an Optimised Feasibility Study (OFS) integrating the northern and southern parts of the deposit. Key approvals continue to progress, with environmental approval in place for the Gabanintha component and Development Approval granted for the proposed processing plant near Geraldton. Engagement with the Yugunga-Nya People is continuing, and the Project has WA Government Lead Agency support. Our integrated pit-to-battery strategy spans vanadium production, electrolyte manufacturing and vanadium flow battery deployment. AVL is seeking offtake, debt, and equity partners to support Project development.

Project description

The Project comprises an open pit mine and magnetite concentrator at Gabanintha, south of Meekatharra, and a processing plant at Tenindewa near Geraldton. Ore will be beneficiated to magnetite concentrate, then processed by alkaline roast, water leach and ammonium metavanadate precipitation/calcination to produce high-purity V_2O_5. The April 2022 BFS remains the current public basis for the project with an average annual production of approximately 11,200 tonnes of 99.5% V_2O_5 and 915,500 dry tonnes of iron-titanium coproduct over a 25-year mine-life. The OFS, targeted for completion in Q4 2026, will optimise the merged project and support its progression toward investment decision. The Geraldton area leverages existing gas, road, port and workforce infrastructure. AVL's pit-to-battery strategy extends through its Wangara vanadium electrolyte facility, V-NOMAD modular electrolyte technology and vanadium flow battery development through VSUN Energy. Government support includes Australian Government Major Project Status, an A$49 million MMI-C grant and Western Australian Government Lead Agency support.

Mineral Resources as at May 2024 (nominal 0.4% V_2O_5 LG / 0.7% V_2O_5 HG cut-off)**:**

Resource Category	Tonnes (Mt)	V_2O_5 (%)	Fe (%)	TiO_2 (%)
Measured	30.6	1.13	46.3	12.9
Indicated	136.6	0.85	37.8	10.1
Inferred	228.2	0.66	31.4	8.3
Total	**395.4**	**0.77**	**34.8**	**9.3**
Contained (kt)		**3,045**	**137,599**	**36,685**

Ore Reserves as at April 2022 (0.7% V_2O_5 cut-off)**:**

Reserve Category	Tonnes (Mt)	V_2O_5 (%)	Fe (%)	TiO_2 (%)
Proved	10.5	1.11	61.6	12.8
Probable	20.4	1.07	63.4	12.2
Total	**30.9**	**1.09**	**62.8**	**12.4**
Contained (kt)		**335**	**19,402**	**3,833**

- **Project status:** Feasibility Study (Apr 2022).[1]
- **Offtake:** 100% currently available.
- **Min Mine Life (yrs):** 25[1]
- **IRR:** Post-tax Equity IRR: 20.6%[1]
- **Capital cost:** US$435m (A$604m) excluding contingency.[1]
- **NPV:** Pre-tax $NPV_{7.5\%}$: A$833m[1]
- **Product and average annual production rate:**
  - V_2O_5 (99.5% flake): 11,200tpa[1]
  - **Iron-titanium coproduct:** 915.5Ktpa (dry tonnes)[1]

[1] *Bankable Feasibility Study for Australian Vanadium Project, AVL announcement (6 April 2022)*

Vanadium, Molybdenum

Lindfield Project

Critical Minerals Group Ltd

ASX-listed (CMG)

criticalmineralsgroup.com.au



Commodity(ies):

Vanadium Pentoxide V_2O_5, Molybdenum Trioxide MoO_3, potential to produce High Purity Alumina (HPA) is under evaluation

Investment summary

CMG is developing an integrated mine to battery vanadium supply chain. Its Lindfield Vanadium Project located 30km northeast of Julia Creek, northern Qld includes mining and processing to produce vanadium pentoxide for transport to its Vanadium Electrolyte Manufacturing Plant being built in the Parkes Special Activation Precinct, NSW. Vanadium electrolyte will be produced for the vanadium flow battery market. CMG is evaluating a pipeline of vanadium flow battery projects with strategic partners. The Lindfield Pre-Feasibility Study was completed in July 2026 with detailed planning underway for the Definitive Feasibility Study. A Coordinated Project Status application is progressing and EPA referral has been prepared and pre-lodgment discussions held. Negotiations with First Nations are progressing well. Offtake negotiations are in final stages. The company welcomes discussion on investment in the project.

Project description

The Lindfield resource is shallow (0–30m) and amenable to free-digging (no drilling or blasting required) and has low-to-moderate strip ratios averaging 2.8:1 for the preferred 3Mtpa case over the mine life. ~3mtpa ore will be mined and processed on-site at Lindfield via scrubbing, cleaning, reverse flotation, leaching, ion exchange, solvent extraction and precipitation to produce battery-grade vanadium pentoxide (V_2O_5) at ≥99.5% purity and a high-purity Molybdenum Trioxide (MoO_3) co-product. The Parkes Electrolyte Manufacturing Plant will be built in two stages with Phase 1 production planned to commence 18-24 months prior to vanadium pentoxide production, using third party supplied vanadium pentoxide feedstock during this initial period. Exploration upside remains with further drilling planned for late-2026. CMG has a strong ESG strategy which underpins all activities.

Mineral Resources as at May 2024 (0.10 to 0.26 V_2O_5 cut-off depending on stratigraphic horizon)**:**

Resource Category	Tonnes (Mt)	V_2O_5 (%)	Al_2O_3 (%)	Mo (ppm)
Indicated Weathered	261	0.30	3.1	110
Indicated Fresh	260	0.31	3.8	160
Inferred Fresh	61	0.32	3.5	110
Inferred Weathered	161	0.31	3.5	150
Total	**713**	**0.32**	**3.4**	**130**
Contained (kt)		**2,282**	**24,242**	**93**

Ore Reserves: No current reserve calculated.

- **Project status:** Pre-Feasibility Study, July 2026.[1]
- **Offtake:** Term sheet negotiated and in approval stage.
- **Min Mine Life (yrs):** 31[1]
- **IRR:** Pre-tax IRR: 26.6%[1]
- **Capital cost:** A$981m[1]
- **NPV:** Pre-tax $NPV_{9\%}$: A$821m[1]
- **Product and average annual production rate:**
  - **Vanadium pentoxide** (99.5% V_2O_5): 10,577tpa[1]
  - **Molybdenum trioxide, MoO_3:** 270tpa[1]
  - **Vanadium electrolyte:** ~72 million litres per annum[1]

Years 1-16 averages

[1] *Technical and Financial Pre-Feasibility Study, CMG announcement (20 July 2026) – Preferred Case results shown above (3mtpa ROM feed to Lindfield, 72 mil litres VE Phase 2 production. PFS assumes that all vanadium pentoxide is processed and sold into vanadium electrolyte)*

Vanadium, High Purity Alumina

Saint Elmo Vanadium and High Purity Alumina (HPA) Project

Multicom Resources Pty Ltd

Private

mcres.com.au



Commodity(ies):
Vanadium Pentoxide (V_2O_5), High Purity Alumina (HPA), Molybdenum, Gallium, Silica, Lime, Gypsum, Rare Earth Elements

Investment summary

Multicom Resources is building its 100% owned Saint Elmo Project – Queensland's first integrated Vanadium and HPA project that will mine and refine vanadium pentoxide, HPA and other critical mineral products. Stage 1 has been constructed and is being commissioned. A DFS completed in September 2026 demonstrated robust economics for Stages 2 and 3 of the Project. Multicom Resources intends to capitalise on growing demand for vanadium in high strength steel production, vanadium batteries and emerging technologies. The Project is fully approved with the Mining Lease and environmental approval granted. The Queensland Government has declared Saint Elmo as a Prescribed Project, and a Project of Regional Significance. The Company welcomes discussions regarding project investment and offtake.

Project description

The Saint Elmo Vanadium and HPA Project, located in North-West Queensland, has an extensive resource deposited at a shallow depth with a low strip ratio. Stage 1, currently in commissioning stage, includes shallow open-pit mining of 18ktpa ore and processing in on-site demonstration scale Vanadium and HPA Refinery producing 12tpa vanadium pentoxide and 60tpa 4N purity HPA via Multicom's proprietary process. Stage 1 production will supply bespoke product sales and provide samples for further product qualification and future product polishing. Stage 2 will expand production to 700ktpa ore mined and refined, producing 1,200tpa vanadium pentoxide and 6,000tpa 4N HPA. Stage 3 will further expand production to mine 14mtpa ore and Vanadium Refinery production to 20,000tpa vanadium pentoxide. The vanadium and HPA process flowsheets have been confirmed by pilot plant testwork. The Project is directly connected to export infrastructure.

Mineral Resources as at March 2024 (>2,000ppm V_2O_5 cut-off, with a top-cut of 7,500 ppm V_2O_5, Mo and Al_2O_3 were not top-cut)**:**

Resource Category	Tonnes	V_2O_5 (%)	Mo (%)	Al_2O_3 (%)
Measured	170	0.387	0.018	5.49
Indicated	372	0.318	0.016	5.11
Inferred	172	0.329	0.018	4.87
Total	**714**	**0.337**	**0.017**	**5.14**
Contained (kt)		**2,406**	**121**	**3,700**

Project status: Stage 1 Operational (commissioning and ramp up in 2026 H2). Stage 2 Feasibility Study completed (Sept 2026).[1]

Offtake: 50% of Stage 1 V_2O_5 and HPA offtake available. All of Stage 2 and 3 offtake available.

Min Mine Life (yrs): >100

IRR: Post-tax IRR 27.2% (Stage 2 only)[1]

Capital cost: Stage 2 – AU$464m[1]
Stage 3 – A$2,000m[1]

NPV: Post-tax $NPV_{8\%}$: A$974.3m (Stage 2 only)[1]

Product and average annual production rate:

Stage 1[1]
- V_2O_5 (99.5%): 12tpa; 4N HPA: 60tpa

Stage 2[1]
- V_2O_5 (99.5%): 1,200tpa; 4N HPA: 6,000tpa

Stage 3[1]
- V_2O_5 (99.5%): 20,000tpa; 4N HPA: 6,000tpa

[1] *Saint Elmo Vanadium and HPA Project – Definitive Feasibility Study, Multicom Resources Pty Ltd (Sept 2026)*

Vanadium

Richmond-Julia Creek Vanadium Project

Richmond Vanadium Technology Ltd

ASX-listed (ASX: RVT)

richmondvanadium.com.au



Commodity(ies):
Vanadium

Investment summary

RVT's 100%-owned Richmond-Julia Creek Vanadium Project is a large-scale vanadium development in North Queensland, supported by a 1.838Bt Mineral Resource. Declared a Queensland Coordinated Project in May 2022, the Project is progressing through environmental approvals and detailed feasibility following completion of the August 2021 PFS. A revised preliminary draft EIS has been submitted to the Queensland Government, with the Mining Lease application progressing in parallel. RVT is also progressing a Cultural Heritage Management Plan with the Wanamara People. RVT's binding collaboration with RKP Global supports Australian manufacture of vanadium electrolyte, electrolyte validation and Australian long-duration energy storage opportunities. Through wholly owned subsidiary RVT Energy Pty Ltd, RVT is extending downstream into vanadium flow batteries and long-duration storage, supporting a potential Australian mine-to-battery value chain. RVT welcomes discussions with investors, financiers, offtake partners and strategic development partners across markets.

Project description

Located approximately 45 km northwest of Richmond, the Project is designed as a shallow, conventional open-pit operation centred on the Lilyvale deposit. The August 2021 PFS and draft EIS are based on shallow open-pit, free-dig mining of 4.2Mtpa ore, with on-site processing via a conventional flotation to produce 790,000tpa vanadium concentrate, over an initial 25-year life. Progressive rehabilitation will be incorporated into mine sequencing. The broader 1.838Bt Mineral Resource provides substantial long-term development optionality. As part of the BFS underway, RVT is also studying a proposed recovery plant to further process concentrate through acid digestion, leaching, solvent extraction, purification, drying and calcination to produce up to approximately 12,701 tpa of 98% V_2O_5 powder.

Mineral Resources as at December 2019 (0.30% V_2O_5 cut-off)**:**

Resource Category	Tonnes (Mt)	V_2O_5 (%)
Measured	–	–
Indicated	430	0.50
Inferred	1,408	0.32
Total	**1,838**	**0.36**
Contained (kt)		**6,650**

Ore Reserves as at January 2020 (0.30% V_2O_5 cut-off)**:**

Reserve Category	Tonnes (Mt)	V_2O_5 (%)
Proved	–	–
Probable	459.2	0.49
Total	**459.2**	**0.49**
Contained (kt)		**2,250**

Project status: Pre-Feasibility Study completed in August 2021 based on vanadium concentrate production.[1]

Offtake: Vanadium concentrate and downstream vanadium products: 100% available.

Min Mine Life (yrs): >25 years initial life of mine.[1] Significant Mineral Resource provides potential for future extension

IRR: Post-tax IRR: 38%[1]

Capital cost: US$176.8m[1]

NPV: Post-tax $NPV_{10\%}$: US$448m[1]

Product and average annual production rate:

- **Vanadium concentrate:** ~790,000tpa[1]

[1] *Richmond-Julia Creek Oxide Vanadium Project Updated Pre-Feasibility Study (17 August 2026)*

Vanadium, Molybdenum

Vecco Critical Minerals Project

Vecco Group Pty Ltd

Unlisted Private Company
(51% owned by Idemitsu)

veccogroup.com.au



Commodity(ies):
Vanadium Pentoxide, Vanadium Electrolyte, Molybdenum

Investment summary

Vecco is building one of Australia's most advanced integrated pit-to-product vanadium electrolyte supply chains, connecting Queensland's critical minerals with fast-growing U.S. demand for long-duration storage supporting AI data centres and grid resilience. Following completion of the Vecco Critical Minerals Project PFS in May 2024, the BFS is nearing completion. Regulatory approvals and FID completion is targeted in 2027 and commencement of commercial operations targeted in 2029. The Coordinated Project is progressing through environmental assessment. There are no registered Native Title claims over the project area and Vecco has engaged with Traditional Owners regarding cultural heritage. Backed by 51% strategic shareholder Idemitsu Australia, Vecco has qualified its electrolyte with leading global OEMs, is advancing offtake agreements and welcomes investment and financing discussions.

Project description

Located near Julia Creek in north-west Queensland, the project combines shallow open-pit mining with on-site beneficiation, flotation, leaching, solvent extraction, molybdenum recovery and purification. It is designed to produce up to 8,700tpa of high-purity vanadium pentoxide and approximately 600 tonnes per annum of molybdenum. Refined vanadium will support production of 60 million litres p.a. vanadium electrolyte, providing GWh's of energy each year at Vecco-owned facilities. The Townsville facility has operated since 2023, while the planned Texas expansion provides a direct foothold in the rapidly growing U.S. market for long-duration storage supporting AI data centres and resilient power infrastructure. The substantial resource provides exploration, mine-life-extension and staged-expansion potential. Waste-heat recovery from the proposed sulphuric acid plant will support lower-emissions operations, while Queensland-based refining captures more value, skills and regional employment than exporting unprocessed ore.

Mineral Resources as at March 2025:

Resource Category	Tonnes (Mt)	V_2O_5 (%)	Al_2O_3 (%)	Mo (ppm)
Measured	37	0.35	3.7	168
Indicated	540	0.35	3.6	178
Inferred	353	0.30	3.6	119
Total	**930**	**0.33**	**3.6**	**170**
Contained (kt)		**3,069**	**33,480**	**158**

- **Project status:** Pre-Feasibility Study – Integrated Mine to Electrolyte Project (May 2024).[1]
- **Offtake:** Molybdenum offtake available.
- **Min Mine Life (yrs):** 28[1]
- **IRR:** Pre-tax IRR: 22.5%[1]
- **Capital cost:** A$598m[1]
- **NPV:** Pre-tax $NPV_{8\%}$: A$1.9b[1]
- **Product and average annual production rate:**
  - **High-purity vanadium pentoxide** (99.4% V_2O_5): 8.7ktpa[1]
  - **Vanadium electrolyte:** 60 million litres pa[1]
  - **Molybdenum:** 0.6ktpa[1]

[1] *Vecco Critical Minerals Project Pre-Feasibility Study (May 2024)*

Vanadium, Titanium

Victory Bore Critical Minerals Project

Surefire Resources NL

ASX-listed (SRN)

surefireresources.com.au



Commodity(ies):

Vanadium (Vanadium Pentoxide and Ferrovanadium), Titanium (Titanium Dioxide), Iron (pig iron, iron oxide pigment and iron ore), and potential for High Purity Alumina

Investment summary

Victory Bore is an advanced, large-scale integrated vanadium-titanium-iron project comprising mining and on-site processing, located 450km north of Perth, Western Australia. A Pre-Feasibility Study completed in December 2023 demonstrated strong project economics, with a Bankable Feasibility Study, led by DRA Global, currently underway. A bulk sample of concentrate has been prepared for customer testing. Mining Lease, environmental and regulatory approvals have been lodged. Engagement with Traditional Owners is also progressing, with Heritage Agreement discussions expected to commence shortly. The Company welcomes engagement with potential investors, strategic partners and offtake participants.

Project description

Victory Bore is a large, high-grade vanadium-titanium-iron deposit with significant exploration upside across more than 20km of mineralised strike. Approximately 4Mtpa of ore will be mined from a conventional open pit and beneficiated on-site through grinding and magnetic separation to produce around 1.25Mtpa of vanadium-titanium magnetite concentrate for export through Geraldton Port. Under the PFS development model, concentrate would be processed into high-purity vanadium pentoxide, ferrovanadium, titanium dioxide, pig iron, iron oxide pigment and premium iron ore products in a low-cost power country such as the Kingdom of Saudi Arabia, where engagement is in place, and preliminary engagement has also been initiated in other countries. The potential to produce HPA is also under evaluation. In July 2026, SRN entered into a Heads of Agreement with Australian Flow Batteries (AFB) to explore Victory Bore becoming a preferred supplier for its Vanadium Redox Flow Batteries. Metallurgical testwork has commenced on a bulk concentrate sample to assess its suitability for AFB's battery technology.

Mineral Resources as at December 2023
(0.15% V_2O_5 cut-off)**:**

Resource Category	Tonnes (Mt)	V_2O_5 (%)	TiO_2 (%)	Fe (%)
Measured	25.0	0.35	4.96	19.20
Indicated	113.2	0.32	4.7	18.19
Inferred	326.1	0.28	5.28	17.41
Total	**464.6**	**0.30**	**5.12**	**17.70**
Contained (kt)		**1,394**	**23,793**	**82,223**

Ore Reserves as at December 2023:

Reserve Category	Tonnes (Mt)	V_2O_5 (%)	TiO_2 (%)	Fe (%)
Probable	93.1	0.35	5.2	19.8
Total	**93.1**	**0.35**	**5.2**	**19.8**
Contained (kt)		**326**	**4,841**	**18,434**

Project status: Pre-Feasibility Study (Dec 2023).[1]

Offtake: 100% available.

Min Mine Life (yrs): 24[1]

IRR: Pre-tax IRR: 42%[1]

Capital cost: US$498m[1]

NPV: Pre-tax $NPV_{10\%}$: US$1.1b[1]

Product and average annual production rate:

- **High-purity vanadium pentoxide** (V_2O_5): 2,580tpa[1]
- **Ferrovanadium** (FeV): 5,760tpa[1]
- **Titanium dioxide** (TiO_2) slag: 192,880tpa
- **Pig iron** (Fe): 364,480tpa[1]
- **High-purity iron oxide pigment** (Fe_2O_3): 245,480tpa[1]
- **High-grade iron ore** (Fe_2O_3): 245,480tpa[1]

[1] *Outstanding Pre-Feasibility Study for Victory Bore Vanadium Project, SRN announcement (5 December 2023)*

Vanadium

Windimurra Vanadium Project

Atlantic Vanadium Pty Ltd (Atlantic)

Unlisted Australian private company

atlanticptyltd.com.au



Commodity(ies):
Vanadium

Investment summary

Atlantic Vanadium Pty Ltd (Atlantic) owns 100% of the fully permitted Windimurra Vanadium Project, an advanced brownfield mine and processing plant recommissioning in Western Australia. The project is on care and maintenance with engineering completed to DFS level and FID targeted for January 2027. Major regulatory approvals, granted tenure and a formal Indigenous Land Use Agreement/Native Title Agreement with the Badimia People are in place. With more than A$700 million of historical spending on existing infrastructure, Windimurra is positioned as a low-capital-intensity pathway to sovereign vanadium supply. Atlantic welcomes discussions with offtake, strategic, debt and equity partners.

Project description

Windimurra is located approximately 80 km by road from Mount Magnet and 600-670 km north-east of Perth. Following completion of a Feasibility Study in 2020 on recommissioning the Project, Atlantic is targeting FID for January 2027. ~2.8mtpa ore will be mined from the conventional open-cut mine, processed on-site via a new crushing, milling and magnetic-beneficiation plant and refined on-site via salt roasting, leaching and vanadium recovery to produce approximately 7,600tpa of 99.5% high-purity V_2O_5 flake. The existing refinery will be upgraded and existing infrastructure refurbished as part of the project. Existing infrastructure includes the open pit, rotary kiln, refinery, power station, gas connection, water infrastructure, tailings facilities and accommodation village. JORC 2012 resources and reserves support an initial 31-year mine life, with upside from additional mineral resources and the broader tenement package. Atlantic is also progressing opportunities for local vanadium electrolyte and vanadium-flow-battery value-chain development, supporting sovereign supply, regional employment and Indigenous participation.

Mineral Resources as at December 2019
(0.28% V_2O_5 cut-off)**:**

Resource Category	Tonnes (Mt)	V_2O_5 (%)
Measured	34.6	0.49
Indicated	123.5	0.50
Inferred	51.6	0.50
Total	**209.7**	**0.50**
Contained (kt)		**1,048**

Ore Reserves as at December 2019
(0.28% V_2O_5 cut-off; JORC 2012)**:**

Reserve Category	Tonnes (Mt)	V_2O_5 (%)
Probable	87.5	0.49
Total	**87.5**	**0.49**
Contained (kt)		**429**

Project status: Feasibility Study completed in March 2020.

Offtake: 100% available. Atlantic is seeking long-term offtake partners across steel, chemical and vanadium-flow-battery markets.

Min Mine Life (yrs): 31

IRR: Not disclosed

Capital cost: Not disclosed

NPV: Not disclosed

Product and average annual production rate:

- **High-purity V_2O_5 flake** (99.5%): ~7,600tpa

Zircon, Titanium, Rare Earth Elements

Avonbank Mineral Sands Project

WIM Resource Pty Ltd

Privately Owned

wimresource.com.au



Commodity(ies):

Zircon, Titanium (Ilmenite), Rare Earth by-product minerals

Investment summary

Avonbank is a world-class zircon-rich heavy mineral sands project located near Horsham, Victoria. WIM has completed successful phases of trial mining, trial demonstration-scale processing and rehabilitation. The project is at an advanced stage of development, following a favourable state-based environmental approval EES assessment decision in 2024 and Federal Government EPBC approval in 2025. Avonbank secondary approvals are progressing well. Sedgman completed a FEED and continues to optimise the project as we progress towards FID. WIM continues to engage with First Nations Peoples for relevant approvals, and with community and landowners through a range of engagement and benefit-sharing activities and initiatives. The Project will support nearly 1,000 FTE jobs and contribute A$3.5b to the Gross State Product. WIM welcomes discussions regarding product offtake and/or financing of Avonbank.

Project description

When developed, Avonbank will be a major zircon supplier. Standard dry mining techniques will mine 10Mtpa. A progressive rehabilitation method will return the land to its pre-mining state within four years. A Trial Mine and Demonstration Scale Wet Concentration Plant has successfully confirmed that the ore is amenable to conventional mineral sands gravity separation to produce ~450-500ktpa heavy mineral concentrate containing mainly zircon and titanium. WIM has also successfully completed detailed downstream demonstration and product quality assessment trials. A range of community engagement and farming coexistence initiatives have been established, including the Avonbank Community and Coexistence Reference Group (CCRG) and a dedicated Rehabilitation Review Group, which will help promote feedback on land rehabilitation, environmental monitoring, and community benefits.

Mineral Resources as at December 2017 (1% THM cut-off)**:**

Resource Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)	Xenotime (%)
Measured	300	4.3	20	15	8.5	26	2	0.6
Indicated	150	3.6	19	17	9.3	28	1.9	0.6
Inferred	40	3.0	21	16	9	27	2.3	0.6
Total	**490**	**4**	**20**	**16**	**8.8**	**27**	**2**	**0.6**
Contained (kt)		**19,600**	**3,920**	**3,136**	**1,725**	**5,292**	**392**	**118**

Ore Reserves as at October 2025 (1% THM cut-off)**:**

Reserve Category	Tonnes (Mt)	Total HM (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)	Xenotime (%)
Proved	202.5	4.5	19.8	14.8	8.1	25.7	2	0.6
Probable	81.6	4	19.1	16.8	9	28.5	1.9	0.6
Total	**284**	**4.4**	**19.6**	**15.4**	**8.4**	**26.4**	**2**	**0.6**
Contained (kt)			**2,449**	**1,924**	**1,050**	**3,299**	**250**	**75**

Note: Valuable Heavy Mineral grades are reported as a percentage of THM in MRE and Ore Reserves tables above

Project status: Pre-Construction.

Offtake: Product offtake is available to suitable and qualified parties globally.

Min Mine Life (yrs): 36

IRR: Please contact WIM for further information.

Capital cost: Please contact WIM for further information.

NPV: Please contact WIM for further information.

Product and average annual production rate:

- **Heavy mineral concentrate** (~30% Zircon, 55% Titanium and <2.5% Rare Earths by-products): 450-500ktpa

Zirconium, Titanium

Cyclone Zircon Project

Diatreme Resources Ltd

ASX-listed (DRX)

diatreme.com.au



Commodity(ies):
Zircon, Titanium, Hafnium

Investment summary

The Cyclone Project located in Western Australia's zircon-rich Eucla Basin, WA is an attractive investment opportunity amid the lack of suitable high-grade zircon supply. Cyclone has the potential to become a significant global supplier of zircon, accounting for an estimated 6% of global zircon supply. The Project also contains titanium minerals such as leucoxene, rutile and ilmenite and has potential for supply of the rare critical mineral hafnium within the zircon component of Heavy Mineral Concentrate (HMC). Cyclone is an advanced critical minerals project with a Feasibility Study completed in 2018 and primary approvals and permitting in place. Diatreme is engaging in discussions with a range of potential project partners including offtakers and technical partners, with the aim of either selling the project or funding development of this high-grade zircon project. With shrinking zircon supply and rising demand, Cyclone is an attractive opportunity for a development partner to advance Australia's zircon production for the global market, supporting the growth of this critical mineral industry.

Project description

The Feasibility Study completed in 2018 was based on ~10mtpa shallow free-dig mining using a bulldozer and dozer trap and progressive rehabilitation, processed in an on-site Wet Concentrator via several stages of gravity concentration to produce a life of mine production of 1.94Mt of HMC, containing 936Kt of zircon and including 772Kt of final zircon product. Since completion of the Feasibility Study, metallurgical test work and process optimisation using the latest processing technologies has been undertaken, resulting in substantial improvements in product yields.

Mineral Resources as at December 2021 (1% HM cut-off grade)**:**

Resource Category	Tonnes (Mt)	Total HM (%)	Zircon (% HM)	Rutile (% HM)	Leucoxene (% HM)	HiTi (% HM)	Altered Ilmenite (% HM)	Siliceous Ti-oxide (% HM)
Measured	156	2.4	28	3	6	24	12	22
Indicated	48	1.9	21	2	5	33	16	18
Total	**203**	**2.3**	**27**	**3**	**6**	**26**	**13**	**21**
Contained (kt)		**4,669**	**1,262**	**140**	**280**	**1,214**	**607**	**980**

Ore Reserves as at December 2021:

Reserve Category	Tonnes (Mt)	Total HM (%)	Zircon (% HM)	Rutile (% HM)	Leucoxene (% HM)	HiTi (% HM)	Altered Ilmenite (% HM)	Siliceous Ti-oxide (% HM)
Probable	138	2.6	28	3	7	23	13	22
Total	**138**	**2.6**	**28**	**3**	**7**	**23**	**13**	**22**
Contained (kt)		**3,588**	**1,005**	**108**	**251**	**825**	**466**	**789**

Note: Valuable Heavy Mineral grades are reported as a percentage of THM for mineral resources and ore reserves above.

Project status: Feasibility Study (November 2018).[1]

Offtake: Yes available.

Min Mine Life (yrs): 13.2[1]

IRR: Post-tax IRR: 27.2%[1]

Capital cost: A$135m[1]

NPV: Post-tax $NPV_{10\%}$: A$113m[1]

Product and average annual production rate:

- **HMC:** 147ktpa (containing 59ktpa Zircon, 9ktpa HiTi87, 49ktpa HiTi67)[1]

[1] *Positive DFS confirms Cyclone's potential as a new zircon mine, DRX announcement (15 Nov 2018)*

Midstream summaries

This is a non-exhaustive list of advanced Australian critical minerals projects. There are more projects than those listed here. Austrade is able to facilitate introductions to other projects according to your specific needs.

For further information, please contact your local Austrade representative or email criticalminerals@austrade.gov.au

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Midstream summary

Australian Antimony Metal Refining Project

nyrstar.com

Company Name:
Nyrstar Australia

Company Ownership:
Trafigura Control Holdings Pte. Ltd (Singapore)

Critical Mineral(s):
Antimony



Midstream Project Description

Nyrstar is developing an Australian Antimony Metal Refining Project, integrated into its multi-metals refinery at Port Pirie, South Australia. The Project recovers antimony in refinery feedstocks as a by-product of lead refining and uses established refining circuits, including smelting, fume capture, decanting and residue handling, followed by antimony extraction, purification and casting. An Antimony Pilot Plant successfully produced first metal in late-2025, and first commercial metal in early-2026, with plans to increase to 1,000tpa in 2027. The Project aims to increase production up to 5,000tpa by 2030 in a scale-up permanent plant, providing globally-significant antimony supply for defence, electronics, energy and consumer-goods sectors.

A Pre-Feasibility Study was completed in July 2026 on renewal of Nyrstar's Port Pirie and Hobart refineries building on core lead and zinc flowsheets expanded to include critical minerals recovery. The Feasibility Study is now underway targeting mid-2027 completion including assessment of antimony recovery options and potential integration with recovery of other metals including bismuth, tellurium and germanium.

The Project was named as a Pipeline Project as part of the US–Australia Critical Minerals and Rare Earths Framework and has a non-binding, conditional letter of support from Export Finance Australia. Commonwealth, South Australian and Tasmanian Governments are providing funding support to make refinery reliability improvements and critical-metal readiness at Port Pirie and Hobart.

Midstream Products & Annual Production Rate:

- **Refined Antimony metal:** first commercial sale in 2026, expansion to 1,000tpa capacity planned in 2027, and up to 5,000tpa by 2030.

Midstream summary

Rover 1 Downstream Refinery (Middle Arm)

castile.com.au

Company Name:
Castile Resources Ltd

Company Ownership:
ASX-listed (CST), OTC (CLRSF)

Critical Mineral(s):
Bismuth, Cobalt



Midstream Project Description

The Rover 1 Downstream Refinery is Castile Resources' proposed downstream processing facility at the Middle Arm Sustainable Development Precinct (MASDP), Darwin, Northern Territory. As a planned Stage 2 of the Rover 1 Project, the refinery will treat separate bulk sulphide concentrates to be railed from Castile's 100%-owned Rover 1 IOCG mine near Tennant Creek, being developed as Stage 1 of the project. The Stage 2 refinery will produce gold doré, 99% copper cathode, cobalt hydroxide and 4N (99.99%) refined bismuth. The refinery would make Australia one of the very few Western producers of high purity bismuth, addressing acute supply chain diversification needs.

An Updated Scoping Study was completed in August 2026, incorporating production of bismuth concentrate into the project. The 2026 Scoping Study values total project revenue at A$4.78 billion, including A$595 million from bismuth. Final bismuth extraction testwork is underway ahead of the Bankable Feasibility Study, due later in 2026. The refinery will use proven pressure-oxidation, solvent extraction and electrowinning technology, constructed using Stage One concentrate sale cashflows, after an 18-24 month build. NT EPA approvals are in place for Rover 1, with a separate MASDP referral underway and environmental approval targeted for 2027. Castile is seeking offtake partners and welcomes discussions on investment in the project.

Midstream Products & Annual Production Rate:

- **Refined Bismuth** (4N, 99.99% purity): ~500tpa (5,400t over initial 11-year mine life)
- **Copper Cathode** (99% purity, LME Grade A): ~7,200tpa (72,200t over initial 11-year mine life)
- **Cobalt Hydroxide** (LME standard grade, min. 99.8% Co): ~300tpa (2,700t over initial 11-year mine life)
- **Gold Doré** (>90% Au): ~26,800oz Au/pa (269,000oz over initial 11-year mine life)

No binding offtake agreements are yet in place. Castile has held informal, preliminary discussions with a number of financial institutions regarding debt, equity, metal prepayments, offtake agreements and metal streaming for the Rover 1 project, several of whom have expressed interest. 100% of midstream production (bismuth, copper cathode, cobalt hydroxide and gold doré) is available for offtake discussions.

Midstream summary

NiWest Nickel Cobalt Project

alliancenickel.au

Company Name:
Alliance Nickel Ltd

Company Ownership:
ASX-listed (AXN)

Critical Mineral(s):
Cobalt, Nickel



Midstream Project Description

Alliance Nickel is developing the NiWest project near Leonora, WA to produce battery-grade nickel and cobalt sulphates for pCAM/CAM used in Nickel Cobalt Manganese (NCM) EV batteries.

The NiWest Project DFS completed in November 2024 confirmed a long-life mine and on-site midstream plant producing battery-sulphate. The published DFS midstream circuit recovers nickel and cobalt from pregnant leach solution by neutralisation, direct solvent extraction and crystallisation to produce high-purity (+99.95%) nickel sulphate hexahydrate and >99.9% cobalt sulphate heptahydrate. Planned production is ~88ktpa $NiSO_4$ (containing ~20ktpa Ni) and ~7.2ktpa $CoSO_4$ (containing ~1.5 ktpa Co). A capital-optimisation program is underway evaluating atmospheric vat leaching as an alternative to the DFS heap-leach flowsheet, targeting lower water demand and water-infrastructure capital. Bulk-sample vat leach testwork is underway, with interim results due Q4 2026. A lower-water atmospheric leach alternative may allow local Mt Kilkenny water supply and significantly reduce the circa +A$310m water-infrastructure capital. EPA referral has been submitted. The Nyalpa Pirniku People are the Native Title claimant group. Major Project Status was awarded in May 2024.

A partnership with Stellantis includes shareholder equity and offtake for 40% of production (under renegotiation). Additional offtake and investment are sought (Stellantis 40% offtake under renegotiation; balance available).

Midstream Products & Annual Production Rate:

- **Nickel sulphate** (hexahydrate 99.95% purity): 87.8ktpa (containing ~20ktpa nickel)
- **Cobalt sulphate** (heptahydrate >99.9% purity): 7.2ktpa (containing ~1.5ktpa cobalt)

Midstream summary

Kwinana Cobalt Refinery

cobaltblueholdings.com

Company Name:
Cobalt Blue Holdings Ltd

Company Ownership:
ASX-listed (COB)

Critical Mineral(s):
Cobalt



Midstream Project Description

The Kwinana Cobalt Refinery (KCR), being developed by Cobalt Blue Holdings in partnership with Iwatani Australia will produce battery-grade cobalt sulphate and high-purity cobalt metal for the global battery, defence and advanced manufacturing markets.

The estimated capital cost is ~A$60-85m. The plant will be located on an operating Iwatani site, within the Kwinana industrial precinct. The site offers close access to Port Fremantle, sulphuric acid, high purity water, existing connections to power, offices, and laboratories.

Stage 1 targets 3,000-4,000tpa of contained cobalt (~2,000-3,000tpa as sulphate and ~1,000tpa as metal), with Stage 2 expansion to a total of ~6,000tpa contained cobalt. KCR aims to be the downstream processing hub for Australian cobalt. This includes supply from COB's 100% owned Broken Hill Cobalt Project and other sources including battery black mass recycling and cobalt by-products from nickel and copper mines.

KCR's Feasibility Study was completed in November 2023 and updated in November 2025.

The processing flowsheet has been validated at the Broken Hill Technology Centre. Works Approval was granted by the WA Government in September 2025. A binding feedstock agreement with Glencore covers up to 50% of Stage 1 production. FID is targeted for early 2027, with first production targeted in 2028. COB welcomes discussions on offtake and investment.

Midstream Products & Annual Production Rate:

- **Cobalt sulphate, battery-grade** (20.5% Co min): **~2,000-3,000tpa contained Co (Stage 1); ~5,000tpa contained Co (Stage 2)**
- **Cobalt alloy-grade metal** (99.9% Co): **~1,000tpa contained Co (Stage 1)**

Offtake available: ~50% of Stage 1 production remains available; COB actively seeks binding offtake agreements with battery manufacturers, trading houses and industrial/ defence sector customers.

Midstream summary

Wagerup Gallium Project

alcoa.com

Company Name:

Joint venture project involving government and industry partners from Australia, Japan and the United States.

Company Ownership:

Alcoa will construct and operate the gallium process plant. NYSE-listed (AA); ASX-listed (AAI)

Critical Mineral(s):

Gallium



Midstream Project Description

A new gallium critical mineral processing plant is being constructed alongside Alcoa's existing Wagerup Alumina Refinery, 120km south-east of Perth.

The joint venture project involves government and industry partners from Australia, Japan and the United States. Japan Australia Gallium Associates – a joint venture between the Japan Organization for Metals and Energy Security and Sojitz Corporation – is providing 50 per cent of the project funding. The remaining 50 per cent funding is being provided by the Australian Government (through Export Finance Australia), the United States Government (through the Department of War), and Alcoa.

Gallium is one of the world's most sought-after critical minerals for rapidly advancing modern technologies. It is needed for semiconductors and LEDs and used in advanced electronics, telecommunications, green energy, and defence technologies, just to list a few applications. Global supply is restricted, and the project will help establish a new reliable source of this critical mineral.

Gallium typically does not occur at sufficient concentrations to mine on its own. It co-occurs within aluminium and zinc ores and is mostly extracted as an extension of refining bauxite into alumina. Alcoa will construct and operate the new plant, which will extract gallium from the bauxite the Company already mines and refines to produce alumina, the feedstock for aluminium. No additional bauxite mining will be required. Gallium will be extracted from the alumina refinery liquor stream using ion-exchange technology.

Following completion of a Feasibility Study and a Final Investment Decision in July 2026, construction commenced in September 2026. About 200 construction jobs and 20 permanent roles will be created.

Midstream Products & Annual Production Rate:

- **Gallium metal (99.99% purity): Annual production to be determined.**

Midstream summary

Australian Germanium Recovery Project

nyrstar.com

Company Name:
Nyrstar Australia

Company Ownership:
Trafigura Control Holdings Pte. Ltd (Singapore)

Critical Mineral(s):
Germanium



Midstream Project Description

Nyrstar is exploring the development of an Australian Germanium Recovery Project, integrated into its Hobart Zinc Works site in Tasmania. The Project is set to recover germanium concentrate from zinc fume by-product supplied from its interconnected lead refining site in Port Pirie, South Australia. The Hobart site currently processes ~45,000tpa of zinc fume for zinc recovery, with an opportunity to also recover germanium. Plans are being developed for a germanium recovery circuit designed to process ~50,000tpa of zinc fume, containing ~10.3tpa of germanium.

A Pre-Feasibility Study was completed in July 2026 as part of the renewal of Nyrstar's Port Pirie and Hobart refineries, building on core lead and zinc flowsheets. This included critical minerals recovery, primarily antimony at Port Pirie and germanium at Hobart. The Feasibility Study is now underway targeting mid-2027 completion. The study includes the assessment of technical trade-off studies, testwork and optimising the flowsheet for the germanium final product.

Commonwealth, South Australian and Tasmanian Governments are providing funding support to make refinery reliability improvements and critical-metal readiness across Port Pirie and Hobart.

Midstream Products & Annual Production Rate:

- **Germanium concentrate:** Potential to recover ~10.3tpa contained germanium by 2030. Final product still to be determined.

Midstream summary

Townsville Battery Anode Project

graphinex.com.au

Company Name:

Graphinex Pty Ltd

Company Ownership:

Privately owned, with Idemitsu Australia as a strategic shareholder

Critical Mineral(s):

Graphite



Midstream Project Description

Graphinex's Townsville Battery Anode Project is establishing Australian capability to convert natural graphite concentrate into Coated Spherical Purified Graphite (CSPG) for lithium-ion battery manufacturers. The project includes a commissioned 300tpa integrated demonstration facility in Townsville. It is supplied with graphite concentrate from Graphinex's Esmeralda Graphite Project, providing control over the mine-to-anode supply chain and supporting secure supply to customers in Japan, South Korea, the United States and Europe.

The demonstration facility integrates spheronisation, HF purification and coating. It has produced independently verified battery-anode-quality material, including 99.996% purity, in-specification 16-18 µm and 8-10 µm product with a 62% yield. Product qualification and operating campaigns are continuing with multiple battery manufacturers and OEMs. Graphinex is currently completing the downstream DFS, together with engineering, permitting, site, product qualification and financing workstreams for the proposed refinery. Graphinex is seeking strategic investment, project financing and binding offtake and welcomes discussions with potential customers and development partners.

Midstream Products & Annual Production Rate:

Existing demonstration facility

- **CSPG (active anode material): 300tpa**

Proposed refinery

- **CSPG (active anode material): 50ktpa (Stage 1) increasing to100ktpa (Stage 2)**

Binding offtake available for 100% of proposed production, with product qualification and non-binding customer discussions underway.

Midstream summary

Collie Micronising Facility

internationalgraphite.com.au

Company Name:
International Graphite Ltd

Company Ownership:
ASX-listed (IG6); Frankfurt-listed (FWB:H99)

Critical Mineral(s):
Graphite



Midstream Project Description

The IG6 Collie Micronising Facility is Australia's first commercial-scale graphite micronising operation designed to produce specialised and superfine micronised graphite powders for industrial, energy storage, advanced manufacturing and defence applications. The facility is the Australian hub of IG6's international midstream graphite processing network and will supply customers across the Asia-Pacific. The Company is also developing a joint venture operation in Europe.

Construction is underway at Collie with the first micronising equipment scheduled for installation in Q2 2027 and commissioning targeted for mid-2027. The plant will process graphite concentrate into standard and superfine micronised graphite products across a range of purities and particle sizes. IG6 has operated a qualification-scale R&D facility at Collie since 2022 producing micronised graphite for customer testing and qualification. A FEED study for the commercial facility was completed in March 2025 with an initial nameplate capacity of 4.0ktpa and an expansion option to increase capacity and product range. Higher-value products are now being prioritised over volume, with an initial nameplate capacity of between 4,300tpa and 6,400tpa of standard and high grade finished products between 5µm and 45µm sizes now expected. IG6 has signed non-binding Heads of Terms with Wogen Pacific for product sales to established Asia-Pacific customers and the supply of graphite feedstock. IG6 also owns a major graphite resource at Springdale, in Western Australia, which secures long-term feedstock optionality. IG6 has been awarded A$17.2M from the Australian and WA Governments. The Company welcomes investment and commercial partnerships.

Midstream Products & Annual Production Rate:

Collie Commercial-Scale Graphite Micronising Facility (being constructed):

- **Micronised graphite: Production exceeding 4,000tpa across standard and high-purity grades, sized 5µm–45µm**

Production will depend on the ultimate product mix and customer demand. IG6 is focused on maximising value and returns rather than production volumes, with higher-value and superfine graphite products a priority.

A non-binding Heads of Terms is in place for global trading house Wogen Pacific to purchase a minimum of 3,000tpa of product from Collie for sale to its customers in the Asia-Pacific region and for 10,000tpa of concentrate feedstock to the Collie operation.

Midstream summary

Battery Anode Material Project

renascor.com.au

Company Name:
Renascor Resources Ltd

Company Ownership:
ASX-listed (RNU)

Critical Mineral(s):
Graphite



Midstream Project Description

Renascor's Battery Anode Material (BAM) Project in Bolivar, SA, is designed to produce purified spherical graphite (PSG), a 99.95%+ carbon product for lithium-ion battery anodes. Integrated with Renascor's Siviour graphite deposit, it will create an Australian mine-to-PSG supply chain and secure a diversified source of battery anode material. Stage 1 is designed to produce approximately 50ktpa PSG, with potential expansion in Stage 2 to 100ktpa PSG total capacity.

PSG will be produced from Siviour graphite concentrate feedstock in the PSG facility via a process incorporating milling, shaping, classification and purification. A large-scale, continuous demonstration plant has been constructed in Adelaide and is processing graphite and reagents through Renascor's integrated HF-free purification flowsheet under operating conditions. Current activities are validating performance, generating operating data and targeting battery-grade graphite and qualification samples. A July 2026 study estimated purification operating costs at approximately US$459/t PSG (2026 dollars), excluding spheronisation and logistics.

The commercial facility received provisional development authorisation in June 2025, subject to approval of final detailed designs and plans. Renascor welcomes discussions with potential investment, strategic and offtake partners.

Midstream Products & Annual Production Rate:

Stage 1:

- **PSG:** 50ktpa (up to 100% available; no binding commitments)

Potential Stage 2 expansion:

- **PSG:** 100ktpa total capacity

Midstream summary

HPA First Facility

alphahpa.com.au

Company Name:
Alpha HPA Ltd

Company Ownership:
ASX-listed (A4N)

Critical Mineral(s):
High Purity Alumina



Midstream Project Description

Alpha HPA is commercialising its proprietary process technology to produce ultra-high purity aluminium materials for use in; semiconductors, lithium-ion batteries, direct lithium extraction, pharmaceuticals, LEDs, and synthetic sapphire industries. The HPA First Facility, located in Gladstone, Queensland, processes feedstock from Rio Tinto's Yarwun alumina refinery (2.5km away) to produce a range of High Purity Alumina (HPA) products including; high purity aluminium oxides, hydroxides and nitrates. Synthetic sapphire is also produced on-site from HPA feedstock. Alpha HPA's novel Smart SX purification process represents the world's first application of solvent extraction purification technology for aluminium.

Stage One of the HPA First Facility, a small-scale commercial production facility (~380tpa), commenced operation in November 2022, enabling customer qualification and early entry into key customer supply chains. Stage Two of the HPA First Facility, a large-scale commercial production facility (~10,000tpa), commenced construction late-2024, with commissioning targeted for late-2027.

With current total offtake of more than 13,500tpa in sales contracts and signed non-binding LOI's for Stage Two, A4N is now considering a Stage Three expansion. The facility has secured up to A$67m in grants and up to A$400m in loans from the Australian Government. All key approvals are in place. Alpha HPA is now accepting individual offtake contracts.

Midstream Products & Annual Production Rate:

Stage One

- **Aluminium nitrate: ~355tpa**
- **High purity alumina + high purity alumina hydrates: ~70tpa**

Stage Two

- **Combination of: Aluminium nitrates, high purity alumina + high purity alumina hydrates: ~10,000tpa**

Alpha Sapphire

- **Ultra Sapphire (Al_2O_3)™ (low-carbon synthetic sapphire): 7tpa**

Midstream summary

premiumHPA®

cadoux.com.au

Company Name:
Cadoux Ltd

Company Ownership:
ASX-listed (CCM); FSE-listed (SLD); OTC-listed (FYIR)

Critical Mineral(s):
High Purity Alumina (HPA)



Midstream Project Description

Cadoux aims to become a producer of high-quality critical minerals supporting the rapidly growing EV, LED and advanced technology markets, including semiconductors and microchips. The Company is developing an integrated HPA business, utilising feedstock from its kaolin deposit and processing it at Kwinana to produce premium-quality High Purity Alumina (premiumHPA®). Through an integrated, end-to-end model spanning mining, processing and market development, Cadoux is positioned to deliver consistent premium-quality HPA with full supply-chain traceability.

Cadoux has advanced its premiumHPA® project along the development pathway by completing extensive pilot plant testwork and the HPA Feasibility Study in 2021. Following that, FEED engineering studies have commenced for the Stage 1 Small-Scale demonstration and production Plant (SSP) with a design capacity of ~1,000-3,000tpa. The planned commercial production plant will be expanded over two further stages to achieve final production of 10,000tpa of premium quality (>99.99% Al_2O_3) HPA. The plant will utilise Cadoux's innovative hydrochloric acid leach and precipitation production process.

The SSP FEED studies and detailed design will lead up to a FID in mid-2027. Project permitting for the Kwinana facility has been completed. Cadoux is continuing its product innovation of bespoke HPA and alumina products and furthering its customer qualifications following successful qualifications with the SAFELOOP consortium.

Midstream Products & Annual Production Rate:

Stage 1

- **premiumHPA® High Purity Alumina (>99.995% Al_2O_3): 1,000-3,000tpa**

Final Commercial Production

- **premiumHPA® High Purity Alumina (>99.995% Al_2O_3): 10,000tpa**

Midstream summary

Lake Hope

impactminerals.com.au

Company Name:
Impact Minerals Ltd

Company Ownership:
ASX-listed (IPT) 80%

Critical Mineral(s):
High Purity Alumina



Midstream Project Description

The Lake Hope HPA Project is an integrated ore-to-chemical operation that will produce >99.99% (4N) High Purity Alumina (HPA) from salt lake sediment. Processed at a planned Perth-based facility, the HPA will have an ultra-low radiogenic composition suited to semiconductor chip-facing applications, technical ceramics, battery separator coatings and LED substrates.

A Pre-Feasibility Study completed in June 2025 is based on mining of ~54ktpa of salt lake sediment from Lake Hope and processing via a low-temperature alkaline leach and hydrochloric acid purification at a facility located in the Perth metropolitan area, to produce ~10ktpa of 4N HPA. The innovative, patented processing flowsheet also yields an intermediate aluminium chloride hexahydrate product and a sulphate of potash by-product. Pilot plant testwork is underway through a co-operative research project with Edith Cowan University focused on small-scale batch production, with larger-scale pilot plant testwork planned for late 2026. This work will inform demonstration plant scale-up through to 2028, targeting 500tpa of 4N HPA production in 2028–2029 to underpin commercial qualification and offtake activities. Commercial-scale production is planned post-2029, and the company welcomes project investment discussions.

Midstream Products & Annual Production Rate:

- **High Purity Alumina** (99.99% Al_2O_3): **10ktpa**
- **Sulphate of Potash by-product** (98.5% K_2SO_4): **20ktpa**

100% Offtake Available

Midstream summary

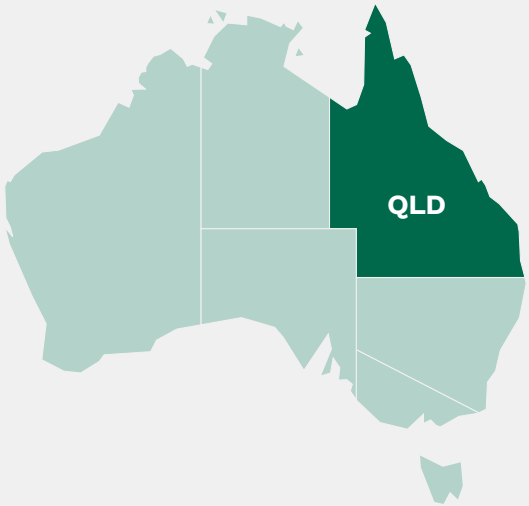
Redlands HPA Project

lavablue.com.au

Company Name:
Lava Blue Ltd

Company Ownership:
Unlisted Public Company (150+ shareholders)

Critical Mineral(s):
High Purity Alumina



Midstream Project Description

Lava Blue's Redlands HPA Project will manufacture 500tpa of 5N (99.999%) High Purity Alumina at a facility alongside its existing demonstration plant in Redlands, 25km from the Brisbane CBD. This high purity material, engineered with various particle properties, will be suitable for applications in battery chemistry and battery separators, sapphire glass production and semi-conductor fabrication. The HPA project will utilise the 'modified hydrochloric acid' processing route being demonstrated at Lava Blue's 20kg batch facility, the Centre for Predictive Research into Specialty Materials (PRiSM). The method allows extraction of aluminium and its refinement to 5N HPA from low-grade feedstocks including kaolin, gibbsite, fly ash and other aluminium rich waste.

This process can be added onto other mineral processing projects to recover valuable co-products. It has a small number of Australian and overseas project developers investigating integrating the Lava Blue method into their project flow sheets. Vecco Group has a technology licence to recover HPA from its vanadium waste streams. Lava Blue's Redlands HPA Project will provide very high specification material to Lava Blue's in-house downstream product manufacturing.

This includes Ceramic Coated Separators from its PRiSM facility, with a pilot scale production line to support Australian battery manufacturers in 2027/2028. Engineering and prefeasibility for the 500tpa continuous production plant has commenced with the facility scheduled for completion in 2028/29.

Midstream Products & Annual Production Rate:

- **High Purity Alumina** (5N 99.999%): **up to 500tpa (continuous production plant)**

Midstream summary

Kemerton Lithium Hydroxide Processing Plant

albemarle.com

Company Name:
Albemarle Corporation

Company Ownership:
NYSE-listed (ALB)

Critical Mineral(s):
Lithium



Note: Kemerton Lithium Hydroxide Processing Plant is currently under care and maintenance.

Midstream Project Description

Albemarle completed construction of the first two production trains of its Lithium Hydroxide Processing Plant in the Kemerton Strategic Industrial Area, WA, in 2022 with an initial nameplate capacity of 40ktpa battery-grade lithium hydroxide monohydrate production. Production commenced using spodumene concentrate from the Talison Lithium Mine (Greenbushes, WA) (51% Tianqi Lithium Energy Australia (TLEA), 49% Albemarle) via a process including calcination, acid roasting, leaching, chemical extraction and crystallisation. The target markets for the critical minerals product include battery manufacturers and OEMs in the US, Europe and Asia. The process also produces sodium sulphate anhydrous (SSA) and delithiated beta spodumene (DBS) coproducts.

The Plant's overall design and approvals include expansion to up to five production trains, increasing production capacity to ~100ktpa. Construction of trains 3 and 4 commenced in 2023, however in July 2024 Albemarle announced that due to ongoing commodity price headwinds it would cease construction activities and place train 2 into care and maintenance. In February 2026, Albemarle announced the remaining operating train would also be placed into care and maintenance due to the ongoing cost challenges facing Western hard-rock lithium conversion relative to lithium prices. The plant is currently transitioning into care and maintenance status.

Midstream Products & Annual Production Rate:

Current Facility

- **Battery-grade Lithium Hydroxide Monohydrate (99.9%+ pure): 40ktpa total installed capacity for trains 1 & 2.**
- **Coproducts: Sodium Sulphate Anhydrous (SSA), and Delithiated Beta Spodumene (DBS).**

Expansion

- **Battery-grade Lithium Hydroxide Monohydrate: Approvals in place for expansion to 100ktpa, however no investment decision in place to progress expansion.**

Nil offtake available whilst plant is in care and maintenance.

Midstream summary

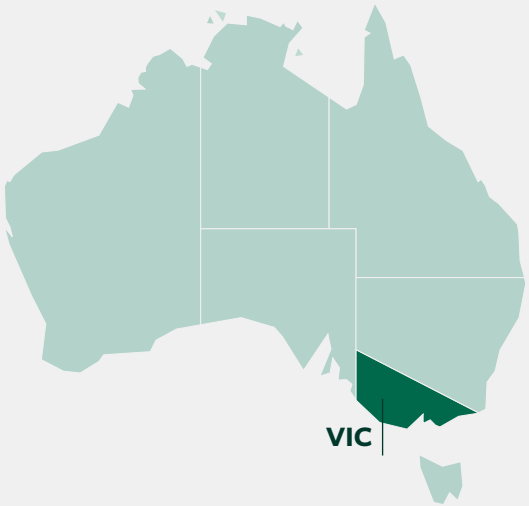
Lithium Metal Foil Production Line

lis.energy

Company Name:
Li-S Energy Ltd

Company Ownership:
ASX-listed (LIS)

Critical Mineral(s):
Lithium



Midstream Project Description

Li-S Energy Ltd (ASX: LIS) is an Australian company advancing next-generation battery technologies, developing lithium-sulphur and lithium-metal cells that deliver more than twice the energy density of conventional lithium-ion batteries. Leveraging proprietary nanomaterials, including boron nitride nanotubes (BNNTs) and Li-Nanomesh™, Li-S Energy's designs enhance performance, safety, and cycle life for demanding applications in aviation, drones, and defence. Li-S Energy's Lithium Metal Foil Production Facility in Geelong is producing lithium-metal foils for direct use as high-performance battery anodes, and for sale to external customers.

In FY26, Li-S Energy successfully commissioned its lithium foil extrusion, rolling and laminating production line, producing lithium-metal foils down to 20-micron thickness, and achieving its first commercial sale from its ISO9001:2015 accredited Geelong Facility. Delivered ahead of schedule under a $1.76 million matched-funding grant from the Australian Government, the facility enables domestic production of high-tolerance lithium foils, and laminated products (including lithium and copper laminated foil), reducing reliance on imports and lowering input costs for advanced battery manufacturing. During FY26, Li-S Energy also expanded its pilot-scale production of 10 Ah and 20 Ah Li-S pouch cells at its Geelong facility, and delivered its first battery packs for testing to a Brisbane based drone company. Phase 4 Feasibility Study underway on scale-up of advanced battery manufacturing to commercial scale, supported by an A$7.8m ARENA grant.

Midstream Products & Annual Production Rate:

Lithium-metal Foils Production Facility

- **High-purity lithium-metal foils: up to 5tpa, depending on specification**

Commercial expansion phase

- **Expanded lithium-metal foils product range: Up to 25tpa, including:**
  - **High-purity lithium-metal foils (20–200 micron)**
  - **Lithium-laminated copper foils**
  - **Lithium foils with proprietary BNNT and Li-Nanomesh™ coatings**

Full-scale Production

- **Expansion of the above lithium-metal foil product range production subject to demand and funding.**

Midstream summary

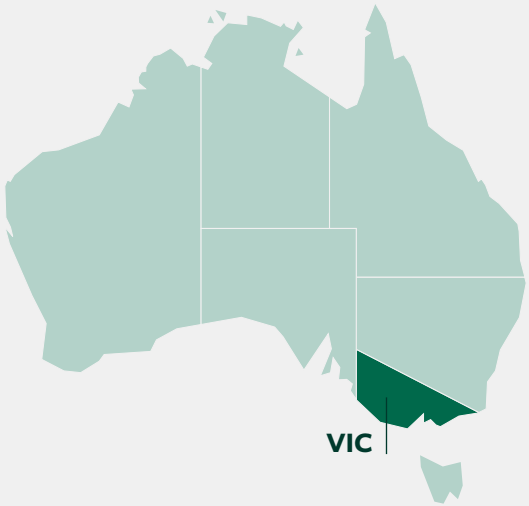
Envirostream (Battery Recycling), LieNA® (Lithium Chemicals) and VSPC (Battery Materials)

liviumcorp.com

Company Name:
Livium Ltd

Company Ownership:
ASX-listed (LIT)

Critical Mineral(s):
Lithium



Midstream Project Description

Livium is an Australian company focused on renewables recycling, with other battery value chain technologies.

Battery Recycling: via wholly owned subsidiary, Envirostream
Envirostream, Australia's leading lithium-ion battery recycler, collects, discharges, dismantles, and shreds batteries across its EPA-licensed facilities in Melbourne for blue chip partners (e.g. BYD, CATL, Tesla). Its patented process recovers valuable materials, including black mass which is then sold to partners in Asia to further process into battery materials. With Australian end-of-life lithium-ion battery volumes forecast to grow 4-fold by 2030, Livium is seeking partners to scale through a new Victorian "Hub" facility and "Spokes" in other States targeting 10,000tpa batteries processed. The pursuit of rare earth magnet and solar panel recycling is also in progression.

Lithium Chemicals: via LieNA®, a 50:50 JV with Mineral Resources Ltd (ASX:MIN)
Livium has developed patented lithium extraction technology, LieNA®, to recover lithium from waste or low grade spodumene, without the need for roasting. Pilot trials have been successfully completed with Livium and MinRes working on the next phase of commercialisation.

Battery Materials: via wholly owned subsidiary VSPC
Livium has developed patented processes, through its Brisbane pilot plant, related to Lithium Ferro Phosphate (LFP) and Lithium Manganese Ferro Phosphate (LMFP) cathode active materials. Development of a Demonstration Plant is being pursued with a $30M grant secured from the Australian Government and matched funding being sought.

Midstream Products & Annual Production Rate:

Current Envirostream Battery Recycling Plant

- **Li-ion batteries collected and processed in FY26: ~900 tonnes**
- **Black mass sold in FY26: >400 tonnes**

Midstream summary

Midstream Demonstration Plant

pls.com

Company Name:
PLS Group Ltd

Company Ownership:
ASX-listed (PLS)

Critical Mineral(s):
Lithium



Midstream Project Description

The PLS Mid-Stream Demonstration Plant is a demonstration-scale processing facility at the Pilgangoora Operation in Western Australia. The Demonstration Plant is designed to convert spodumene concentrate into lithium phosphate, an intermediate product used in lithium-ion battery production.

The Demonstration Plant is expected to process ~27,000tpa of Pilgangoora spodumene concentrate to produce ~3,000tpa lithium phosphate, testing whether more value can be captured at the mine site through midstream processing prior to export. The project applies electric flash calcination technology developed by Calix Ltd and represents the world's first commercial-scale application of this technology in primary lithium processing. The technology targets one of the most energy-intensive stages in lithium processing and, when powered by renewable energy, has the potential to support a lower-emissions intensity processing pathway.

PLS has secured up to $38.1m in grant funding from the Australian Renewable Energy Agency (ARENA) under its Advancing Renewables Program. The funding is structured to support operating costs during the Midstream Demonstration Plant's validation phase and is subject to agreed milestones and performance conditions.

PLS completed construction in the December Quarter 2025 and commenced commissioning in April 2026, targeting first product in the September Quarter 2026. The validation program will assess plant performance, product quality, operating efficiency, emissions reduction potential and market acceptance, informing future commercial pathways for the technology.

Lithium phosphate produced at Pilgangoora will be supplied to Ningbo Ronbay, a global battery materials manufacturer, under an existing offtake agreement.

Midstream Products & Annual Production Rate:

- **Lithium phosphate** (intermediate battery materials product): **~3,000tpa**

Existing offtake agreement in place with Ningbo Ronbay for production from the Midstream Demonstration Plant.

Midstream summary

Kwinana Lithium Hydroxide Plant

tlea.com.au

Company Name:

Tianqi Lithium Energy Australia (TLEA)

Company Ownership:

JV Tianqi Lithium Corporation (51%) and IGO Ltd (49%)

Critical Mineral(s):

Lithium



Midstream Project Description

Tianqi Lithium Energy Australia (TLEA) is a joint venture between Tianqi Lithium Corporation (51%) and IGO Ltd (49%). TLEA owns and operates Australia's first lithium hydroxide processing plant, strategically located in the Kwinana Industrial Area. The company also holds a 51% majority share in Talison Lithium Mine – the world's largest and highest-quality lithium deposit with U.S-based Albemarle (49%). Through its vertically integrated lithium supply chain, TLEA produces premium battery-grade lithium hydroxide, exported to Europe, India, and Asia for use in electric vehicle (EV) batteries and energy storage systems.

Spodumene is mined and concentrated at Greenbushes, then transported to Kwinana, where it undergoes a complex conversion process into lithium hydroxide monohydrate. This process includes calcination, acid roasting, leaching, neutralisation, impurity removal, crystallisation, drying, and packaging. This process also results in three non-lithium products, Tianqi Aluminosilicate, also known as Delithiated Beta Spodumene, which can be used to replace cement in concrete products, gyplime, which is a soil conditioner and is currently used in agriculture in Western Australia's wheatbelt region, and sodium sulphate, which is exported for use in detergents.

The refinery is currently focused on ramping up to its nameplate capacity of 24ktpa.

Midstream Products & Annual Production Rate:

- **Battery Grade Lithium Hydroxide:** Current production of 11ktpa, ramping up to 24ktpa. Exported to various customers in India, Europe and Asia.
- **Tianqi Aluminosilicate** (DBS): Current production of 77ktpa, ramping up to 170ktpa. Offtake in place and additional customers and markets under development.
- **Gyplime: Current production of 11ktpa, ramping up to 24ktpa.** Offtake in place.
- **Sodium sulphate:** Current production of 22ktpa, ramping up to 48ktpa. Offtake in place.

Midstream summary

Renewable Metals Battery Recycling Project

renewable-metals.com

Company Name:
Renewable Metals Pty Ltd

Company Ownership:
Private

Critical Mineral(s):
Lithium, Nickel, Cobalt, Manganese



Midstream Project Description

Renewable Metals is developing Australia's first hydrometallurgical lithium-ion battery recycling refinery. Its commercial prototype plant at Kewdale, Western Australia, commissioned in September 2026 and ramps up to 2,000tpa over the next year. We chemically discharge whole battery packs quickly and safely, cutting manual handling and live-battery storage. A selective alkali leach processes all lithium-ion battery chemistries (NMC, LFP, LCO) in one closed-loop line, recycling reagents and water, with no sodium sulphate waste. Bypassing black mass, where 10% to 15% of metal can be lost, recovery exceeds 95% from the battery. Products are copper and nickel cathode, manganese oxide, lithium and cobalt.

The flowsheet is chemical discharge, wet shredding, alkali leach, manganese precipitation, solvent extraction, electrowinning and crystalisation. The process is covered by three patent families filed in 13 jurisdictions. The site is licensed and permitted. Front-end engineering is under way for a commercial-scale refinery at 8,000 to 10,000tpa, targeting investment decision in 2028. We expect commercial plants to run 30%-40% below acid-based peers on capital and operating costs, with 15% higher recovery rates. Modular build keeps plants modestly sized, matching capital to today's feedstock, not tomorrow's. Renewable Metals seeks feedstock, offtake, investment and licensing partners for this world-first technology.

Midstream Products & Annual Production Rate:

- **Commercial prototype plant, Kewdale, Western Australia: 2,000tpa battery feed (design capacity, ramping through 2027). Products include:**
  - **Nickel metal (electrowon cathode): up to ~90tpa**
  - **Copper metal (electrowon cathode): up to ~100tpa**
  - **Manganese oxide (technical grade): up to ~20tpa**
  - **Lithium-cobalt double salt: up to ~40tpa**

Production rates are on a 50/50 NMC/LFP battery pack feed blend; product volumes vary with feed chemistry.

Midstream summary

Collie Magnesium Refinery

magnium.com.au

Company Name:
Magnium Australia Pty Ltd

Company Ownership:
Private — unlisted Australian proprietary company

Critical Mineral(s):
Magnesium



Midstream Project Description

China supplies 86% of world magnesium (USGS 2026). The Collie Magnesium Refinery, Western Australia, is one of few DFS-complete primary magnesium projects in the Western world producing ≥99.8 wt% magnesium ingot (ASTM B92/B92M) and high-purity magnesium powder via a carbothermic process originally developed by CSIRO. CSIRO and Magnium are progressing negotiations for an exclusive commercial licence to CSIRO's MagSonic™ technology. Markets include: automotive, aerospace, defence and titanium production with strong demand in Japan, Europe and North America. Stage 1 capital cost A$108m, with Western Australian Government support; process plant FEED complete; carbon footprint an order of magnitude below incumbent processes.

Magnesium oxide is reduced with renewable biochar in a reactor, quenched through a supersonic de Laval nozzle, then vacuum-distilled: no chloride chemistry, hydrofluoric pathway or tailings. Bench and pilot programs are complete: the pilot plant has run successfully at 10 kg/h, achieving 95 wt% yield and >99.8 wt% purity. Development will be modular: a 4,000tpa Stage 1 module replicated to 40,000tpa in Stage 2 and 100,000tpa in Stage 3. Magnium's technology allows the quickest planned build of any primary magnesium route. EPA pre-referral has commenced; referral, works and planning approvals are progressing. FID is targeted Q4 2026 and first production targeted in 2028. Substantial non-binding interest in offtake from Stages 1-3. Magnium seeks binding offtake and welcomes investment discussions.

Midstream Products & Annual Production Rate:

- **Stage 1 – Primary magnesium metal: 4,000tpa (targeting first production in 2028) including;**
  - **Magnesium ingot, ≥99.8 wt% Mg (ASTM B92/B92M): up to 4,000tpa**
  - **High-purity magnesium powder (from >99.95 wt% vacuum-distilled crown): up to 4,000tpa**
- **Stage 2 – Primary magnesium metal: 40,000tpa (same product suite, by replication of the Stage 1 module)**
- **Stage 3 – Primary magnesium metal: 100,000tpa (same product suite, by replication of the Stage 1 module)**

Midstream summary

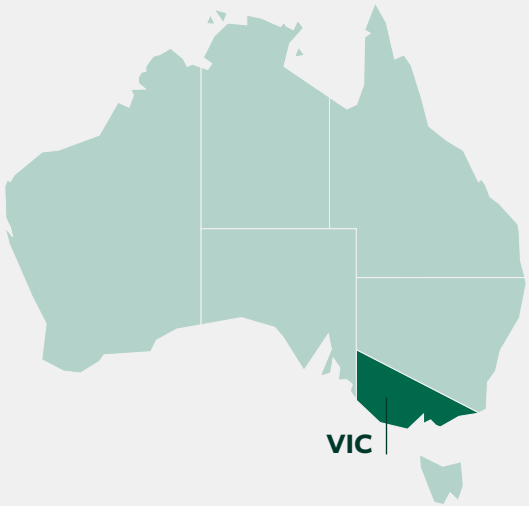
Latrobe Magnesium Project

latrobemagnesium.com

Company Name:
Latrobe Magnesium Ltd

Company Ownership:
ASX-listed (LMG)

Critical Mineral(s):
Magnesium



Midstream Project Description

The Latrobe Magnesium Project will produce magnesium metal and magnesium alloys from brown coal fly ash using LMG's patented hydrometallurgical and thermal reduction process.

The hydrometallurgical section of the 1,000tpa Demonstration Plant processing Yallourn Power Station brown coal fly ash in the Latrobe Valley, Victoria was commissioned in early-2026 and completed a sustained production program producing ~20t MgO to commercial specifications. Construction of the Demonstration Plant's magnesium section is over 70% complete with first magnesium metal production targeted in 2026 H2. LMG will operate the Demonstration Plant in a steady state for a reasonable period of time prior to progressing with commercial-scale plants.

LMG plans to build a 10,000tpa Australian magnesium Commercial Plant in the Latrobe Valley. In February 2026, a trailing liabilities scheme was introduced for declared mines in Victoria, including Yallourn. LMG is working with the Victorian Government and key stakeholders to define a path forward for the Australian Commercial Plant, and plans to re-commence work on the Australian Commercial Plant once there is a favorable resolution.

LMG plans to build a USA 50,000tpa magnesium Commercial Plant in South Carolina, USA. A Feasibility Study with Bechtel is planned for completion in 2027. LMG is targeting commencement of construction in 2028 and first production in 2030. LMG has offtake agreements for 100% of the Demonstration Plant and 62% of the USA Commercial Plant production and welcomes discussions regarding remaining offtake and investment in its Commercial Plants.

Midstream Products & Annual Production Rate:

Demonstration Plant
- **Magnesium metal (99.9% purity): 1,000tpa**

Australian Commercial Plant
- **Magnesium metal (99.9% purity): 10,000tpa**
- **Coproducts expected to be produced are: 2,394tpa char, 2,220tpa silica,**
- **1,297tpa hematite, 5,850tpa supplementary cementitious material**

USA 50,000 tpa Plant
- **Magnesium metal (99.9% purity): 50,000tpa**
- **Coproducts expected to be produced are: 390,000tpa amorphous silica,**
- **44,000tpa hematite, 270,000tpa supplementary cementitious material**

Midstream summary

Karratha Processing Plant

ecomagnesium.com

Company Name:
EcoMag Ltd

Company Ownership:
Unlisted Company

Critical Mineral(s):
Magnesium



Midstream Project Description

EcoMag's Magnesium Recovery Project in Karratha, Western Australia, will recover magnesium from waste bitterns generated by the solar salt industry and currently discharged to the ocean. EcoMag's proprietary zero-discharge process converts this resource into high-purity Magnesium Oxide (MgO) and Magnesium Dihydroxide while recovering water, salts and process chemicals for reuse. The proposed 20,000tpa MgO project will operate as an integrated closed-loop system, reducing waste, chemical consumption and environmental discharge.

A Feasibility Study completed in November 2024 demonstrated attractive economics based on a precipitation, filtration and calcination process. Long-term feedstock access and a land lease are secured, with established gas, power and transport infrastructure. The project has received over A$8 million in Federal and State grants and is progressing engineering and project financing.

EcoMag is also conducting pilot-scale testing in the United States with major potash and salt producers in north-western USA. The program is validating magnesium recovery from industrial brines under commercial feed conditions and generating engineering data for scale-up. Successful trials will demonstrate the technology's potential for deployment across existing salt and potash operations, converting under-utilised magnesium-rich brines into high-value critical mineral products.

Midstream Products & Annual Production Rate:

- **Magnesium Oxide** (99% purity): 20,000tpa
- **Magnesium Dihydroxide:** 12,000tpa
- **Potassium Chloride:** 5,500tpa
- **Salt (99.5% purity):** 55,000tpa
- **Caustic Soda:** 34,000tpa
- **Hydrochloric Acid:** 97,000tpa

Midstream summary

Dubbo Project

asm-au.com

Company Name:
Australian Strategic Materials Ltd (ASM)

Company Ownership:
Wholly owned subsidiary of Energy Fuels Inc.

Critical Mineral(s):
Rare Earth Elements, Zirconium, Niobium, Hafnium



Midstream Project Description

ASM was acquired by – and became a wholly owned subsidiary of – Energy Fuels Inc. in August 2026. Energy Fuels is a leading US-based critical materials company focused on rare earth elements (REE), uranium, heavy minerals sands, vanadium and medical isotopes. The Group has a long-term growth strategy to build an integrated mine-to-magnet rare earth platform, and the Dubbo Project now forms part of Energy Fuels' pipeline of potential REE development projects.

Through its Heap Leach (HL) Scoping Study released in July 2025, ASM is exploring a potential accelerated pathway to rare earth production that offers a simplified flowsheet with lower capital and operating costs. ASM is now conducting a Pre-Feasibility Study (PFS) and evaluating two potential development pathways: production of separated oxide products, and production of an intermediate mixed rare earth hydroxide product (MREP).

The MREP pathway introduces additional flexibility to the development strategy, with the potential to further streamline early project execution, reduce processing complexity and support earlier market entry. For the purposes of the PFS, ASM intends to complete both product case options, and is targeting finalising the PFS in the second half of 2026.

Midstream Products & Annual Production Rate:

Rare Earth Oxides: 1,242tpa, based on current Heap Leach Case including:

- **NdPr Oxide:** 1,157tpa
- **Tb Oxide:** 13tpa
- **Dy Oxide:** 72tpa

Midstream summary

Eneabba Rare Earths Refinery

iluka.com

Company Name:
Iluka Resources Ltd

Company Ownership:
ASX-listed (ILU)

Critical Mineral(s):
Rare Earth Elements



Midstream Project Description

Via a strategic partnership with the Australian Government, Iluka is building Australia's first fully-integrated rare earths refinery at Eneabba for the production of both light and heavy separated rare earth oxides. Commissioning is due in 2027.

The refinery has been designed to process a broad range of feedstocks, including from within Iluka's portfolio as well as third-party sources from Australia and overseas. It will initially be fed by concentrate produced from Iluka's unique 1Mt stockpile of rare earth minerals at Eneabba, with future feedstock to come from its Balranald mine in NSW and Wimmera project in Victoria. The refinery will also process third-party feed, with supply agreements in place with Northern Minerals in WA, VHM Ltd in Victoria, and Lindian Resources in Malawi.

The refinery will utilise roasting, leaching, purification, solvent extraction and product finishing to produce up to 5,500tpa of NdPr oxide and 750tpa of DyTb oxide.

In June 2026, Iluka secured its inaugural offtake agreement with a global automotive company – a take-or-pay contract for 1,200t of magnet rare earth oxides over a four-year term from 2028. Discussions with prospective customers are ongoing. With the refinery providing a foundation to take further steps along the rare earth value chain, Iluka is continuing a feasibility study into metallisation.

Midstream Products & Annual Production Rate:

- **NdPr oxide** (magnet-grade): up to 5,500tpa
- **DyTb oxide** (magnet-grade): up to 750tpa
- **Additional products include SEG carbonate and HREY carbonate (primarily yttrium)**

Final production output dependent on feedstock blend. Offtake available across all products.

Midstream summary

Lynas Rare Earths Processing Facilities

lynasrareearths.com

Company Name:
Lynas Rare Earths Ltd

Company Ownership:
ASX-listed (LYC)

Critical Mineral(s):
Rare Earth Elements



Midstream Project Description

Lynas Rare Earths Ltd (ASX:LYC) is a rare earths supplier and the only commercial producer of separated Light and Heavy Rare Earths outside of China. Lynas' rare earth products are traceable from mine to finished product.

Lynas operates the high-grade, long-life Mt Weld rare earths mine and concentrator near Laverton in Western Australia and undertakes initial processing at the Kalgoorlie Rare Earths Processing Facility in Kalgoorlie, Western Australia. The Mt Weld concentrator was commissioned in 2011 and the Kalgoorlie Facility, Australia's first downstream rare earths processing facility, commenced production in 2024 and is in ramp-up.

At the Kalgoorlie Facility, rare earths concentrate moves through a cracking and leaching process to produce a Mixed Rare Earths Carbonate (MREC). The MREC and concentrate from Mt Weld is shipped to the Lynas Malaysia advanced materials plant in Kuantan, Malaysia, where the company separates rare earths into the individual rare earth oxide products sought after by manufacturing supply chains in East Asia, Europe, and North America. Lynas Malaysia has been operating since 2012.

Lynas' finished product range includes Light and Heavy Rare Earth oxides: Neodymium and Praseodymium (NdPr) used in magnets, Lanthanum (La), Cerium (Ce), Dysprosium (Dy), Terbium (Tb), Samarium (Sm); Holmium concentrate; and unseparated SEGH.

Midstream Products & Annual Production Rate:

Mt Weld Operation
- **Rare Earths Concentrate:** nameplate capacity to support 12ktpa NdPr oxide finished product

Kalgoorlie Rare Earths Facility
- **Mixed Rare Earths Carbonate** (MREC): nameplate capacity to produce MREC to support 9.0ktpa NdPr finished product

Lynas Malaysia advanced materials plant
- **NdPr oxide finished product:** 10.5ktpa solvent extraction and product finishing nameplate production capacity
- **Other separated Rare Earth oxides:** Light and heavy rare earth oxides

Midstream summary

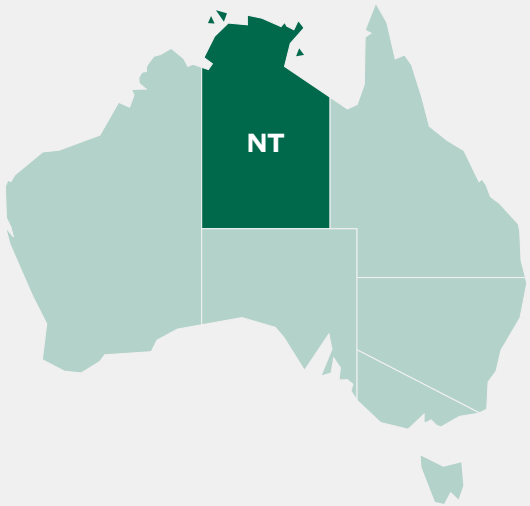
Nolans Rare Earths Project – Processing Facility

arultd.com

Company Name:
Arafura Rare Earths Ltd

Company Ownership:
ASX-listed (ARU)

Critical Mineral(s):
Rare Earth Elements



Midstream Project Description

Nolans is one of the most advanced rare earths ore-to-oxide projects globally and is key to meeting global NdPr demand, used in high-performance magnets enabling the energy transition, future facing technologies and defence.

Integrated on-site processing including; Beneficiation (flotation), Extraction (leaching, cracking and purification) and Separation (calcination (cracking) and solvent extraction) plants will produce radionuclide-free NdPr oxides, SEG/HRE oxides, and high-grade phosphoric acid.

Feasibility Studies, optimisation studies, FEED and all major project approvals have been completed, with the Company commencing construction in September 2026, enabled by early earthworks completed in 2024.

Critical path work programs, compliance, and optimisation activities to mitigate capital and construction risks were progressed prior to FID in May 2026, supporting an accelerated ramp up in advance of the commencement of construction. Indicative schedule sees construction activities being completed over a 37-month period from September 2026.

The Company has executed a US$1.9bn funding package inclusive of >US$1b of debt from Australian and international export credit agencies and commercial lenders, alongside equity commitments from Australia's Export Finance Agency and National Reconstruction Fund and Germany's Raw Materials Fund and institutional investors.

The Company remains open to offtake (~21% of offtake remains available and investment opportunities that support the generation of long-term stakeholder value).

Midstream Products & Annual Production Rate:

- **NdPr oxide:** 4,440tpa
- **SEG/HRE oxide:** 573tpa (including Dy and Tb)
- **Phosphoric acid** (fertilizer-grade, 54% P_2O_5): 144,393tpa

Approximately 79% of offtake has been secured through binding offtake agreements and/or binding terms sheets with ~21% remaining available.

Midstream summary

Darwin Minhub Project

minhub.com.au

Company Name:
Minhub Operations Pty Ltd

Company Ownership:
Unlisted Australian company; 50% owned by Cadoux Ltd (ASX: CCM)

Critical Mineral(s):
Rare Earth Elements, Zirconium, Hafnium, Titanium



Midstream Project Description

For several decades, Australian mineral sands companies have relied on selling 'unfinished' heavy mineral concentrate (HMC) to offshore processors. Independent domestic processing is only now re-emerging. Minhub proposes the Darwin Minhub Project (DMP): a collaborative mineral separation plant at Darwin's East Arm producing zircon, titanium minerals, and monazite and xenotime concentrates from HMC supplied by emerging developers in Victoria's Gippsland and Murray Basin. These concentrates typically contain 20-30% zircon, 2-4% monazite (NdPr rich) and 0.5-1% xenotime (HRE & Y rich).

A Definitive Feasibility Study (IHC Mining, 2025) supports a staged 300,000-500,000tpa plant designed around Fingerboards HMC feedstock. After screening and drying, primary rare earth magnets recover ilmenite, together with paramagnetic (rare earth concentrate) and non-magnetic streams. The non-magnetics pass through electrostatic and magnetic separation to produce rutile and a zircon concentrate. The zircon and rare earth concentrates are batch processed, with extensive recycling, through intensive gravity (classifier) and dry finishing circuits to achieve high recoveries at high product grades, as proven in testwork. Larger scale pilot processing of Fingerboards and fine-grained Murray Basin HMC is planned for 2027, aligned with approvals timing; NT EPA and EPBC referrals are prepared. A downstream Scoping Study is assessing processing of 4,000tpa of xenotime concentrate to produce heavy rare earth carbonate. DMP first production is targeted for 2029. Minhub welcomes offtake, upstream, downstream and investment partners.

Midstream Products & Annual Production Rate:

- **Zircon** (>66% ZrO_2+HfO_2): 75,000-125,000tpa (premium grade for ceramics, sold into Europe, India and the US)
- **Rutile** (>90% TiO_2), 6,000-24,000tpa (welding and titanium pigment feedstock)
- **Ilmenite** (54-57% TiO_2): 70,000-120,000tpa (titanium pigment feedstock)
- **Monazite concentrate** (>58% TREO, of which ~20% NdPr and 1% DyTb): 8,000-13,600tpa (Australian and allied rare earth refiners)
- **Xenotime concentrate** (targeting >50% TREO, of which 7% DyTb and 50% Y_2O_3): 3,300-5,500tpa: (Minhub 4000 project or other Australian and allied rare earth refiners)

(Ranges above are for Stages 1 and 2 of the Project)

Midstream summary

Tronox Western Australian Rare Earth Refinery

tronox.com

Company Name:
Tronox Holdings plc — Australian operations

Company Ownership:
NYSE-listed (TROX)

Critical Mineral(s):
Rare Earth Elements



Midstream Project Description

The Tronox Western Australia Rare Earth Refinery (RER) is a proposed cracking and leaching facility in the Rockingham Industrial Zone in WA that will process monazite/xenotime concentrate into mixed rare earth carbonate (MREC) containing both light and heavy rare earths. The MREC is destined for downstream separation to be used in the manufacturing of critical technologies including electric vehicles, renewable energy, defence and advanced electronics.

The project is at a definitive feasibility stage with the Pre-Feasibility Study (PFS) completed in Q4 2025, and updates being completed ahead of the commencement of the Definitive Feasibility Study (DFS) during 2026. Tronox is targeting a Final Investment Decision (FID) in H2 2027 and construction and commissioning for 2029/30.

The flowsheet comprises cracking, leaching, purification and partial separation of monazite recovered from Tronox's existing mineral sands operations and third-party feedstock. The design has been supported by extensive piloting activities which continue and are entering into a design verification phase.

The project has been awarded Federal Major Project status, is currently in assessment for WA Major Project status, and has been designated as a Priority Project under the Australia-US Critical Minerals Framework. In December 2025, Tronox received non-binding, conditional letters of support/interest from Export Finance Australia and the US Export-Import Bank of up to US$600 million for the project.

Midstream Products & Annual Production Rate:

- **Mixed Rare Earth Carbonate (MREC) (separation feed grade): 14,000tpa on a dry basis, containing ~10,000tpa total rare earth oxides.**

Downstream separation partnership and offtake arrangements are currently being progressed by Tronox – the company welcomes any offtake discussions.

Midstream summary

Sugarbag Hill Ultra High Purity Quartz Sand (UHPQS) Project

ultrahpq.com

Company Name:
High Purity Quartz Ltd (UltraHPQ)

Company Ownership:
Public, Unlisted Company

Critical Mineral(s):
Silicon



Midstream Project Description

UltraHPQ will mine quartz ore and process it to make UHPQS used to manufacture solar PV-grade Fused Quartz Crucibles used in the CZ process to make mono-crystalline silicon for solar PV wafers. Finished UHPQS is scarce globally and may be used in Australia for manufacturing of solar PV wafers or sold into international solar PV markets.

PFS completed in March 2025 based on ~100ktpa quartz ore mined from UltraHPQ's Sugarbag Hill deposit being pre-processed at Mt Garnet site (crushing, comminution, separation, flotation and drying) to produce ~50ktpa of sand concentrate to be transported to Lansdown Eco Industrial Precinct (LEIP), Townsville, for Advanced Processing via chemical and heat treatments to produce ~36ktpa finished UHPQS with total impurities <40ppm.

Study workstreams across all sites have been mapped out for Mining Lease and environmental approval applications required at the Mount Garnet pre-processing site and for Development Approval and Major Hazards Permits at the LEIP advanced processing site. QLD Government Prescribed Project Status will support this process. Engagement with First Nations People and local communities across all sites is underway.

The project DFS is now underway. Conditional Offtake is in place for up to 80% of production. Funding of ~A$20m is currently required for completion of the DFS/FEED stage over the next 15 months. Funding via debt, equity and/or strategic partner investment is sought for the ~A$520m construction phase.

Midstream Products & Annual Production Rate:

- **Ultra High Purity Quartz Sand (UHPQS): 36ktpa (target base case steady state production, post ramp-up)**

Midstream summary

Vytas UHPQ Project

vytas.com.au

Company Name:
Vytas Ltd

Company Ownership:
Australian public unlisted company

Critical Mineral(s):
Silicon



Midstream Project Description

Vytas is developing its Ultra High Purity Quartz (UHPQ) Project in Perth, Western Australia, targeting demand for high-purity materials used principally in the solar photovoltaic and semiconductor industries. UHPQ is essential in manufacturing fused-quartz crucibles used in silicon ingot production and also has applications in specialty glass, fibre optics and advanced technologies. The Project uses Vytas' proprietary purification technology to process quartz feedstock. Vytas aims to establish a secure, scalable and internationally competitive Australian supply of premium UHPQ products.

Vytas has completed process development studies and a bulk-scale production program at its Perth facility, producing UHPQ samples for customer qualification programs. Vytas' operates a pre-commercial demonstration plant, while progressing evaluation of commercial-scale production. Commercial operations are expected to be 10,000tpa Phase 1, and 20,000tpa at full scale. Work during 2026 will support customer qualification, commercial discussions and further engineering and investment studies.

The plant operates under approvals applicable to its current activities. Approvals for the proposed commercial facility will be progressed as its scope and site requirements are finalised. Subject to successful technical, commercial and approvals outcomes, a final investment decision is targeted for late 2027.

Midstream Products & Annual Production Rate:

Demonstration Plant
- **UHPQ: kg-scale qualification batches**

Commercial Plant
- **UHPQ: 10,000tpa in Phase 1 increasing to 20,000tpa at full scale**

100% offtake available

Midstream summary

Windimurra Vanadium Project

atlanticptyltd.com.au

Company Name:
Atlantic Vanadium Pty Ltd (Atlantic)

Company Ownership:
Unlisted Australian private company

Critical Mineral(s):
Vanadium



Midstream Project Description

Atlantic Vanadium Pty Ltd (Atlantic) plans to recommission the integrated Windimurra Vanadium Project and on-site processing facilities, approximately 80 km by road from Mount Magnet, Western Australia, to produce high-purity vanadium pentoxide (V_2O_5) flake for steel, chemical and long-duration vanadium-flow-battery markets. The project benefits from more than A$700 million of historic investment in existing mine, energy, water, accommodation and processing infrastructure, supporting a low-capital-intensity pathway to sovereign Western Australian vanadium supply. Atlantic is also progressing opportunities for local vanadium electrolyte and battery-value-chain development.

Windimurra is at an advanced brownfield mine and processing plant recommissioning stage, with FID targeted for Q3 2027 and first V_2O_5 production targeted for Q1 2029, subject to financing, offtake and final investment approvals. Midstream processing uses magnetic concentrate from the integrated upstream operation, followed by salt roasting, leaching and vanadium recovery to produce approximately 7,600tpa of 99.5% high-purity V_2O_5 flake. An electrolyte production study has assessed both on-site and Perth-area options.

Major regulatory approvals and Traditional Owner agreements are in place. Atlantic welcomes discussions with long-term offtake, strategic, debt and equity partners.

Midstream Products & Annual Production Rate:

- **High-purity V_2O_5 flake (99.5%): approximately 7,600tpa**
- **Vanadium electrolyte: potential alternative downstream product; production rate subject to final development configuration and further study.**

Offtake: 100% of planned V_2O_5 production currently available. Atlantic is seeking long-term offtake partners and strategic/downstream partners for vanadium electrolyte and battery-value-chain development.

Midstream summary

Australian Vanadium Project

avl.au

Company Name:
Australian Vanadium Ltd

Company Ownership:
ASX-listed (AVL)

Critical Mineral(s):
Vanadium



Midstream Project Description

As part of AVL's integrated pit-to-battery strategy, the company operates an industrial-scale vanadium electrolyte facility at Wangara (Perth), WA. Commissioned in 2024, the facility has a capacity of approximately 2.3 million litres per year (up to 46 MWh equivalent) of vanadium electrolyte and supports customer qualification and commercial vanadium flow battery (VFB) deployment. AVL-produced electrolyte has been deployed in an operating Horizon Power VFB in Western Australia and the facility continues to support qualification with leading VFB manufacturers.

AVL is now advancing V-NOMAD™, a modular and relocatable electrolyte production technology platform designed to reduce the delivered cost of electrolyte and enable gigawatt-hour-scale VFB projects. Detailed engineering, modularisation and execution-readiness work is progressing with global engineering and project delivery group Sedgman. V-NOMAD is designed to convert vanadium pentoxide (V_2O_5) from AVL's planned upstream operations or third-party sources into high-quality vanadium electrolyte close to the point of use, with modular capacity capable of scaling to support GWh-scale VFB deployment. AVL is actively progressing domestic and international deployment opportunities and welcomes discussions with electrolyte offtakers, VFB manufacturers, project developers, strategic partners and investors.

Midstream Products & Annual Production Rate:

Current Capacity:

- **Vanadium electrolyte:** approximately 2.3 million litres per annum (up to 46 MWh equivalent)

Target Capacity:

- **V-NOMAD vanadium electrolyte:** modular capacity scalable to support GWh-scale VFB deployment

Midstream summary

Lindfield Project -Vanadium Pentoxide and Electrolyte Production

criticalmineralsgroup.com.au

Company Name:
Critical Minerals Group Ltd

Company Ownership:
ASX-listed (CMG)

Critical Mineral(s):
Vanadium, Molybdenum



Midstream Project Description

CMG is developing an integrated mine-to-battery vanadium supply chain: Lindfield Mine → Lindfield V_2O_5/MoO_3 production → Vanadium Electrolyte (VE) manufacture. The Lindfield Project is near Julia Creek, northern Queensland, and the VE Manufacturing Plant is planned for the Parkes Special Activation Precinct (SAP), New South Wales. The VE plant will supply the vanadium flow battery (VFB) market, while CMG evaluates a pipeline of VFB projects with strategic partners.

The July 2026 Pre-Feasibility Study proposes open-pit mining and integrated on-site processing at Lindfield to produce vanadium pentoxide and molybdenum trioxide through scrubbing, screening, flotation, leaching, ion exchange, solvent extraction and precipitation. At Parkes, electrolysis will dissolve vanadium pentoxide in high-purity water and sulphuric acid. Phase 1 will produce up to 24 million litres of VE annually, expanding to 72 million litres in Phase 2. VE production is planned to begin 18–24 months before Lindfield production, initially using third-party vanadium pentoxide.

For Lindfield, a Coordinated Project Status application is progressing, an EPA referral has been prepared following pre-lodgement discussions, and First Nations negotiations are advancing. Parkes SAP's established NSW Government approvals framework is expected to streamline development. Permits required include dangerous goods, environment protection licence and development application.

Parkes Phase 1 FEED and EPC work is complete, with construction planned after FID. Battery manufacturer qualification using pilot-plant electrolyte and offtake discussions are underway. CMG welcomes project investment and electrolyte offtake discussions.

Midstream Products & Annual Production Rate:

Lindfield Midstream Project

- **Vanadium pentoxide (V_2O_5): ~10.6ktpa**
- **Molybdenum trioxide (MoO_3): ~0.27ktpa**

Electrolyte Manufacturing Plant – Phase 1

- **Vanadium electrolyte:** Up to 24 million litres per annum

Electrolyte Manufacturing Plant – Phase 2

- **Vanadium electrolyte:** ~72 million litres per annum

Midstream summary

Saint Elmo Vanadium and High Purity Alumina (HPA) Project

mcres.com.au

Company Name:
Multicom Resources Pty Ltd

Company Ownership:
Private

Critical Mineral(s):
Vanadium, High Purity Alumina



Midstream Project Description

Multicom Resources is building its 100% owned Saint Elmo Project, located in North-West Queensland. The staged Project will be Queensland's first integrated Vanadium and HPA project that will mine and refine vanadium pentoxide, HPA and other critical mineral products. Vanadium is used in high strength steel production, vanadium batteries and emerging technologies. HPA is used in semiconductors, sapphire crystals, battery separators, heat shielding ceramics and emerging technologies.

Stage 1 is processing ore from Multicom's Saint Elmo mine in on-site demonstration-scale Vanadium and HPA Refineries which will produce 12tpa vanadium pentoxide and 60tpa 4N purity HPA via Multicom's proprietary process. Stage 1 production will supply bespoke product sales and provide samples for further product qualification and future product polishing. A DFS completed in September 2026 demonstrated robust economics for Stages 2 and 3 of the Project. Stage 2 will expand refinery production to 1,200tpa vanadium pentoxide and 6,000tpa 4N HPA. Stage 3 will further expand vanadium pentoxide production to 20,000tpa. The vanadium and HPA process flowsheets have been confirmed by pilot plant testwork. The project is directly connected to export infrastructure.

The project is fully approved with the Mining Lease and environmental approval granted. The Queensland Government has declared Saint Elmo as a Prescribed Project, and a Project of Regional Significance. The company welcomes discussions regarding project investment and offtake.

Midstream Products & Annual Production Rate:

Stage 1
- V_2O_5 (99.5%): 12tpa
- 4N HPA: 60tpa

Stage 2
- V_2O_5 (99.5%): 1,200tpa
- 4N HPA: 6,000tpa

Stage 3
- V_2O_5 (99.5%): 20,000tpa
- 4N HPA: 6,000tpa

Midstream summary

Vecco Critical Minerals Project

veccogroup.com.au

Company Name:
Vecco Group Pty Ltd

Company Ownership:
Unlisted Private Company (51% owned by Idemitsu)

Critical Mineral(s):
Vanadium, Molybdenum



Midstream Project Description

Vecco is building an integrated Australian mine-to-electrolyte supply chain through the Vecco Critical Minerals Project in north-west Queensland. The Project will refine ore at Julia Creek into approximately 8,700tpa of high-purity vanadium pentoxide for conversion into battery-grade vanadium electrolyte at Vecco's manufacturing facilities in Townsville and the United States. Demand for vanadium electrolyte is accelerating as rapid AI data-centre expansion drives urgent demand for safe, long-duration energy storage capable of stabilising large, volatile power loads.

The PFS was completed in May 2024 and a BFS is nearing completion, building on Vecco's proven production capability at its operating Townsville electrolyte facility. Following beneficiation, the midstream flowsheet uses leaching, solvent extraction, molybdenum recovery and purification to produce high-purity vanadium pentoxide and valuable co-products. The integrated development will support staged expansion of electrolyte manufacturing in Townsville and the United States. Declared a Coordinated Project by the Queensland Government, environmental and regulatory approvals are progressing, with Vecco advancing engineering, offtake and financing ahead of targeting FID in 2027. Backed by strategic shareholders Idemitsu and Coeclerici Group, Vecco welcomes engagement with strategic investors and financing partners.

Midstream Products & Annual Production Rate:

Julia Creek Mine Midstream Processing:

- **High-purity vanadium pentoxide** (99.4% V_2O_5): 8.7ktpa
- **Molybdenum:** 0.7ktpa

Downstream Electrolyte Manufacturing Facilities:

- **Vanadium electrolyte:** 60 million litres per annum

Midstream summary

Copi Project – Mineral Separation Plant

rzresources.com

Company Name:
RZ Resources Ltd

Company Ownership:
Unlisted Public Company, Australian owned

Critical Mineral(s):
Titanium, Zirconium, Rare Earth Elements



Midstream Project Description

RZ Resources owns an existing Mineral Separation Plant (MSP) at Pinkenba, Brisbane, previously operated by Sibelco and CRL and the only major facility of its kind on Australia's east coast. The MSP is being upgraded as the midstream processing hub for RZ's Copi Project in south-west NSW, supplying titanium and zircon products to global markets. An Enhanced DFS for the Copi Mine and MSP Upgrade is nearing completion. The MSP will be delivered in two stages: early recommissioning using third-party feedstock, with FID targeted ahead of the Copi Project, followed by Copi concentrate from 2030.

At Copi, gravity separation will produce heavy mineral concentrate, from which magnetic separation will recover primary and secondary ilmenite and a rare earth concentrate plant will produce monazite and xenotime concentrates for direct export. The zircon and rutile-rich non-magnetic concentrate will be transported to the MSP, where drying, electrostatic, magnetic and gravity separation will produce premium and standard zircon, zircon concentrate, and metal and pigment-grade rutile.

Key approvals for the MSP upgrade are in place. Brisbane City Council has approved the development application change, the Commonwealth has determined the upgrade is not a controlled action under the EPBC Act, and the Queensland Government has issued a draft Environmental Authority. RZ is seeking offtake partners and welcomes discussions on investment in the MSP and the wider Copi Project.

Midstream Products & Annual Production Rate:

Copi (on-site processing):

- **Sulphate Ilmenite** (54.5% TiO_2): 110ktpa
- **Chloride Ilmenite** (61.5% TiO_2): 155ktpa
- **Monazite Concentrate** (55.4% TREO): 6ktpa
- **Xenotime Concentrate** (44.3% TREO): 1ktpa

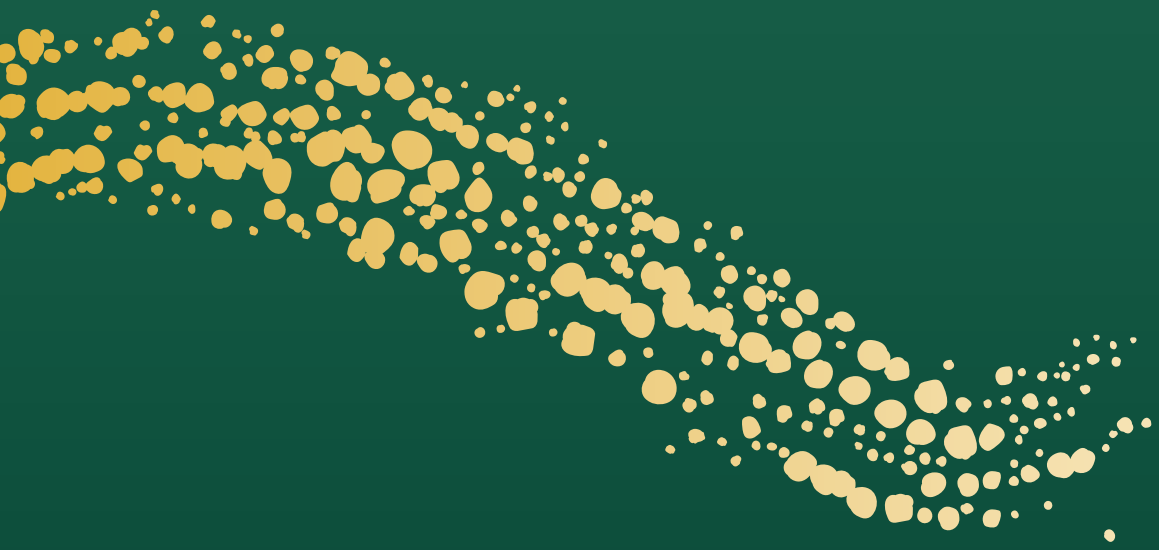
Brisbane MSP:

- **Premium Zircon** (>66% ZrO_2 + HfO_2): 70ktpa
- **Standard Zircon** (65% ZrO_2 + HfO_2): 15ktpa
- **Zircon Concentrate:** 30ktpa
- **Metal Grade Rutile** (97% TiO_2): 10ktpa
- **Pigment Grade Rutile** (92% TiO_2): 30ktpa

(averages for Years 1 to 10)

MOUs in place for ~80% of production, subject to formal offtake agreements. Remaining offtake subject to discussion with potential customers.





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