



Australian Government

Australian Trade and Investment Commission

AUSTRALIAN CRITICAL MINERALS PROSPECTUS 2021

AUSTRALIA

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Foreword

Reliable, responsible and ready for the future.

In 2019, the Australian Government released its inaugural Critical Minerals List and associated **national strategy**. Since then, critical minerals have become more important as governments around the world pursue ambitious policies to achieve low-carbon economies and safeguard clean energy supply. The International Energy Agency's *World Energy Outlook 2021* foreshadows a significant increase in the demand for some critical minerals as necessary inputs for solar PV plants, wind farms, electric vehicles and battery storage.¹ The technological revolution in advanced manufacturing, defence, renewable energy and medical devices has increased demand for critical minerals as building blocks for new products.

The COVID-19 pandemic also exposed global supply chain vulnerabilities. As a result, many industry end users need to shore up a secure and stable supply of mineral elements and semi-processed inputs.

Australia is well placed to meet this rising demand. Australia has rich critical minerals resources and significant exploration potential for new discoveries, along with our long history as a successful resources exporter. Our skilled workforce, world-leading ESG practices and transparent regulatory environment puts Australia in prime position to lead in the exploration, extraction, production and processing of critical minerals.

Australian government programs are designed to support critical minerals projects into development. These programs aim to:

- 1. foster sector-wide development** through trade and investment facilitation, research and development, standards and accreditation, and hubs and precincts.
- 2. forge strategic partnerships** with key countries, such as the United Kingdom, United States, EU and member countries, Japan, South Korea and India.
- 3. build critical minerals momentum** through a dedicated A\$2 billion finance facility, to promote the development of Australian critical minerals projects.
- 4. unlock the mid-stream** through robust R&D infrastructure and specific government programs such as the Modern Manufacturing Initiative.

This Prospectus will support the development of the critical minerals sector. We can extract new value from our mining, and manufacturing sectors, and help shape new industries and the transition to a low emissions economy.

1. IEA (2021), World Energy Outlook 2021, IEA, Paris <https://www.iea.org/reports/world-energy-outlook-2021>

Australian Critical Minerals

The Australian Government identifies critical minerals as metals, non-metals and minerals that are considered vital for the economic well-being of the world's major and emerging economies, yet whose supply may be at risk due to geological scarcity, geopolitical issues, trade policy or other factors. A list of 24 critical minerals was first identified in 2019.

Mineral	Antimony	Beryllium	Bismuth	Chromium
Australian Resources (EDR 2019)*	100.5 kt Sb	n/a	n/a	0.5 kt Cr
World Ranking[^]	4	n/a	n/a	na
Share of world production*	1%	n/a	n/a	0%

Mineral	Cobalt	Gallium	Germanium	Graphite
Australian Resources (EDR 2019)*	1,399 kt Co	n/a	n/a	7.97 Mt
World Ranking[^]	2	n/a	n/a	7
Share of world production*	4%	n/a	n/a	0%

Mineral	Hafnium	Helium	Indium	Lithium
Australian Resources (EDR 2019)*	14.5kt***	n/a	n/a	5,702 kt
World Ranking[^]	n/a	n/a	n/a	2
Share of world production*	n/a	3%**	n/a	56%

Mineral	Magnesium	Manganese	Niobium	Platinum Group Elements
Australian Resources (EDR 2019)*	285 Mt MgCO ₃	272 Mt (Ore)	216 kt Nb	37.6 t metal
World Ranking[^]	6	4	3****	minor
Share of world production*	1%	17%	unknown	minor

Mineral	Rare-earth elements	Rhenium	Scandium	Tantalum
Australian Resources (EDR 2019)*	4.03 Mt oxide	n/a	26.91 kt Sc	93.5 kt Ta
World Ranking[^]	6	n/a	unknown	1****
Share of world production*	8%	n/a	0%	5%

Mineral	Titanium	Tungsten	Vanadium	Zirconium
Australian Resources (EDR 2019)*	Ilmenite 274.7 Mt Rutile 35.4 Mt	403 kt W	6,019 kt V	Zircon 79.7 Mt
World Ranking[^]	Ilmenite 2 Rutile 1	2	2	1
Share of world production*	Ilmenite 9% Rutile 29 %	minor	0%	29%

Sources: Australia's Identified Mineral Resources 2020. Geoscience Australia and Mineral commodity summaries 2021: U.S. Geological Survey. Figures as at December 2019.

*Note niobium and tantalum are based on published estimates of economic resources and therefore do not consider the large but undocumented resources of the Congo.



Australia – partner of choice for supply chain resilience



*Australia is considered the **most attractive region in the world** for mining investment by the Fraser Institute's Annual Survey of Mining Companies 2020, based on mineral potential and supportive government policies.*



Australia has one of the world's strongest and most efficient regulatory environments.



Australia has among the world's largest recoverable resources of critical minerals.

A resilient economy, based on strong exports, vibrant services and sound institutions

The average growth rate of the Australian economy is forecast to be faster than any other major developed economy in the world across 2022 to 2026. Australia offers potential investors a stable business environment, transparent regulatory frameworks and a government committed to supporting critical minerals projects. Despite a global pandemic limiting trade, the Australian resources sector continues to deliver record production of high quality minerals in response to rising global demand.

Australia offers many advantages for critical minerals investors and customers

A rich resource endowment ready to meet world demand

Australia has among the world's largest resources of critical minerals including tantalum, zirconium, titanium, lithium, cobalt, tungsten, vanadium, niobium, antimony and manganese ore. Australia is also the world's largest producer of lithium and a top five producer of rare-earth elements, cobalt, manganese ore, zirconium and titanium.

Australia's rare earth element production includes neodymium, praseodymium and dysprosium, which are central to permanent magnet production. Australia has the world's sixth largest rare-earth elements resource base and is one of the few sources of dysprosium outside of China.²

A world-leading approach to ESG

Consumers are increasingly conscious of the origins of goods, and the impact of their choices. Australia can meet this demand for reliable and responsible mining practices. The Australian resources sector has a global reputation for extracting minerals safely, sustainably and with robust environmental, social and labour protections.

2. Senior, A., Britt, A.F., Summerfield, D., Hughes, A., Hitchman, A., Cross, A., Champion, D., Huston, D., Bastrakov, E.N., Sexton, M., Moloney, J., Pheeney, J., Teh, M., Schofield, A. 2021. Australia's Identified Mineral Resources 2020. Geoscience Australia, Canberra.

In addition, the Australian Government is working closely with states and territories to develop a national ethical certification scheme that identifies the provenance of critical minerals and will enhance supply chain transparency.

As an active participant in the International Organization for Standardization, Australia is also working to ensure production standards are equitable and environmentally sustainable.

*The Australian Government has announced a **A\$2 billion finance facility** for Australian critical minerals projects to kickstart their development.*



Finance agency support and a dedicated A\$2 billion finance facility

Advanced projects can work with Export Finance Australia (EFA), the Northern Australia Infrastructure Facility, and the Clean Energy Finance Corporation on financing packages. EFA has provided support to project proponents to complement their efforts when engaging with off-takers and investors.

More recently, the Australian Government announced a dedicated A\$2 billion finance facility for Australian critical minerals projects. The Critical Minerals Facility supports eligible projects in circumstances where private sector finance is unavailable or inadequate, and will be managed by EFA. It will operate on the National Interest Account for 10 years or until the finance equivalent to A\$2 billion has been provided.

A globally recognised METS sector

The international competitiveness of Australia's resources sector is underpinned by its advanced mining equipment, technology and services (METS) industry. There are approximately 6,000 Australian companies which directly serve the mining sector, supported by world-leading general technology vendors.

Technologies such as robotics, automation, global positioning systems and big data are being incorporated in Australian resources projects and across the METS sector.

Highly skilled workforce

The resources workforce receives ongoing training, promoting better environmental management and worker health and safety, and improving project efficiency and productivity. The Government's National Resource Workforce Strategy links a range of programs across government, industry and education providers. These programs equip workers with the diverse and complex skills required by new technologies, ensuring the sector continues to grow and modernise.

Critical minerals projects in Australia also benefit from access to world-leading research, development and technical services through Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Australian Nuclear Science and Technology Organisation (ANSTO). Research partnerships and technical services have helped develop innovative, safe and efficient ore processing and purification techniques.

40+ projects in the Australian Critical Minerals Prospectus.

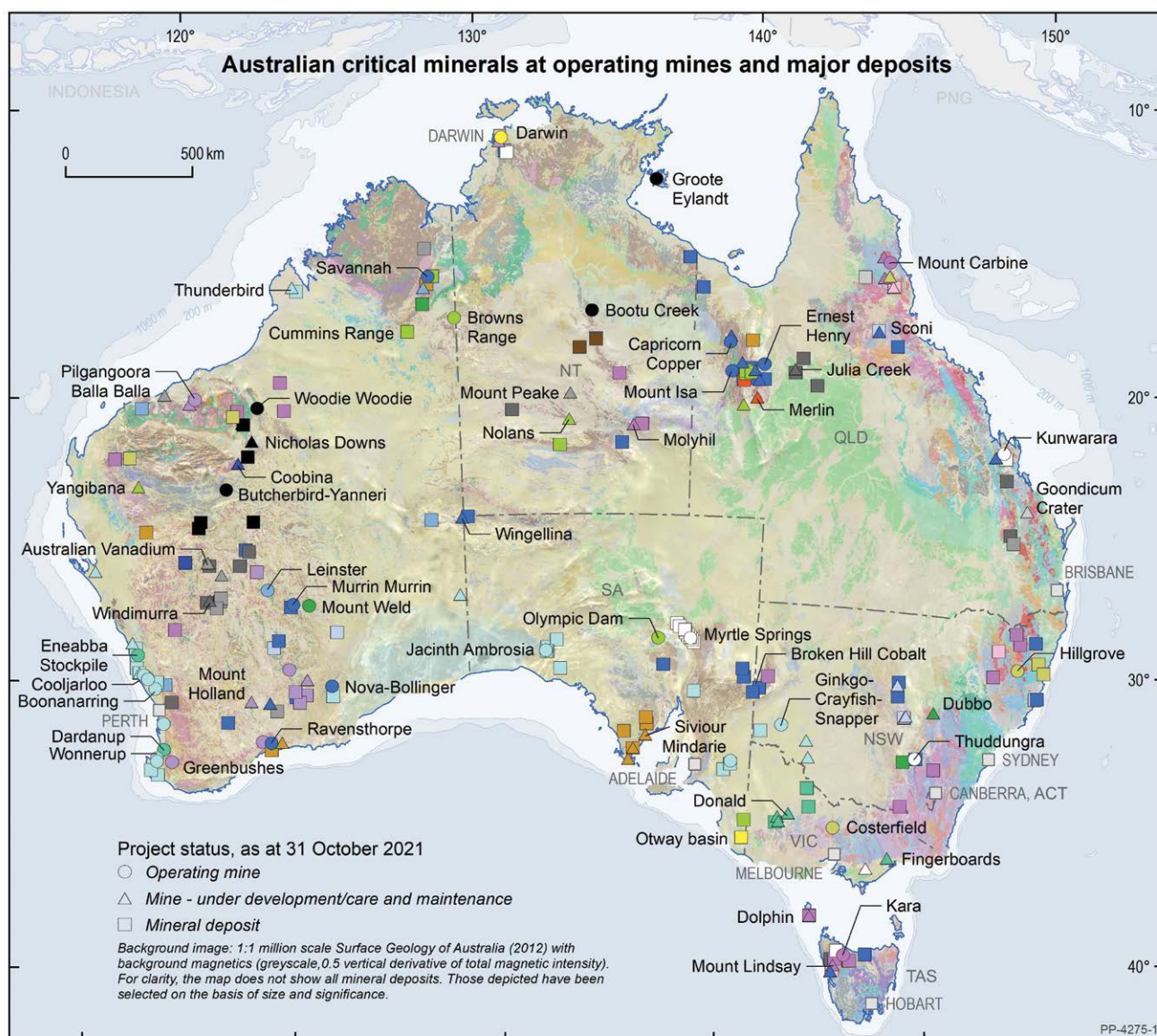


The Australian Critical Minerals Prospectus 2021 highlights Australia's immediate critical minerals opportunities. Companies were invited to be part of the prospectus, based on a project's status, materiality and recent activity. The prospectus features 44 projects that are seeking investment or offtake agreements — a fantastic opportunity for international investors and customers.

The Critical Minerals Prospectus supports the significant investment attraction efforts planned for Australia's critical minerals projects.

The Prospectus does not cover minerals processing opportunities, or include overseas resources where Australian companies have operating projects. The prospectus is not exhaustive — Austrade would be happy to facilitate introductions to other projects, according to your specific needs.

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



Commodity type

- | | |
|---|--|
| ● Antimony | ● Manganese ore |
| ● Bismuth, +/- Cobalt, +/- Indium | ● Heavy Mineral Sands (HMS) - Titanium, Zirconium |
| ● Chromium, +/- Cobalt, +/- PGE | ● HMS - Titanium, Zirconium, REE |
| ● Cobalt | ● Rare Earth Elements (REE) |
| ● Platinum Group Elements (PGE), +/- Cobalt | ● REE, Zirconium, Niobium, +/- Hafnium, Lithium, Tantalum, Gallium |
| ● Scandium, +/- Cobalt, +/- PGE | ● Rhenium |
| ● Graphite | ● Tungsten |
| ● Helium | ● Titanium |
| ● Indium | ● Titanium, Vanadium |
| ● Lithium, +/- Tantalum, +/- Niobium | ● Vanadium |
| ○ Magnesium | |

Abundant opportunities for new Australian mineral discoveries

Australia is a leading mining nation with some of the world's largest recoverable mineral resources but beneath the ground, there are opportunities for more discoveries.

Until quite recently, most Australian mineral discoveries were either exposed at the surface or had some form of surface expression that could be easily detected by geological, geochemical or geophysical exploration methods. There is no reason to suppose that resources will only be found at this surface level. With most of the Australian continent underexplored, many potential resources remain. The challenge is where to look?

Geoscience Australia – the gateway to australia's untapped resources

Geoscience Australia is reducing the risk of exploration by analysing geological and geophysical data and providing this pre-competitive data for new mineral discoveries in Australia's underexplored areas. The Australian Government's A\$225 million Exploring for the Future Program is investigating potentially resource-rich corridors identified in the east and west of Australia.

One of the current projects is assessing the mineral potential undercover in the Curnamona Province and Delamerian Orogen. The Curnamona Province is the birthplace of Broken Hill Proprietary Company Limited, now BHP, one of the world's largest mining companies. The Broken Hill lead-zinc-silver mine is named after the hill that prompted the discovery and the mine has been the largest single source of silver, lead and zinc in the world.

The rocks that host this mine, the Curnamona Province, extend beyond Broken Hill and beneath the cover of the vast plains. The province is wrapped by the Delamerian Province — an ancient convergent margin with potential for copper and gold and related minerals. There is potential for more high-quality mineral discoveries in these rocks. The Exploring for the Future Darling-Curnamona-Delamerian Project aims to lift the veil of this cover and help find new mineral deposits.



Source: Darling-Curnamona-Delamerian | Exploring for the Future (ga.gov.au)

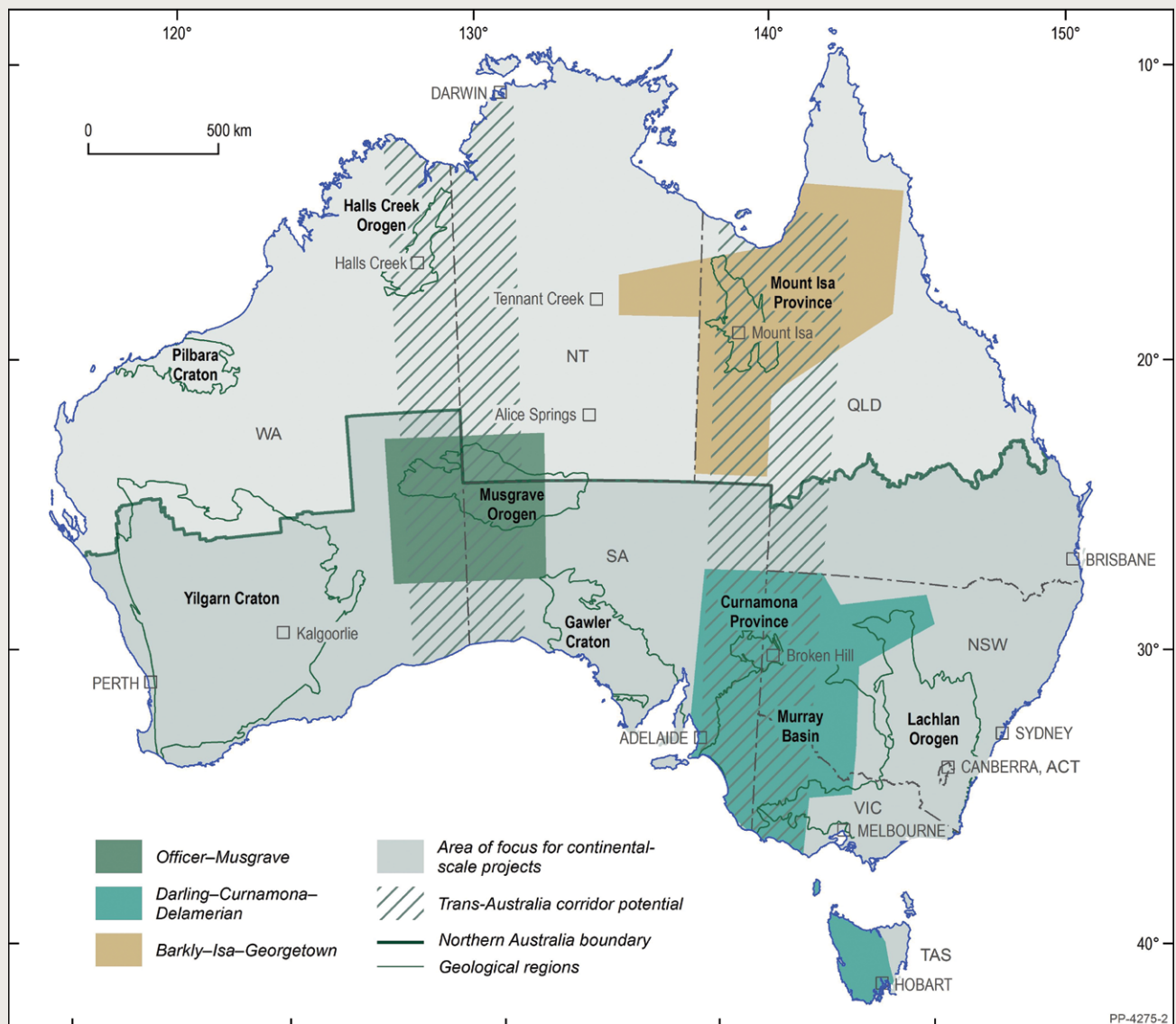
Geoscience Australia's pre-competitive data, including the data from the Exploring the Future Program, is freely available to support and reduce risk in resource decision-making and investment.

A wealth of data is available online through the Geoscience Australia Product Catalogue. To access the catalogue visit: www.ga.gov.au

Critical minerals mapping initiative

Geoscience Australia has also recently developed the Critical Minerals Mapping Initiative Portal. This portal was created in collaboration with the Geological Survey of Canada and the U.S. Geological Survey and allows users to interrogate the world's largest dataset of critical minerals in ores. With time, it will also include assessments of critical mineral potential. The portal can be accessed online by visiting: www.criticalminerals.org

Australian Resource Provinces



Map shows the Australian geological regions and current activity areas for the 2020-2024 *Exploring for the Future Program*. This comprises eight projects; three deep-dive projects (Darling-Curnamona-Delamerian, Officer-Musgrave and Barkly-Isa-Georgetown) in potentially resource-rich corridors (shaded areas); three continental-scale projects that have national applications with a focus on southern Australia; and two program-support projects.

Extracting more from the rocks

The Australian Nuclear Science and Technology Organisation (ANSTO) has world leading expertise in rare earth, lithium, base metals and specialty metals processing and has provided consultancy, process development and research services for more than 40 years.

With a strong track record in providing practical solutions to industry, a highly experienced team of engineers, metallurgists, chemists and scientists with access to Australian's foremost process development facilities design and evaluate novel flowsheets and improve established processes. These improvements deliver both financial and environmental benefits to clients.

To find out more about how ANSTO can support the processing of critical and strategic metals visit: www.ansto.gov.au/products-services/minerals



15 commodities

ranked in the top five for the world economic resources including cobalt, lithium, manganese, tungsten and vanadium



\$2.9 billion

Total Australian Mineral Exploration Expenditure in 2020/21, increasing 19% compared to 2019/20



Australian Mineral Systems with Critical Mineral Discovery Potential

Felsic igneous-related **rare-earth elements, lithium, tungsten, niobium, tantalum, beryllium** and **bismuth** in known deposits and in the under-cover extensions of mineral provinces.

Mafic-ultramafic-related **platinum-group elements, chromium** and **cobalt** resources are prospective where the host mafic-ultramafic igneous complexes could be concealed beneath regolith and sedimentary basins. Geoscience Australia's mineral potential mapper identifies these regions and has contributed to large discoveries such as the Julimar PGE-Ni-Cu-Au-Co deposit.

New discoveries of heavy mineral sand provinces in Australia, such as the Murray Basin, attest to the potential of the continent for further delineation of major resources, which host **zirconium, titanium** and **rare-earth elements**.

Antimony, indium, gallium, germanium are primarily by-products of the refining of major commodities including gold, zinc, lead and copper. Australia holds significant resources of these major commodities and there is potential for new or increased production of these minerals.



Investment summaries

Antimony

- Costerfield, Mandalay Resources Corporation **13**
- Hillgrove, Red River Resources Ltd **14**

Cobalt

- Broken Hill Cobalt, Cobalt Blue Holdings Ltd **15**
- Kalkaroo, Havilah Resources **16**
- Kalgoorlie Nickel Project – Goongarrie Hub, Ardea Resources **17**
- Sconi, Australian Mines Ltd **18**
- Sunrise Battery Minerals Complex, Sunrise Energy Metals Ltd **19**
- Walford Creek Copper-Cobalt, Aeon Metals Ltd **20**
- Wingellina Nickel-Cobalt Project, Nico Resources Ltd **21**

Graphite

- Munglinup, Minerals Commodities Ltd **22**
- The Siviour Battery Anode Material Project, Renascor Resources Ltd **23**
- Uley 2, Quantum Graphite Ltd **24**

Lithium

- Finnis Lithium Project, Core Lithium Ltd **25**
- Mount Holland – Earl Grey Lithium, Covalent Lithium Pty Ltd **26**

Magnesium

- Latrobe Valley Project, Latrobe Magnesium **27**
- Winchester, Korab Resources Ltd **28**

Manganese

- Butcherbird Manganese Project, Element 25 Ltd **29**

Rare earth elements

- Browns Range, Northern Minerals Ltd **30**
- Dubbo, Australian Strategic Materials Ltd **31**
- Eneabba development, Iluka Resources Ltd **32**
- Goschen, VHM Ltd **34**
- Nolans, Arafura Resources Ltd **35**
- Yangibana, Hastings Technology Metals Ltd **36**

Rhenium

- Merlin, Chinova Resources **37**



Costerfield**Mandalay Resources Corporation**

TSX-listed (MND)

www.mandalayresources.com

Costerfield has been in continuous production of Gold and Antimony under Mandalay Resources' management since 2009. Consistent exploration success and Resource extension has seen the operation maintain a 3 to 5 year mine life, with the 2022 Exploration program set to be the largest in the project's history.

Mandalay Resources Corporation is not actively seeking investment however is open to investment for funding of growth potential projects. Currently commercial contracts are in place and no offtake agreements are being sought.

Mandalay Resources is listed on the Toronto Stock Exchange (MND).

Costerfield is Australia's only Antimony producer of any significance. Costerfield currently produces ore from two orebodies, Brunswick and Youle, both of which are accessed from the Augusta and Brunswick portals.

Mandalay's main objective of accelerating production from the high-grade Youle vein was achieved in 2020, leading to a threefold increase in gold production and a twofold increase in antimony production compared to 2019 when, the relatively lower grade, Brunswick orebody was the dominant ore feed. The mining method employed is long-hole stoping with cemented rock fill. Ore is then trucked to the Brunswick processing plant which produces a gold gravity concentrate and a gold-antimony floatation concentrate.

During 2021, and following the successful implementation of the Youle mine, exploration has been expanded with multiple near mine targets tested. Standout success amongst these programs are the Brown's Drilling program and the newly discovered, and high grade, Shepherd Zone underlaying the currently mined Youle orebody.

Mineral inventory	Commodity(ies): Antimony, Gold		
Mineral Resources as at 31-Dec-20 (3.0 g/t AuEq cut-off)	Resource Category	Tonnes (Mt)	Sb (%)
	Measured	0.360	5.7
	Indicated	0.798	2.4
	Inferred	0.473	1.3
	Total	1.631	2.8
	Contained Sb(kt), Au(Koz)	–	45.3
	Au (g/t)		8.9
Ore Reserves as at 31-Dec-20 (4.0 g/t AuEq cut-off)	Reserve Category	Tonnes (Mt)	Sb (%)
	Proved	0.222	5.7
	Probable	0.394	2.3
	Total	0.616	3.5
	Contained Sb(kt), Au(Koz)	–	21.7
	Au (g/t)		12.8
			255

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Operating



IRR & NPV:
Not disclosed



PRODUCT & ANNUAL PRODUCTION RATE

- Gold-Antimony Concentrate & Gold-Gravity Concentrate: 2020 Saleable Production
- Gold: 44,958 oz metal in concentrates
- Antimony: 3,903 t metal in concentrate



OFFTAKE AVAILABLE
No



MIN MINE LIFE (Yrs)
5

Hillgrove

Red River Resources Ltd

ASX-listed (RVR)

www.redriverresources.com.au



Red River Resources (RVR) welcomes discussions from third parties regarding offtake of antimony and gold concentrates or a strategic investment to increase the scale/value of Hillgrove operations. This may include re-commissioning of the EW and furnace circuit to produce antimony ingots or increase in exploration and evaluation of a larger scale operation (current operating infrastructure 250ktpa).

Hillgrove is a world class antimony-gold-tungsten project with the 9th largest antimony resource globally. Multiple successful drilling programs were undertaken at Hillgrove during 2021, which culminated in a resource upgrade to a total resource containing 1.04 million ounces of gold and 90kt of antimony. All Mineral Resources are open at depth and/or strike. Hillgrove has had historic production of >730Koz Au, >50Kt Sb, plus by-product tungsten production.

The underground mine is currently being prepared to commence mining of the Syndicate resource, which contains high gold and antimony. Mining is expected to commence in early CY2022. There is a 250ktpa processing plant and site infrastructure in place and processing of the Syndicate material will result in antimony/gold concentrates as well as gold bullion. Concurrent to production, there will be a significant exploration drilling program aimed at further defining and extending current JORC2012 resources.

Mineral inventory	Commodity(ies): Gold, Antimony, Tungsten		
Mineral Resources – Total Hillgrove Resources as at 29 July 21 Ore Reserves: No reserves at Hillgrove	Resource Category	Tonnes (Mt)	Au (g/t)
	Measured	0.442	3.6
	Indicated	3.766	4.8
	Inferred	3.017	4.2
	Total	7.226	4.5
	Contained (Au koz, Sb kt)	–	1,037
	3g/t Au Eq cut-off Au Eq. (g/t) = (Au g/t) + (1.424 *Sb %) for Eleanora, Garibaldi, Blacklode, Sunlight and Syndicate deposits. 5g/t Au Eq cut-off Au Eq. (g/t) = (Au g/t *91%) + (2.0 *Sb % *86%) for Brackin's Spur and Clark's Gully deposits).		

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Operating



IRR AND NPV:

Red River has not publicly disclosed the Hillgrove project economics.



PRODUCT & ANNUAL PRODUCTION RATE

- Antimony-gold concentrate
- Gold concentrate
- Gold doré (bullion)



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

N/A

Broken Hill Cobalt

Cobalt Blue Holdings Ltd

ASX-listed (COB)

www.cobaltblueholdings.com



Cobalt Blue is looking for project partners, with a formal process being managed by our corporate advisors Cutfield Freeman (London). Opportunities for new equity or offtake partners exist. Advanced discussions are expected in 2022, as the Demonstration Plant comes into operation and the Feasibility Study nears completion.

The Broken Hill Cobalt Project includes the development of an open cut mining operation, down-stream ore processing and a refinery to produce an intermediate mixed cobalt-nickel hydroxide and/or high purity cobalt sulphate (suitable as a battery cathode precursor) and elemental sulphur. It is expected that the life span of the mine and processing operations will be at least 20 years. A pilot plant was commissioned in March 2021 and a larger scale demonstration plant is planned to commence operations in Q1 2022. Cobalt Blue has confirmed that the cobalt is locked inside the pyrite mineral, and subsequently developed and patented a metallurgical process with the following characteristics:

- High cobalt recoveries.
- No sulphur dioxide emissions.
- Produces high quality cobalt sulphate and high purity elemental sulphur.
- Relatively low capital and operational costs compared to other processing methods.

The company's ESG credentials are being assessed in accordance with the Cobalt Institute Responsible Assessment Framework.

Mineral inventory	Commodity(ies): Cobalt, Sulphur, Nickel			
Mineral Resources as at Sep-21 at a 275 ppm CoEq cut-off	Resource Category	Tonnes (Mt)	Co (ppm)	S (%)
	Measured	18	1,030	10.9
	Indicated	59	631	6.9
	Inferred	41	619	7.2
	Total	118	687	7.6
	Contained (kt)	—	81.1	—
Ore Reserves as at Jul-20	Reserve Category	Tonnes (Mt)	Co (ppm)	S (%)
	Proved	—	—	—
	Probable	71.8	710	7.6
	Total	71.8	710	7.6
	Contained (kt)	—	51	—

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre Feasibility Study



POST TAX IRR:

18.9%

CAPITAL COST:

A\$560m

POST TAX NPV_{7.5%}:

A\$554m



PRODUCT & ANNUAL PRODUCTION RATE

- **Cobalt Sulphate:** sulphate heptahydrate: ~16,700 tpa
Co metal in sulphate: ~3,500 tpa
- **Sulphur:** ~300,000 tpa



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

20

Kalkaroo

Havilah Resources Limited

ASX-listed (HAV)

www.havilah-resources.com.au



Kalkaroo is one of the largest undeveloped open pit copper-gold deposits in Australia on a CuEq Ore Reserve basis, containing 100Mt at a 0.82% CuEq grade (90% Proved). It is expected to produce material by-product quantities of the REE and cobalt critical minerals. Havilah is open to discussions with funding partners who can assist in the financing and development of the project.

The Kalkaroo project is substantially de-risked, with completed pre-feasibility study (PFS), granted mining lease and ownership of the surrounding land. It is close to the regional mining centre of Broken Hill with its skilled workforce and the main east-west railway line and highway. Abundant renewable solar and wind energy, and saline groundwater resources are available in the region.

Mining will be by conventional open pit methods. The ore is amenable to standard flotation that produces a high grade, low impurity copper concentrate and also a cobalt-rich pyrite concentrate. Production of a bastnasite concentrate, high in the more valuable REE's (Nd, Pr, Tb, Yb), is also under study.

Havilah plans to commence development of the first stage oxidised ore mining and processing phase in 1H 2022, subject to financing and final permitting approvals.

Mineral inventory	Commodity(ies): Cobalt, Copper, Gold, Rare Earth Elements, Molybdenum				
JORC Mineral Resources 31 July 2021 (0.4% CuEq cut-off) <i>Havilah's total cobalt metal inventory stands at 43.4 Kt, including the nearby 100% owned Mutooroo copper-cobalt-gold project (12.53 Mt of 1.53% Cu, 0.16% Co and 0.20 g/t Au in sulphide JORC resources).</i>	Resource Category	Tonnes (Mt)	Cobalt (%)	Copper (%)	Gold (g/t)
	Cobalt (note: Cobalt resource is not added to the total tonnage)				
	Inferred	193.3	0.012	–	–
	Total	193.3	0.012	–	–
	Copper-Gold (Oxide Gold Cap + Sulphide Copper-Gold)				
	Measured	97.6	–	0.50	0.47
	Indicated	34.9	–	0.39	0.41
	Inferred	113.0	–	0.42	0.33
	Total	245.5	–	0.45	0.40
	Contained (Kt Co and Cu, K Oz Au)		23.2	1,097	3,105
JORC Ore Reserves 31 July 2021 (Havilah 2021 Annual Report)	Reserve Category	Tonnes (Mt)	Copper (%)	Gold (g/t)	
	Proved	90.2	0.48	0.44	
	Probable	9.9	0.45	0.39	
	Total	100.1	0.47	0.44	
	Contained (Kt Cu, K Oz Au)		474	1,407	

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre Feasibility Study (2019)
Note: PFS being updated



PRE TAX IRR:

26%

CAPITAL COST:

Pre-production
A\$332M

PRE TAX NPV ^{7.5%}:

A\$564m



PRODUCT & ANNUAL PRODUCTION RATE

- **Copper:** (metal and in concentrate): 30,000 tpa
- **Gold:** (metal and in concentrate): 72,000 Oz pa
- **Cobalt:** (in pyrite concentrates): ~500 tpa
- **REE :** (in bastnasite concentrate): under study



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

15+

Kalgoorlie Nickel Project – Goongarrie Hub

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ASX-listed (ARL)

www.ardearesources.com.au



ARL completed a Preliminary Feasibility Study and Expansion Study in 2018. These studies confirmed the Project's status as one of the world's largest, lowest cost sources of battery materials located in the premier operating jurisdiction being Kalgoorlie, Western Australia. The Company is currently completing a Definitive Feasibility Study with leading industry partners.

ARL is currently undertaking a Strategic Partner process to identify a development partner wanting to secure ethical and sustainable mineral supply with 100% off-take available.

The Goongarrie Hub (Goongarrie) is among the developed world's premier nickel-cobalt-scandium projects with world-class supporting infrastructure in the well-established and community supportive Kalgoorlie mining district. The well established resources sector operating requirements and environmentally benign arid setting guarantees ethical and sustainable mineral supply.

Conventional open-pit mine with low strip ratio and in excess of 25 year mine life (2.25Mtpa Expansion Study case) feeding high quality goethite dominated cobalt-nickel ore into a fifth generation High Pressure Acid Leach (HPAL) hydrometallurgical process plant. The project will initially produce Mixed Hydroxide Precipitate (MHP) and following attainment of steady production, can potentially produce Precursor Cathode-active Material (PCAM).

Goongarrie is part of ARL's larger Kalgoorlie Nickel Project (KNP), which is the largest nickel-cobalt project in the developed world (830mt at 0.71% Ni and 0.046% Co for 5.9mt Ni and 384kt Co contained). The KNP provides optionality to develop multiple processing hubs and substantially expand Goongarrie production and/or extend mine life.

Studies and metallurgical testwork are underway to add Scandium and REE to the KNP resources and potentially recover these metals.

Mineral inventory	Commodity(ies): Nickel, Cobalt, Scandium, Rare Earth Elements		
Mineral Resources as at 16 June 21 (0.8% Ni cut-off)	Resource Category	Tonnes (Mt)	Co (%)
	Measured	11.0	0.106
	Indicated	56.5	0.066
	Inferred	10.8	0.051
	Total	78.3	0.069
	Contained (kt)	–	54.3
Ore Reserves as at 28 Mar 18 (to be updated as part of the 2022 DFS)	Reserve Category	Tonnes (Mt)	Ni (%)
	Proved	9.0	0.10
	Probable	31.2	0.09
	Total	40.1	0.09
	Contained (kt)	36	329

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre Feasibility Study (2018)



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

25



POST TAX IRR:

27%

CAPITAL COST:

US\$918m

POST TAX NPV_{8%}:

US\$1.805b



PRODUCT & ANNUAL PRODUCTION RATE

- **Cobalt Sulphate:** (battery grade, high purity): 10,000 tpa
- **Nickel Sulphate:** (battery grade, high purity): 81,000 tpa

Sconi

Australian Mines Ltd

ASX-listed (AUZ)

www.sconi.com.au

www.australianmines.com.au



In August 2021, Australian Mines signed a binding offtake agreement for its 100% owned Sconi Project with LG Energy Solution (LGES), a subsidiary of LG Chem, the world's largest producer of advanced batteries for electric vehicles.

The company is now progressing project financing (including both debt and equity capital) for Sconi which is expected to conclude on or before 30 June 2022, prior to the commencement of project construction.

Sconi is expected to commence production in 2024 and, over the initial 6 years of the offtake agreement, supply 7,000 dry metric tonnes of cobalt and 71,000 dry metric tonnes of nickel to LGES.

The Sconi Nickel-Cobalt-Scandium project is a world class, Tier 1, lowest cost quartile and ethical source of battery minerals, as well as high purity scandium oxide.

The existing Sconi ore reserves are forecast to support an open pit mine life in excess of 30 years, with further mineral expansion opportunities within the project tenements.

According to an independent study by CRU International, Sconi is expected to be one of the lowest cost, cobalt-producing nickel projects in the world. The project will include a high pressure acid leach processing plant with the flexibility to produce mixed nickel-cobalt hydroxide precipitate (MHP). The Sconi MHP flowsheet is a proven process used at various MHP operations globally.

Australian Mines is the only mineral resources company certified Carbon Neutral under the Australian Government's Climate Active program and the Sconi Project will follow the internationally recognised ISO 14001 Standard for an effective Environmental Management System.

Mineral inventory	Commodity(ies): Nickel, Cobalt, Scandium			
Mineral Resources as at 30 Sept 2021 (0.40-0.55% NiEq cut-off)	Resource Category	Tonnes (Mt)	Ni (%)	Co (%)
	Measured	8.3	0.75	0.09
	Indicated	49.2	0.60	0.08
	Inferred	18.2	0.54	0.05
	Total	75.7	0.60	0.08
	Contained (kt)	–	456	57
Ore Reserves as at 30 Sept 2021 (0.45% NiEq cut-off)	Reserve Category	Tonnes (Mt)	Ni (%)	Co (%)
	Proved	8.1	0.72	0.09
	Probable	49.2	0.55	0.08
	Total	57.3	0.58	0.08
	Contained (kt)	–	332	46
				Sc (ppm)

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Pre-Construction



POST TAX IRR:
15%*



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
US\$974m*

• Mixed nickel-cobalt hydroxide precipitate (MHP), containing:
Nickel: 11,833tpa metal¹
Cobalt: 1,167tpa metal¹



MIN MINE LIFE (Yrs)
>30

POST TAX NPV_{8%}:
A\$817m*

• Scandium oxide:
48tpa (separate product)*

*Based on updated 2019 BFS

1. Yrs 1-6; LGES Offtake Agreement

Sunrise Battery Materials Complex

Sunrise Energy Metals Ltd

ASX-listed (ASX:SRL)

www.sunriseem.com



Sunrise Energy Metals completed the Project Execution Plan (PEP) for the Sunrise Battery Materials Complex (the Project) in late 2020. The PEP confirmed the Project's status as one of the world's largest, lowest cost, development-ready sources of critical battery materials.

The Company is targeting at least 50% of Sunrise's construction capital to be provided under a non-recourse project debt facility. Four leading international banks – Societe Generale, National Australia Bank, Natixis and ICBC – have been appointed as Mandated Lead Arrangers for the debt funding.

The Company is in discussions for both investment and long-term offtake.

The Sunrise Battery Materials Complex will be a fully integrated supplier of high-purity battery-grade nickel and cobalt sulphate for the electric vehicle (EV) supply chain, as well as one of the world's largest producers of scandium oxide.

The Project consists of a shallow open-cut mine, a hydrometallurgical processing plant to leach and separate metal and a refinery. Ore reserves will support up to 50 years of operation. Work is currently underway to assess cathode precursor production on-site, as well as construction of a battery recycling circuit to process black mass.

With over A\$250 million invested to date, the Project is development-ready, with all key permits secured, lowest quartile operating costs and industry-leading emissions performance.

A recently completed Renewable Energy Supply study confirms the Sunrise Project's external power needs can be fully supplied by renewable power sources.

Mineral inventory	Nickel, Cobalt, Scandium, PGMs			
Mineral Resources as at 30 Sept 2020	Resource Category	Tonnes (Mt)	Ni (%)	Co (%)
	Measured	69	0.65	0.11
	Indicated	89	0.49	0.09
	Inferred	17	0.26	0.10
	Total	177		
	Contained (kt)	—	935	168
(@ 0.35% nickel-equivalent cut-off)				
Ore Reserves as at 30 Sept 2020	Reserve Category	Tonnes (Mt)	Ni (%)	Co (%)
	Proved	65.4	0.67	0.11
	Probable	77.9	0.52	0.09
	Total	143.2	0.59	0.10
	Contained (kt)	—	845	143

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Pre-Construction



POST TAX IRR:
15.4%



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
US\$1.8b

- **Nickel:** 21,293 tpa metal in sulphate
- **Cobalt:** 4,366 tpa metal in sulphate



MIN MINE LIFE (Yrs)
50

POST TAX NPV ^{8%}:
US\$1.21b value

- **Scandia:** 80 tpa (expandable)
- **Ammonium Sulphate:** 82,000 tpa

Walford Creek Copper-Cobalt

Aeon Metals Ltd

ASX-listed (AML)

www.aeonmetals.com.au



Aeon Metal's 100% owned Walford Creek Project is nearing completion of a pre-feasibility study in Q1 CY2022 and a feasibility study by end of 2022. The project is quite advanced with over 85% of feed already in Measured and Indicated categories.

The project will produce a portfolio of high-quality battery metal end products. When developed, it would be Australia's largest cobalt producer. The site will have a low carbon footprint with a substantial proportion of locally generated renewables based on solar and large-scale battery storage.

The Company is in discussions for both investment and long-term offtake.

A Scoping Study was completed in June 2021 on conventional open pit and underground mining of the Vardy, Marley and Amy deposits delivering over an initial mine life of 14 years.

An on-site processing plant will treat 3Mtpa ore via flotation to produce a bulk sulphide concentrate which will be pressure leached in an autoclave to extract the copper, cobalt, zinc and nickel metals into solution. The metals will be sequentially extracted from solution using solvent extraction followed by electrowinning or purification and crystallisation. All metal end products will be high quality and will not require further upgrading prior to sale to end users. Over 50% of total electricity generation will be derived from renewable solar energy.

High resolution geophysical surveys flown in 2021 have highlighted the potential for significant extensions to the existing mineral resources. Exploration is currently underway at site to further extend mine life.

Mineral inventory	Commodity(ies): Copper, Cobalt, Nickel, Zinc, Silver								
Vardy/Marley Copper Mineral Resource as at Apr-21 (0.5% Cu cut-off)	Resource Category	Tonnes (Mt)	Cu (%)	Pb (%)	Zn (%)	Ag (ppm)	Co (%)	Ni (%)	Pyrite (%)
	Measured	6.4	1.17	1.02	0.88	27.9	0.15	0.07	42.8
	Indicated	12.2	1.03	1.03	0.66	31.8	0.15	0.07	39.0
	Inferred	1.0	1.13	1.13	0.73	36.2	0.14	0.06	41.9
	Total	19.6	1.08	1.03	0.73	30.8	0.15	0.07	40.4
	Contained (kt) / (MOz Ag)	-	211	202	143	19.4	29.4	13.7	-
Vardy/Marley Cobalt Peripheral Resource as at Apr-21 (600ppm Co cut-off)	Resource Category	Tonnes (Mt)	Cu (%)	Pb (%)	Zn (%)	Ag (ppm)	Co (%)	Ni (%)	Pyrite (%)
	Measured	6.4	0.24	0.85	1.20	19.45	0.10	0.04	44.4
	Indicated	11.7	0.25	0.99	1.03	21.82	0.09	0.04	38.5
	Inferred	0.9	0.20	1.27	0.72	23.67	0.09	0.04	39.3
	Total	19.0	0.24	0.96	1.07	21.11	0.09	0.04	40.5
	Contained (kt) / (MOz Ag)	-	46	182	203	12.9	17.1	7.6	-

NB: Numbers may not add up due to rounding. Further information can be found here: www.aeonmetals.com.au/walford-creek/



PROJECT STATUS
Scoping Study



POST TAX IRR:
13% to 18%



**PRODUCT & ANNUAL
PRODUCTION RATE**

- **Copper:** 20 ktpa as cathode
- **Zinc:** 23 ktpa as ingot
- **Cobalt:** 2.5 ktpa as >99% Co sulphate
- **Silver:** 2 Mozpa as dore bars
- **Nickel:** 1 ktpa as >99% Ni sulphate



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$996m

POST TAX NPV_{8%}:
A\$375-A\$805m



MIN MINE LIFE (Yrs)
14

Wingellina Nickel-Cobalt Project

Nico Resources Ltd

ASX-listed : Listed as Nico Resources Limited from Nov 2021

www.nico.com.au



Wingellina is a development-ready, long life nickel-cobalt-scandium project, with a demonstrated ability to produce nickel & cobalt sulphates, sulphides and hydroxides. The unique characteristics of Wingellina provides a number of investment and development options and potential investment partners.

The world-class Wingellina Nickel-Cobalt Project is the largest undeveloped nickel-cobalt project in Australia and part of Metals X's Central Musgrave Project (CMP) which straddles the triple-point of the Western Australia, Northern Territory and South Australia borders.

The CMP has a Mineral Resource containing approximately 2 million tonnes of nickel and 154,000 tonnes of cobalt, within which Wingellina hosts an Ore Reserve containing approximately 1.56 million tonnes of nickel and 123,000 tonnes of cobalt.

Wingellina is one of the largest nickeliferous 'pure oxide' limonite accumulations in the world. The mineralogy of the Wingellina ore is a major strength of the project as, unlike most Australian nickel laterite projects, has characteristics perfectly suited to High Pressure Acid Leaching (HPAL) with high iron grades (resource average 47% Fe₂O₃) and a very low concentration of magnesium (resource average 1.6% Mg).

Mineral inventory	Commodity(ies): Nickel, Cobalt, Scandium		
Mineral Resources as at 30-Jun-16	Resource Category	Tonnes (Mt)	Ni (%)
	Measured	37.6	0.98
	Indicated	130.9	0.91
	Inferred	14.1	0.87
	Total	182.6	0.92
	Contained (kt)	–	1,684
Ore Reserves	Reserve Category	Tonnes (Mt)	Ni (%)
	Proved	–	–
	Probable	168.4	0.93
	Contained (kt)	–	1,561
			122.6

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Feasibility Study
(+/- 25%)



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

39+



POST TAX IRR:

17.3%

CAPITAL COST:

A\$2.4b

POST TAX NPV_{8%}:

A\$3.1b



PRODUCT & ANNUAL PRODUCTION RATE

- **Nickel:** ~40,000tpa metal
- **Cobalt:** ~3,000tpa metal as mixed Hydroxides or Ni and Co sulphates.

Munglinup

Mineral Commodities Ltd

ASX-listed (MRC)

www.mineralcommodities.com

JV - MRC (51%) & Gold Terrace Pty Ltd (49%)



Mineral Commodities Ltd (ASX: MRC) is a global mining and development company with a primary focus on the development of high-grade mineral deposits within the mineral sands and battery minerals sectors.

Minerals Commodities welcomes discussion regarding financing of the project or off-take and seeks a strategic partner for project equity, joint venture or long term off-take arrangements in both the concentrate and downstream businesses.

The Munglinup Graphite Project is free-dig, conventional truck and excavator, open pit mining of high-grade graphite mineralisation, located within a granted Mining Lease in WA. The resource is open at depth and along strike.

ROM ore is processed through a relatively conventional, multi-stage milling and flotation process to produce high-grade graphite concentrates across a range of flake sizes. Graphite concentrates will be trucked to the Port of Freemantle for export.

MRC is working with partners, including CSIRO and Doral Fused Materials, under a Cooperative Research Centres Project (CRC-P) to develop a non-hydrofluoric acid purification process that could produce high purity value-added products from Munglinup concentrate ("Munglinup Downstream Project"), targeting production of battery anode materials in Kwinana.

It is anticipated that the EPA and EPBC approvals for the project will be completed in June Quarter 2022. The environmental permits are the only remaining approvals required before commissioning the Project.

Conversion of flake graphite concentrates into high-value products, including battery anode materials from Munglinup Downstream Project is also being studied.

Mineral inventory	Commodity(ies): Graphite		
Mineral Resources as at 8 Jan 20	Resource Category	Tonnes (Mt)	TGC (%)
	Measured	–	–
	Indicated	4.5	13.1
	Inferred	3.5	11
	Total	8.0	12.2
	Contained (kt)	–	975
Ore Reserves as at 8 Jan 20	Reserve Category	Tonnes (Mt)	TGC (%)
	Proved	–	–
	Probable	4.2	12.8
	Total	–	–
	Contained (kt)	–	543

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Feasibility Study



POST TAX IRR:

30%



PRODUCT & ANNUAL PRODUCTION RATE

• Flake graphite concentrate:
(>95% TGC): 52 ktpa



OFFTAKE AVAILABLE

Yes

CAPITAL COST:

US\$61m

POST TAX NPV_{7%}:

US\$111m



MIN MINE LIFE (Yrs)

14

The Siviour Battery Anode Material Project

Renascor Resources Ltd

ASX-listed (RNU)

www.renascor.com.au



Renascor completed a DFS for the Siviour Graphite Mine in 2019 and an integrated study for the Battery Anode Material Operation in 2020. The integrated study confirms the project's status as one of the world's largest, lowest cost and development-ready sources of battery anode material.

Renascor has secured non-binding commitments for up to 200% of the stage one production capacity from the project and is currently in negotiations with its existing offtake partners regarding conversion to binding offtake agreements.

Renascor is considering both additional offtake and investment in the project.

Renascor is committed to powering the clean energy transition through the development, in Australia, of a vertically integrated graphite mine and manufacturing operation to produce sustainable and ethically-sourced battery anode material for the lithium-ion battery market.

The Siviour Battery Anode Material Project combines the Siviour Graphite Deposit in South Australia, the largest reported graphite Reserve outside of Africa, and a state-of-the-art processing facility in South Australia to manufacture purified spherical graphite through Renascor's eco-friendly purification process.

Renascor's aim is to become a leading supplier of 100% Australian-made and low-cost purified spherical graphite for lithium-ion battery anode makers worldwide.

The Siviour Battery Anode Material Project was awarded Major Project Status by the Australian Federal Government in September 2021.

Mineral inventory	Commodity(ies): Graphite		
Mineral Resources as at Apr-19 (2.3% TGC cut-off)	Resource Category	Tonnes (Mt)	TGC (%)
	Measured	15.8	8.8
	Indicated	39.5	7.2
	Inferred	32.1	7.2
	Total	87.4	7.5
	Contained (kt)	–	6,600
Ore Reserves as at Jul-20	Reserve Category	Tonnes (Mt)	TGC (%)
	Proved	15.8	8.4
	Probable	35.8	6.9
	Total	51.5	7.4
	Contained (kt)	–	3,800

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Feasibility Study



POST TAX IRR:
33%



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$204M

POST TAX NPV_{10%}:
A\$713m

- **Graphite Concentrate:**
(94 to 96% TGC):
Stage 1 – 80 ktpa,
Stage 2 – 115 ktpa



MIN MINE LIFE (Yrs)
40

- **Battery Anode Material facility**
PSG production (Stage 1):
30 ktpa

Uley 2

Quantum Graphite Ltd (Quantum)

ASX-listed (QGL)

www.quantumgraphite.com



Quantum is the owner of the century old Uley graphite mine, part of the larger Mikkira flake graphite deposit located in South Australia's Eyre Peninsula and one of the world's largest natural coarse flake graphite provinces.

Quantum has formed a joint venture with The Sunlands Co. for the manufacture of thermal energy storage media for The Sunlands Co.'s long duration energy storage cells. The Uley 2 project represents a unique investment opportunity in a proven producer:

- Decades long history of supplying global refractory manufacturers
- Historical prequalification of its products with global manufacturers
- The Sunlands Co. JV delivers advanced processing technologies and participation in the energy/renewables industry

Quantum's 2020 Definitive Feasibility Study (DFS) reconfirmed the superior returns achievable from the production of high purity large to extra-large coarse flake products from the historical Uley mines. The advanced process plant, utilising QGL Sunlands proprietary technology, accepts run-of-mine ore and liberates graphite particles through crushing and grinding followed by floatation and proprietary sequential polishing sections and thermal heat treatment. The process enhances flake graphite recoveries, maximises coarse flake size and achieves very high purities.

The DFS covers the flake production operations only (Stage 1) and does not include the revenues from The Sunlands Co. JV energy storage media manufacturing operations, which is currently the subject of a separate study. The revenues generated from the manufacturing facility have the potential to significantly increase overall project revenues and the project NPV.

Mineral inventory	Commodity(ies): Natural Flake Graphite		
Mineral Resources as at July 2019 (at 3.5% graphitic carbon cut-off)		Tonnes	TGC
	Resource Category	(Mt)	(%)
	Measured	0.8	15.60
	Indicated	4.2	10.40
	Inferred	1.3	10.50
	Total	6.3	11.10
	Contained (kt)		697
Ore Reserves as at December 2019		Tonnes	TGC
	Reserve Category	(Mt)	(%)
	Proven	0.8	11.66
	Probable	3.2	11.95
	Total	4.0	11.89
	Contained (kt)	—	476

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Construction
Pre-construction of new process plant



POST TAX IRR:

27%

CAPITAL COST:

A\$80m

POST TAX NPV ^{7%}:

A\$207m (Stage 1 excluding thermal media production revenues)



PRODUCT & ANNUAL PRODUCTION RATE

- **Product specification:** Purity 98%
- **Flake particle size:** +100, +80 and +50 mesh
- **Annual Production Rate:** 60,000 tonnes per annum



OFFTAKE AVAILABLE

No



MIN MINE LIFE (Yrs)

12 (Stage 1 only)

Finniss Lithium Project

Core Lithium Ltd

ASX-listed (CXO)

www.corelithium.com.au



Core Lithium has signed an unconditional offtake agreement with Ganfeng Lithium for 75,000 tonnes of spodumene concentrate per year over 4 years, along with a A\$34 million strategic investment now completed with both Core Lithium shareholders' approval and Chinese regulatory approvals secured. Together with the Szechuan Yahua's 75,000 tonnes per annum over 4 years offtake agreement, approximately 80% of the Finniss Stage 1 production is now contracted for the first 4 years.

Core raised A\$91 million via placement to mostly global and domestic institutional investors and also completed a Share Purchase Plan for an additional A\$25 million for the Stage 1 development of the Finniss Lithium Project.

Project construction commenced in November 2021 and is based on Core's Stage 1 DFS completed in July 2021 using a combination of conventional open-pit mining and underground mining of high-grade (1.3% Li₂O) ore over an initial 8 year mine life with on-site processing using simple and efficient Dense Media Separation (gravity) producing up to 197,000tpa of high-quality 5.8% spodumene (lithium) concentrate at competitive operating cost and low A\$89m capex.

A Stage 1 Extension Scoping Study was also completed in July 2021 identifying a potential 2 Year mine life extension with inclusion of Inferred Mineral Resources.

Core also has a significant 10-16 Mt exploration target with exploration drilling underway to define a further resource for a potential Stage 2 of the project.

The potential to produce lithium hydroxide at the Darwin industrial precinct as a potential Stage 3 of the project is also being studied.

Mineral inventory	Commodity(ies): Lithium		
Mineral Resources as at 26 July-21 (0.60 to 0.75% Li ₂ O cut-off)	Resource Category	Tonnes (Mt)	Li ₂ O (%)
	Measured	4.09	1.48
	Indicated	4.18	1.36
	Inferred	6.45	1.19
	Total	14.72	1.32
	Contained (kt)	-	193.5
Ore Reserves as at 26 July-21	Reserve Category	Tonnes (Mt)	Li ₂ O (%)
	Proven	3.8	1.4
	Probable	3.7	1.2
	Total	7.4	1.3
	Contained (kt)	-	97.9

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Construction



PRE TAX IRR:
53% (Stage 1)



PRODUCT & ANNUAL PRODUCTION RATE

• Spodumene Concentrate:
(5.8% Li₂O) Up to 197,000 tpa



OFFTAKE AVAILABLE
No

CAPITAL COST:
A\$89m (Stage 1)

POST TAX NPV:
Not available



MIN MINE LIFE (Yrs)
8 (stage 1) – 10

Mount Holland – Earl Grey Lithium

**Wesfarmers Ltd (50%),
Sociedad Química Y Minera De Chile S.A. (50%)**

**ASX-listed (WES); NYSE-listed (SQM)
Covalent Lithium Pty Ltd (Private JV) – 50/50**

www.covalentlithium.com



Covalent Lithium, on behalf of the shareholders, completed an Updated Integrated Definitive Feasibility Study in November 2020. The shareholders approved the final investment decision in February 2021. Construction is progressing and will be fully funded by the owners.

Each JVP will be responsible for sales and marketing of its equity share of production.

The Mt Holland lithium project comprises the development of a globally significant lithium operation. The Mt Holland integrated lithium hydroxide project consists of:

- An open pit mine development that will be centred on the Earl Grey hard rock lithium deposit at Mt Holland (400 km from Perth)
- A spodumene concentrator to be located at the Mt Holland site
- A chemical refinery located in the Kwinana Industrial precinct producing approximately 50,000tpa of battery quality lithium hydroxide.

The main Government approvals have been secured.

Mineral inventory	Commodity(ies): Lithium	
Mineral Resources as at February 2018	Resource Category	Tonnes (Mt)
	Measured	66
	Indicated	106
	Inferred	17
	Total	189
	Contained Li₂O (kt)	2,842
	Contained LCE (Mt)	7,030
Ore Reserves as at December 2018	Reserve Category	Tonnes (Mt)
	Proven	44
	Probable	50
	Total	94
	Contained Li₂O (kt)	1,410
	Contained LCE (Mt)	3,490

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Construction



POST TAX IRR:
Confidential – not for public disclosure



PRODUCT & ANNUAL PRODUCTION RATE
• Concentrate: ≈380 ktpa
• Battery-grade lithium hydroxide: ≈50,000 tpa



OFFTAKE AVAILABLE

CAPITAL COST:
A\$ ≈1.9b



MIN MINE LIFE (Yrs)
50

POST TAX NPV :
Confidential – not for public disclosure

Latrobe Valley Project

Latrobe Magnesium

ASX-listed (LMG)

www.latrobemagnesium.com



Latrobe Magnesium Limited (LMG) has finalised a \$15m equity raising so it can complete the construction of its initial magnesium demonstration plant. It is now finalising a Victorian State Government grant of \$4M and project loan facilities. LMG is interested to discuss expansion opportunities with interested parties.

LMG's plant has received AusIndustry registration as an eligible project under the Research and Development rebate scheme. This means it will receive a cash rebate of approximately 50 per cent of its capital invested being the balance of \$20m to build the initial plant.

Latrobe Magnesium is developing a 10,000 tpa magnesium production plant in Victoria's Latrobe Valley using its world first patented extraction process.

LMG has completed a feasibility study validating its process and obtained the necessary local council and EPA approvals. LMG is currently completing the design and engineering works and developing the equipment tender packages required to construct the initial 1,000tpa plant. Construction will start in the first quarter of 2022 with commissioning expected to be completed by the end of December 2022. LMG then plans to expand the plant to up to 40,000tpa of magnesium around 12 months later.

The LMG project is at the forefront of environmental benefit – by recycling power plant waste, avoiding landfill and producing 50% lower CO₂ emissions than the industry average.

Mineral inventory

Magnesium

Mineral Resources

Based upon initial estimates from Yallourn of both the fly ash in landfill and the fly ash produced before closure, there is up to 6 million tonnes of fly ash to be treated. Yallourn usually produces between 200,000tpa and 250,000tpa of fly ash, depending upon the amount of brown coal it burns.

Six million tonnes of fly ash at a 10% magnesium content would allow LMG to operate a plant with a capacity of 30,000 tpa for 20 years.

Should this estimate turn out to be less, LMG has an alternative feed stock which it can substitute for fly ash. There are in excess of 28 million tonnes of the alternative feed stock currently available.



PROJECT STATUS

Pre-Construction



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

>20 yrs
at a processing rate
of 300,000tpa producing
30,000tpa of magnesium



IRR & NPV:

Not publicly available
for the demonstration
plant, as demonstration
plant does not give an
appropriate indication
of value.

CAPITAL COST:

A\$39m
(Demonstration Plant)



PRODUCT & ANNUAL PRODUCTION RATE

• **Magnesium:** 10,000 tpa
(Demonstration Plant) then
expanding to up to 40,000 tpa

Winchester**Korab Resources Ltd****ASX-listed (KOR)****www.korabresources.com.au**

In early 2021, Korab received an unsolicited approach expressing interest in the Winchester project as a feed source for magnesium metal production. No commercial terms have yet been agreed. Korab is reviewing various magnesium production methods. Discussions are also underway for potential offtakes and provision of financing. No agreements have yet been reached. Korab is looking for additional potential offtake discussions, partnerships or financing.

As per its 2018 Feasibility Study, Korab plans to initially develop the Winchester project as a quarry producing magnesium carbonate rock to be crushed, screened, and sorted on-site, prior to transport to the Darwin Port.

As the second phase of development, part of the production is planned to still be sold as un-processed magnesium carbonate rock, and part is planned to be processed off-site into magnesium oxide in the form of caustic calcined magnesia (CCM), and dead burned magnesia (DBM). Off-site processing is expected to be undertaken by means of toll-treatment in kilns owned by third parties, which would not require additional capital investment. Prior studies show the project is also capable of supporting a 60,000 tpa magnesium metal smelter.

Korab is working on the Mine Management Plan which needs approval from the Northern Territory Government and which presently does not include a smelter. All power needs can be fully supplied by renewable power sources: two solar farms (10MW and 12.5MW) are located 500m and 800m from the project.

Mineral inventory	Commodity(ies): Magnesium	
Mineral Resources as at 30 September 2021 (at 40% MgO cutoff grade)	Resource Category	Tonnes (Mt)
	Measured	–
	Indicated	12.2
	Inferred	4.4
	Total	16.6
	Contained (kt)	–
		MgO (%)
		–
		43.1
		43.6
		43.2
		7,171

NB: Numbers may not add up due to rounding.

**PROJECT STATUS**

Feasibility Study

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

15 (can be extended)

**POST TAX IRR:**

160% (Magnesium carbonate ore only)

CAPITAL COST:

Magnesium carbonate ore + CCM + DBM:
A\$2.4m–A\$2.5m
Magnesium metal:
A\$320m–A\$340m

POST TAX NPV_{12%}:

A\$184m (Magnesium carbonate ore only)

**PRODUCT & ANNUAL PRODUCTION RATE**

• **Magnesium carbonate ore:**
600,000-1,000,000 tpa

Stage 2

• **CCM:** 150,000-300,000 tpa
• **DBM:** 75,000-150,000 tpa
Potential to produce 60,000 tpa Magnesium metal in the future.

Butcherbird Manganese Project

Element 25 Ltd

ASX-listed (ASX:E25)

www.element25.com.au



E25 export manganese concentrate via Port Hedland in Western Australia. Growth plans include increased concentrate exports and commercialising our downstream processing technology to produce sustainable high-purity manganese for Li-Ion batteries and green steel.

E25 are seeking offtake and investment partners to support the growth of our business.

Element 25's Butcherbird Project hosts Australia's largest onshore manganese resource of near surface manganese oxide ore.¹

E25 currently produces high quality manganese concentrate for use in manganese alloy production and is commercialising an innovative low carbon, low-cost process to produce battery grade high purity manganese sulphate (HPMSM) for use in electric vehicle batteries with the potential to also produce Electrolytic Manganese Metal (EMM) in the future.

Stage 1 comprises 365Ktpa Mn concentrate production, Stage 2 is the expansion of concentrate production to 1Mtpa and Stage 3 will see the delivery of our first HPMSM conversion facility, producing a nominal 50Ktpa of battery grade HPMSM in parallel with ongoing concentrate exports of approximately 950Ktpa.

E25's Butcherbird ores are highly amenable to a rapid, efficient, low cost, low carbon, leach process, extracting approximately 98% of the manganese into solution in around 60 minutes. The large resource base and efficient leach are vital for long term, cost effective and sustainable production of battery grade manganese sulphate (HPMSM) to provide ESG compliant Li-Ion battery cathode materials.

Mineral inventory	Commodity(ies): Manganese					
Mineral Resources as at 17-Apr-19 (cut-off grade 7% Mn)	Resource Category	Tonnes (Mt)	Mn (%)	Si (%)	Fe (%)	Al (%)
	Measured	16	11.6	20.6	11.7	5.7
	Indicated	41	10.0	20.9	11.0	5.8
	Inferred	206	9.8	20.8	11.4	5.9
	Total	263	10	20.8	11.4	5.9
	Contained Mn (kt)	-	26,300	-	-	-
Ore Reserves (as at 30 June 2021)	Reserve Category	Tonnes (Mt)	Mn (%)			
	Proved	14.4	11.5			
	Probable	36.2	9.8			
	Total	50.6	10.3			
	Contained Mn (kt)	-	5,210			

1. Element 25 Limited ASX Announcement dated 19 May 2020. NB: Numbers may not add up due to rounding.



PROJECT STATUS

Operating (Stage 1
Manganese Concentrate)



OFFTAKE AVAILABLE

YES (Manganese Concentrate
and Battery Grade HPMSM)



MIN MINE LIFE (Yrs)

Stage 1: 42+
Stage 2: 15+



PRE TAX IRR:

359% (Stage 1)

CAPITAL COST:

Stage 1: A\$20.2m
Stage 2: Est A\$20m
Stage 3: Est A\$150m

POST TAX NPV ^{5%}:

Stage 2: A\$798m
Stage 3: Study Pending



PRODUCT & ANNUAL PRODUCTION RATE

- **Stage 1:** 365 Ktpa Manganese concentrate (33% Mn)
- **Stage 2:** 1Mtpa Manganese concentrate (33% Mn)
- **Stage 3:** 50 ktpa Battery Grade HPMSM plus approximately 950 Ktpa Mn concentrate (33% Mn)

REE

Rare Earth
Elements

Browns Range

Northern Minerals Ltd

ASX-listed (NTU)

www.northernminerals.com.au



Northern Minerals Limited aspires to be a principal supplier of ethically produced Rare Earth Metals and separated products from the world's largest Heavy Rare Earth Element inventory. The Company is currently conducting a Feasibility Study (FS) to build a full scale Beneficiation plant on site to produce a 25% to 30% mixed Rare Earth concentrate.

Northern Minerals welcomes discussions regarding financing and/or off-take for the full scale Beneficiation plant.

Located 160km south east of Halls Creek in northern Western Australia, the Browns Range Project is the first significant dysprosium producer outside of China.

Constructed and commissioned in 2017/2018, the Browns Range Pilot Plant is operating to determine the technical and economic viability of the process and the full-scale commercial project, which comprises the development of a dysprosium rich Heavy Rare Earths (HRE) mining and mineral processing operation. Thyssenkrupp Materials Trading GmbH has an offtake agreement for Pilot Plant production. The Mining Lease is granted and environmental approvals for the pilot plant are secured. Primary approvals are in place for the full scale plant.

A Feasibility Study was commenced in March 2021 on full scale, commercial beneficiation plant to produce a Heavy Rare Earth Xenotime concentrate. This is an accelerated development pathway for the project compared to a full scale version of the Browns Range Pilot Plant. NTU is targeting production from the Beneficiation plant by 2023. Northern Minerals Ltd is fully funded up to Beneficiation Plant Final Investment Decision, via an A\$20M equity capital raising in 2021 Q1.

The current Mineral Resource supports a 10-year mine life, with significant scope to expand in the future. Exploration drilling program commenced in June 2021 to extend resource at Browns Range.

Mineral inventory	Commodity(ies): Rare Earth Elements					
Mineral Resources as at 30 June 2021	Resource Category	Tonnes (Mt)	TREO (%)	Dy203 (%)	Y203 (%)	Tb407 (ppm)
	Measured	–	–	–	–	–
	Indicated	4.6	0.71	0.06	0.40	0.01
	Inferred	4.7	0.64	0.05	0.37	0.01
	Total	9.3	0.67	0.06	0.38	0.01
	Contained (kt)		62	6	35	1
Ore Reserves as at 30 June 2021	Reserve Category	Tonnes (Mt)	TREO (%)	Dy203 (%)	Y203 (%)	Tb407 (ppm)
	Proved	–	–	–	–	–
	Probable	3.3	0.68	0.06	0.39	0.01
	Total	–	–	–	–	–
	Contained (kt)		22	1.9	13.0	0.3

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Feasibility Study



POST TAX IRR:
Not available

CAPITAL COST:
Beneficiation plant: A\$250m



PRODUCT & ANNUAL PRODUCTION RATE

- Concentrate: 13,300 tpa
- Contained TREO: 4,000 tpa
- Contained Dysprosium: 400 tpa



OFFTAKE AVAILABLE
Yes



MIN MINE LIFE (Yrs)
10

POST TAX NPV:
FS to be completed by June 2022

REE

Rare Earth
Elements

Dubbo

Australian Strategic Minerals Ltd

ASX-listed (ASM)

www.asm-au.com.au



Australian Strategic Materials Ltd (ASM) is an emerging integrated producer of critical metals produced to the highest ESG standards. Our 'mine to metal' strategy is to extract, refine and manufacture high-purity metals and alloys, supplying direct to global technology manufacturers. The Dubbo Project is construction ready, subject to financing.

ASM has signed a \$US250m framework agreement with a South Korean consortium for a 20% interest in the Dubbo Project and offtake from ASM's Korean Metals Plant. ASM has appointed ANZ as advisor for the debt financing of the Dubbo Project. ASM will continue to work with its Korean partners to progress the equity investment into the Dubbo Project, commission the Korean Metals Plant, and continue discussion with financiers and potential offtake partners.

ASM is open to investment and offtake discussions with third parties.

The Dubbo Project is a large polymetallic resource of zirconium, neodymium, hafnium, niobium, yttrium and other rare-earth elements. It represents a secure alternative supply of critical minerals for a range of sustainable technologies and future industries. The Project has an initial mine life of 20 years with the potential to extend to 70+ years.

ASM's metals business is founded on an innovative metallisation process that converts oxides into high-purity metals, alloys, and powders using less energy than conventional methods. The pilot plant in South Korea has proven the commercial scalability of the process and successfully produced a range of high-purity metals and alloys, including titanium, neodymium, praseodymium, dysprosium, and zirconium. Following this success, ASM's first 5,200tpa fullscale metallisation plant, the Korean Metals Plant, is under construction with completion due in 2H 2022.

Mineral inventory	Commodity(ies): Zirconium, Niobium, Hafnium, Tantalum, Rare Earth Elements						
Mineral Resources as at 30-Jun-17	Resource Category	Tonnes (Mt)	ZrO ₂ (%)	HfO ₂ (%)	Nb ₂ O ₅ (%)	Ta ₂ O ₅ (%)	TREO (%)
	Measured	42.8	1.89	0.04	0.45	0.03	0.88
	Indicated	–	–	–	–	–	–
	Inferred	32.4	1.90	0.04	0.44	0.03	0.88
	Total	75.2	1.89	0.04	0.44	0.03	0.88
	Contained (kt)	–	1,421	30	331	23	662
Ore Reserves as at 30-Jun-17	Reserve Category	Tonnes (Mt)	ZrO ₂ (%)	HfO ₂ (%)	Nb ₂ O ₅ (%)	Ta ₂ O ₅ (%)	TREO (%)
	Proved	18.9	1.85	0.04	0.44	0.03	0.87
	Probable	–	–	–	–	–	–
	Total	–	–	–	–	–	–
	Contained (kt)	–	350	8	83	5	165

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre-Construction



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

20+



PRE TAX IRR:

17.5%

CAPITAL COST:

A\$1.3bn

POST TAX NPV:

N/A



PRODUCT & ANNUAL PRODUCTION RATE

- **Zirconium:** 16,374 tpa
- **Hafnium:** 200 tpa
- **Niobium:** 1,967 tpa
- **Rare earths:** 6,664 tpa (containing 237 tpa – Pr6O11, 921 tpa. Nd₂O₃ as well as Tb & Dy)

Eneabba development

Iluka Resources Ltd

ASX-listed (ILU)

www.iluka.com.au



Iluka Resources Eneabba development in Western Australia is the highest-grade rare earths operation globally. Its foundation is a ~1 million tonne strategic stockpile of material that is rich in monazite and xenotime (minerals containing rare earth elements), produced as a by-product of Iluka's traditional mineral sands processing operations. Phase 1 of the project is operational and Phase 2 is under construction.

Iluka is in discussions with Export Finance Australia regarding financial support for the development of Phase 3, a fully integrated rare earths refinery, including seeking a non-recourse loan facility.

The Eneabba stockpile is rich in the high value rare earths essential to electrification technologies.

Phase 1 of the development is operational and involves the production of a simple mixed mineral sands-monazite concentrate, with the monazite grade at 20%. ~50 thousand tonnes of Phase 1 material was sold in 2020; and a further ~50 thousand tonnes will be sold in 2021, after which no further sales of this product will occur.

Phase 2 is in construction and will produce two separate concentrates: a dedicated 90% monazite concentrate, which will be used as a direct feed to a rare earths refinery; and a residual mineral sands concentrate, to be further processed as part of Iluka's traditional mineral sands operations.

Phase 3 would see the Eneabba stockpile; beneficiation (Phase 1 and Phase 2 infrastructure); cracking and leaching; separation and finishing; and waste disposal operations fully integrated at a single site at Eneabba to produce separated rare earth oxides. An expedited feasibility study is underway for Phase 3, due for completion in early 2022.

If it existed today, this would be the only operational refinery of its type in the Western world.

Mineral inventory	Commodity(ies): Zircon, Rare Earth Elements and Ilmenite							
Mineral Resources as at 31 Dec 2020	HM Assemblage(2,3)							
		Tonnes	In Situ HMTonnes	Total HM Grade	Ilmenite Grade	Zircon Grade	Monazite Grade	Xenotime Grade
	Resource Category	(Mt)	Mt	(%)	(%)	(%)	(%)	(%)
	Measured	0.75	0.63	84.2	32.3	26.4	20.4	1.2
	Indicated	0.18	0.14	77.5	37.2	26.8	15.0	1.1
	Inferred	0.01	0.01	46.2	38.7	22.7	8.3	0.7
	Total	0.95	0.78	82.3	33.2	26.4	19.3	1.2
Contained (kt)	946	779	–	259	206	151	9	
Ore Reserves as at 31 Dec 2020	HM Assemblage(2,3)							
		Tonnes	In Situ HMTonnes	Total HM Grade	Ilmenite Grade	Zircon Grade	Monazite Grade	Xenotime Grade
	Reserve Category	(Mt)	Mt	(%)	(%)	(%)	(%)	(%)
	Proved	0.72	0.61	84.7	32.3	26.4	20.4	1.2
	Probable	0.16	0.13	80.1	37.1	26.7	15.2	1.1
	Total	0.88	1	83.9	33.1	26.5	19.5	1.2
	Contained (kt)	880	740	–	245	196	144	9

NB: Numbers may not add up due to rounding.

Please refer to Iluka's website www.iluka.com for further detail in mineral resource and ore reserve statements. Not adjusted for mining depletion.

**PROJECT STATUS**

Phase 1: Operating
Phase 2: Construction
(Phase 3: Feasibility Study to be completed early 2022)

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

Phase 2: ~8 years
(plus replenishment)

**POST TAX IRR:**

N/A

CAPITAL COST:

Phase 1: A\$10 million

Phase 2: ~A\$35 million

Phase 3: To be determined
via feasibility study

POST TAX NPV:

N/A

**PRODUCT & ANNUAL PRODUCTION RATE**

Phase 1: mixed monazite-zircon concentrate (~20% monazite): 50 ktpa for 2 years

Contained Zircon ~9 ktpa

Contained Monazite ~10 ktpa

Phase 2: separate monazite and zircon concentrates (~90% monazite): 100 ktpa

Contained Zircon ~12-16 ktpa

Contained Monazite ~22 ktpa



Eneabba's monazite rich stockpile



Construction of the Phase 2 Concentrator as at September 2021, scheduled for completion by H1 2022

REE

Rare Earth
Elements

Goschen

VHM Ltd

Australian owned, unlisted

www.vhmltd.com.au



The Goschen Heavy Mineral Sands Mine and Australian Rare Earth Mineral (AREM) Refinery Projects, will produce rare earth minerals and zircon processed from the globally significant Goschen Deposit, located in North-Western Victoria. In addition to ore reserves which support a mine life of >20 years, the Company has recently discovered other large high-grade deposits of rare earth minerals and zircon across its tenements. The company welcomes discussion regarding project loan finance, equity investment in the Company and/or joint venture participation, and product offtake agreements to progress the development of the Goschen and AREM Projects.

The Goschen Project Definitive Feasibility Study underway is based on conventional open pit mining and nominal 5Mtpa wet processing and mineral separation plant producing zircon & titanium products and a rare earth mineral concentrate to be processed at VHM's proposed Australian Rare Earth Minerals (AREM) Refinery. The AREM Refinery will produce refined NdPr oxide and mixed HRE carbonate (Tb, Dy). The purity of its REMC, coupled with zircon production credits, will position VHM in the lowest-cost quartile of rare earth producers. VHM aims to commence construction 2023.

Mineral inventory Rare Earth Elements, Zircon, Titanium

Mineral Resources as at December 2020 (1% Heavy Metals cut-off):

Resource Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime
Measured	34.2	5.72	29.9	10.8	9.0	24.7	4.3	0.8
Indicated	310.3	3.19	20.9	10.2	8.7	25.0	3.5	0.7
Inferred	759.7	2.48	19.6	8.9	10.9	27.2	2.6	0.2
Total	1,104.2	2.78	20.3	9.3	10.2	26.5	2.9	0.4
Contained (kt)	-	-	6,208	2,857	3,133	8,128	894	111

Ore Reserves as at March 2021:

Reserve Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime
Proved	24.5	5.4	29.9	10.8	9.0	24.7	4.3	0.8
Probable	174.2	3.5	21.0	9.6	8.2	25.8	3.5	0.6
Total	198.7	3.7%	22.6	9.8	8.3	25.6	3.6	0.7
Contained (kt)	-	-	1,671	724	616	1,891	269	48

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre-Feasibility Study (completed January 2019)
Definitive Feasibility Study underway and due for completion Q1 2022.



IRR & NPV:

Not publicly available
Please contact the company for further information



PRODUCT & ANNUAL PRODUCTION RATE

• REMC	10 ktpa
• P-Float HMC	175 ktpa
• Magnetic concentrate	65 ktpa
• Low Cr ilmenite	40 ktpa
• Zircon	50 ktpa
• HiTi Rutile	7 ktpa
• HiTi Leucoxene	2 ktpa
• LowTi Leucoxene	3 ktpa
• Zircon Conc.	30 ktpa



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

>20 years

CAPITAL COST:

~A\$325m

AREM facility will refine REMC to NdPr oxide & mixed HRE carbonate (Tb, Dy). VHM is considering further refining options of products.

REE

Rare Earth
Elements

Nolans

Arafura Resources Ltd

ASX-listed (ARU)

www.arultd.com



A shovel ready world class NdPr project in Australia

Arafura is engaging with potential offtake and supply chain partners in Japan, Europe, South Korea, the USA and China, targeting NdPr users that are not aligned with the Made in China 2025 strategy.

The strategic nature of NdPr, the alignment with clean energy applications and the specialised capital equipment requirements make the project well-suited for some export credit agency (ECA) mandates. Consequently, Arafura aims to attract an ECA syndicate linked to product offtake from jurisdictions of interest.

Strategic equity, at project or Company level, is an integral component of project funding. If the right partners can be found, it is likely the remaining equity requirement can be secured.

The Company is also investigating opportunities for engineering and procurement debt funding.

The Nolans Project is supported by one of the world's largest rare earth Mineral Resources with substantial growth potential. The metallurgical process developed by Arafura leverages the natural characteristics of the Nolans ore body to deliver ultra-low operating costs and has been comprehensively de-risked in pilot plant operations during 2016-2020. The project will encompass an open pit mine, a process plant (including a rare earth separation facility) and related infrastructure to be constructed at the Nolans site.

Federal and Northern Territory (NT) environmental approvals are secured, the native title agreement has been executed with the Traditional Owners, and mineral leases have been granted. Major project status (Federal and NT) is also confirmed.

Arafura has commenced front-end engineering and design, appointing Hatch in August 2021, and is targeting FID in 2H 2022.

Mineral inventory	Commodity(ies):				
1% TREO cut-off grade	Resource Category as at 7-Jun-17	Tonnes (Mt)	TREO (%)	P ₂ O ₅ (%)	NdPr (% of TREO)
	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)		1456	6160	384
1% TREO cut-off grade	Reserve Category as at 16-Mar-20	Tonnes (Mt)	TREO (%)	P ₂ O ₅ (%)	NdPr (% of TREO)
	Proven	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	3835	226

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Pre-Construction



POST TAX IRR:
18.1 %



PRODUCT & ANNUAL PRODUCTION RATE

- NdPr oxide: 4,440 tpa
- SEG/HRE (middle/heavy rare-earth) carbonate: 474 tpa
- Phosphoric acid (fertilizer-grade, 54% P₂O₅): 144,393 tpa



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$1,056m

POST TAX NPV_{8%}:
A\$1,402m



MIN MINE LIFE (Yrs)
38

Yangibana

Hastings Technology Metals Ltd

ASX-listed (HAS)

www.hastingstechmetals.com

**Enabling revolution towards green technologies**

Yangibana, a rare-class rare earth deposit in WA has total funding requirements of A\$593 million up until the end of the construction period and practical completion. A\$100 million equity raising was completed in Q1 2021. Debt financing is being sourced from various parties including Northern Australia Infrastructure Facility, Finnvera (Finnish) Export Credit Agency and KfW, the German State Bank.

Further debt and equity may be required once Hastings finalises the total capital position by Q4 2021.

Project financing is underpinned by a long term master supply agreement with the large German automotive supply company Schaeffler AG as well as long term binding offtake contract with thyssenkrupp AG representing close to 80% of production during the first 5 years.

The Project involves the development, construction, mining, and processing operations to produce 15,000 tonnes per annum of Mixed Rare Earth Carbonate ("MREC").

Yangibana's MREC boasts extremely high concentrations of the high value neodymium (Nd) and praseodymium (Pr) rare earth elements compared to other RE projects, with an NdPr: Total RE Oxides ("TREO") ratio of up to 52% in some deposits.

The DFS was completed in 2017, more than 300 metallurgical flotation tests and 2 bulk pilot plant studies have been completed to date. Early works have commenced and FEED design work is progressing. Mining will be operated as a conventional open cut mining manner. The current Ore Reserves and Mineral Resources support a 15 year mine life, with multiple known targets existing supporting substantial exploration potential.

Primary Commonwealth and Western Australian environment permits are in place. Yangibana is shovel ready.

Mineral inventory	Commodity(ies): Rare Earth Elements				
Mineral Resources (all 10 deposits) as at 5 May-21 (0.24% TREO cut-off)	Resource Category	Tonnes (Mt)	TREO (%)	Nd203+ Pr6011 (%)	
	Measured	4.90	1.01	0.38	
	Indicated	16.24	0.95	0.33	
	Inferred	6.27	0.99	0.31	
	Total	27.42	0.97	0.33	
	Contained (kt)	–	266	90	
Ore Reserves as at 27 Jul-21	Reserve Category	Tonnes (Mt)	TREO (%)	Nd203+ Pr6011 as % of TREO (%)	
	Proved	4.69	0.99	0.38	
	Probable	12.00	0.93	0.34	
	Total	16.69	0.95	0.35	
	Contained (kt)	–	138	49	

The established Yangibana Mineral Resources are 86% within tenements held 100% by Hastings. The remaining 14% are within tenements controlled 70% by Hastings. Hasting's 100% owned Brockman Project also hosts JORC resources totalling 41.4 Mt at 0.21% Total Rare Earths Oxides (TREO).

**PROJECT STATUS**

FS completed,
Pre-Construction

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

15

**POST TAX IRR:**

21%

CAPITAL COST:

A\$593m, currently under
revision

POST TAX NPV ^{10%}: A\$549m

*New economics due Q4 2021

**PRODUCT & ANNUAL
PRODUCTION RATE**

- **Concentrate (59% TREO):**
35,000 tpa
- **Mixed Rare Earth Carbonate:**
215,000 tpa
- **Contained TREO:** 8,500 tpa
- **Contained NdPr Oxide:** 3,400 tpa

Re

Rhenium

Merlin**Chinova Resources****Unlisted Public Company****www.chinovaresources.com**

The Project is currently under care and maintenance.

The Merlin Project is based on the world's highest-grade molybdenum and rhenium deposit.

The Project is anticipated to mine and process a nominal 500,000 tpa ore at peak production via a combination of Long Hole Open Stopping (LHOS) and Drift and Fill (DAF) underground mining methods over a 13-year mine life. Ore will be treated by an on-site concentrator using a floatation process to produce a molybdenum-rhenium concentrate as well as a low-grade copper-gold flotation concentrate.

The molybdenum-rhenium concentrate will then be refined using a specialised roaster to be built in China to produce Ferro-molybdenum, as well as rhenium in the form of ammonium perrhenate. An exploration decline and cross cut into the high-grade Little Wizzard Zone was completed in 2012.

The Merlin Molybdenum / Rhenium Feasibility Study was completed in November 2014 and although the viability of the project was considered promising, a subsequent downturn in the molybdenum prices caused the project to be placed into care and maintenance in 2015. Merlin is a construction ready Molybdenum/Rhenium mining project ready to take advantage of an upturn in prices of these metals.

Mineral inventory	Commodity(ies): Rhenium			
Mineral Resources as at 14-Nov-14	Resource Category	Tonnes (Mt)	Mo (%)	Re (ppm)
	Measured	0.8	2.30	34
	Indicated	4.2	1.50	26
	Inferred	1.4	1.10	24
	Total	6.4	1.50	26
	Contained (kt)	—	96	0.17
Ore Reserves as at 14-Nov-14	Reserve Category	Tonnes (Mt)	Mo (%)	Re (ppm)
	Proved	—	—	—
	Probable	5.2	1.30	22
	Total	5.2	1.30	22
	Contained (kt)	—	68	0.12
				12.5

NB: Numbers may not add up due to rounding.

**PROJECT STATUS**

Care & Maintenance

**POST TAX IRR:**

13%

**PRODUCT & ANNUAL PRODUCTION RATE**

- Molybdenum-Rhenium Concentrate (54.5% Mo, 0.095% Re)
- Molybdenum in Concentrate 5,300 tpa: Rhenium in Concentrate 7 tpa
- Low-grade copper-gold flotation concentrate (15% Cu, 0.07 ppm Au): 600 tpa

**OFFTAKE AVAILABLE**

N/A

**MIN MINE LIFE (Yrs)**

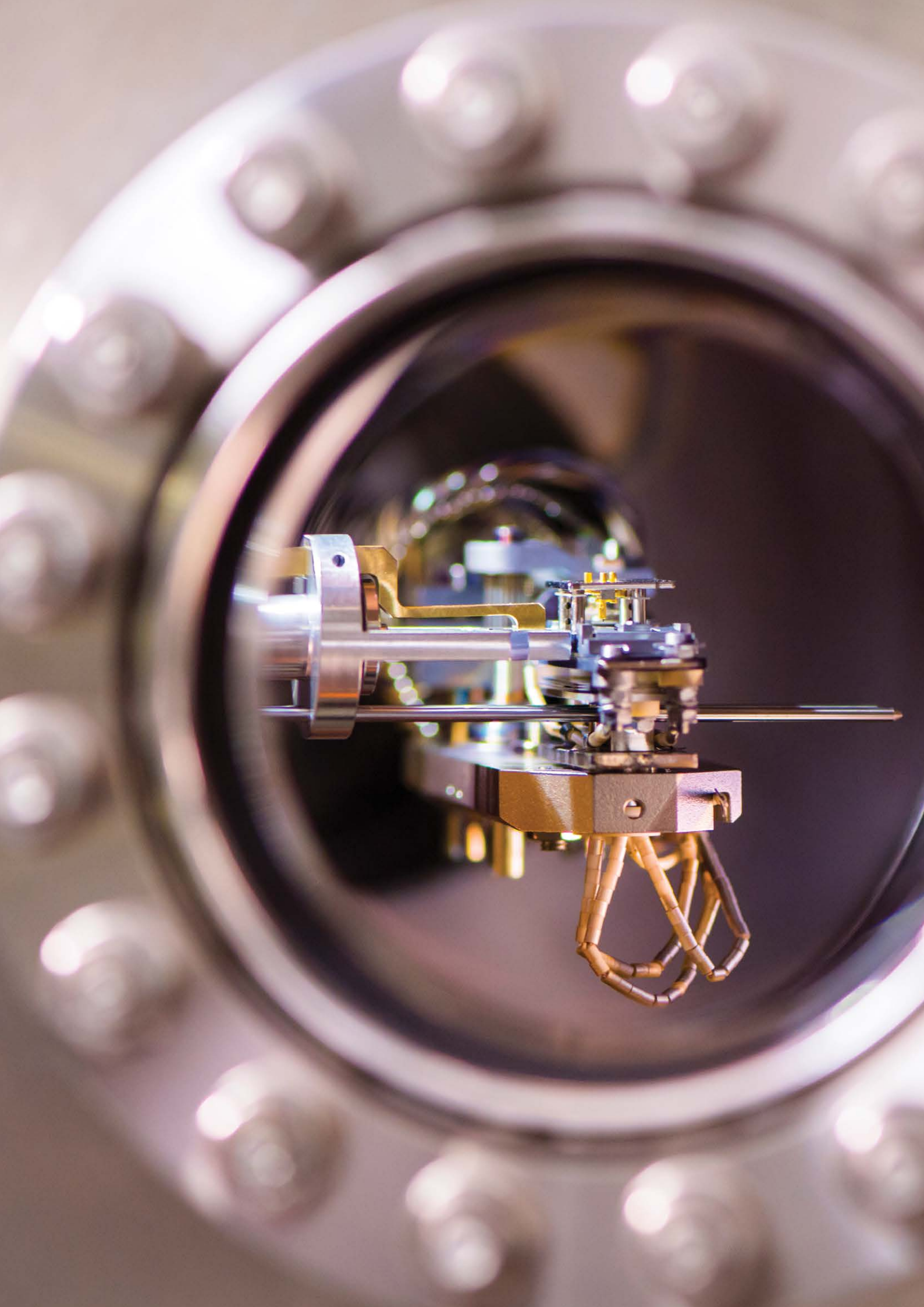
13

CAPITAL COST:

A\$354m

POST TAX NPV_{10%}:

A\$67.52m



Unlocking the midstream

Lithium, nickel, copper, cobalt, rare earths, manganese and cobalt are readily available in Australia. These minerals are already exported as partly unprocessed ore, in a concentrated form, or as metal. Several Australian companies are now developing local midstream and downstream processing capability. This is an important step to building security of supply and providing the inputs necessary for the energy transition and future industries.

Meeting the challenge of a sustainable and reliable supply of critical minerals will require development of capability throughout the value chain. Renewable energy technologies such as solar, wind, batteries and electric vehicles will require both the sourcing of critical mineral inputs and consolidation across the supply chains from mining to processing, manufacturing and recycling.

Strong research infrastructure builds processing innovation

Building sustainable manufacturing options at the necessary scale requires a technically and commercially viable pathway. The research and development community plays a crucial role here, especially in partnership with industry. Strong Australian research infrastructure is helping Australia transition from mining raw materials, to producing value-added materials including precursors, cells and batteries. To this end, CSIRO is working with the private sector. A consortium of Australian companies, part of the Future Battery Industries Cooperative Research Centre (FBI-CRC), is piloting processes for cathode precursor.

Government support via the Modern Manufacturing Initiative

The Government's Modern Manufacturing Strategy identifies critical minerals processing and resources technology as one of Australia's six national manufacturing priorities. The strategy includes the A\$1.3 billion Modern Manufacturing Initiative (MMI). This initiative is designed to build scale, collaboration and national resilience by co-funding manufacturing projects that have broad sectoral benefits.

Recent funding commitments under the MMI's Integration and Translation streams include:

- **A\$14.8 million** for Lynas to commercialise an improved process for producing rare-earth carbonate
- **A\$3.9 million** for Australian Vanadium Limited to fast-track manufacturing of large-scale vanadium redox flow battery systems
- **A\$6 million** for Core Lithium to help build a pilot processing facility for producing battery-grade lithium hydroxide
- **A\$4.9 million** for Albemarle to establish a processing plant that will transform waste lithium refinery residue for use in the construction sector.

Regional development opportunities in resources

Australia has several developing critical minerals hubs and precincts. The Kwinana Strategic Industrial Area in Western Australia is already a specialist centre for chemical and resource-based processing includes two lithium hydroxide plants currently under construction. In Queensland, the Townsville State Development Area (SDA) is home to existing copper and zinc refineries. The Queensland Government recently announced it will also build a \$10 million critical minerals demonstration plant in the city. The Parkes Special Activation Precinct in New South Wales is the central hub for two rail corridors and has access to four major ports, providing the gateway to fifteen Australian critical minerals projects.

A push into lithium processing can be seen around Australia

Albemarle and **Mineral Resources** are close to completing construction of a facility to produce 50,000 tpa of lithium hydroxide in Kemerton, WA. The plant will process spodumene to produce lithium hydroxide product and a sodium sulphate by-product.

In 2021, **Wesfarmers** and Chile's SQM announced the final investment decision on the Mount Holland project — an open-pit lithium mine and processing plant at Mount Holland, and a refinery in Kwinana, WA, to produce 45,000 tpa of battery-grade lithium hydroxide.

TIANQI/IGO are implementing plans for lithium hydroxide facilities in Kwinana, WA. Once completed, the refinery will comprise two production trains with an aggregate nameplate capacity of 48 ktpa of lithium hydroxide.

In October 2021, **Pilbara Minerals** and Korean steelmaker POSCO finalised a joint venture agreement to develop a downstream lithium chemicals facility in South Korea. The two companies will jointly construct and operate a two-train hydroxide monohydrate conversion facility, with a 43,000 tpa capacity.

Greater processing capacity for other battery minerals is also accelerating

Queensland Pacific Metals (QPM) is implementing plans to critical chemicals for lithium-ion batteries and electric vehicles. The project will process high-grade ore to produce nickel sulfate, cobalt sulfate, high-purity alumina and other by-products.

Global Advanced Metals (GAM) is a fully integrated supplier of capacitor grade powders, as well as tantalum and niobium metals and alloys. GAM's tantalum operations are vertically integrated, from mining to ore processing and manufacturing powders and metallurgical products.

Renascor Resources is developing a manufacturing facility for its Siviour graphite mine that will enable the company to produce battery anode materials. Renascor aims to become one of the largest suppliers of low-cost, 100% Australian-made, sustainable and ethically sourced graphite for the lithium-ion battery anode market.

EcoGraf is developing a vertically integrated battery anode project in Kwinana, WA using feedstock from its Tanzania-based project. The company has plans for additional processing facilities in Europe and North America.

Processing innovation for REE and mineral sands is also evident

Australian Strategic Materials (ASM), has developed a metallisation process to convert oxides into high-purity critical metals (including titanium) and alloys. This technology means its Dubbo Rare Earths project can potentially deliver a fully integrated 'mine to metal capability'.

Lynas is building a cracking and leaching plant near Kalgoorlie to support early-stage processing of rare earth ores from its Mount Weld project. Lynas was awarded a A\$14.8m grant under the MMI to support the project.



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Nyngan Scandium

Scandium International Mining Corp.

TSX-listed (SCY)

www.scandiummining.com



As the world's first scandium only mining project, Scandium International Mining Corp., welcomes discussion regarding financing of the project construction or scandium product off-take agreements.

The Company is actively progressing offtake agreements focusing on aluminium-scandium master alloy sales.

The Nyngan Scandium Project based on a shallow and surface-mineable lateritic clay deposit with an attractive scandium enrichment, but relatively little other mineral enrichment. Commercial activity in the area is predominantly farming and mining (copper/gold/silver).

Annual mining activity will be conducted in short campaigns lasting 4-6 weeks each. Mining and ore sizing will produce feedstock for a continuous high-pressure acid leach autoclave system (HPAL), followed by a solvent extraction (SX) concentration of scandium. Final oxide product is made through an oxalate stage, calcine finish, and packaging. All of this product recovery, refinement and packaging is planned as mine site activity, to produce a saleable oxide product (Sc₂O₃, or scandia).

The process flowsheet resembles a conventional laterite recovery system, most comparable to nickel processes. Considerable bench scale and small pilot metallurgical test work has been conducted with third party laboratories to finalize the flowsheet and SX specifics.

An independent Feasibility Study (NI 43-101) was completed in 2016 by Lycopodium (Brisbane). The Feasibility Study considered a 20-year project and utilized approximately 8.5% of the total established mineral resource (M&I), grading 409ppm Sc average over the phase 1 project period.

A pilot testwork program completed in 2020 assessed production of aluminium-scandium master alloy (Al-Sc2%) from scandium oxide using SCY's proprietary process. A patent was awarded to SCY in 2021 for this process.

Mineral inventory	Commodity(ies): Scandium		
Mineral Resources as at May-16	Resource Category	Tonnes (Mt)	Sc (ppm)
	Measured	5.7	256
	Indicated	11.2	225
	Inferred	–	–
	Total	16.9	235
	Contained (kt)	–	4.0
Ore Reserves as at May-16	Reserve Category	Tonnes (Mt)	Sc (ppm)
	Proved	0.8	394
	Probable	0.6	428
	Total	1.4	409
	Contained (kt)	–	0.6

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Feasibility Study



POST TAX IRR:
33%



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
US\$87m

POST TAX NPV_{8%}:
US\$225m

• **Scandium Oxide (Sc₂O₃):**
38.3 tpa
(Also potential to further refine scandium oxide to produce aluminum-scandium master alloys)



MIN MINE LIFE (Yrs)
20

Zr

Zirconium

Avonbank**WIM Resource Pty Ltd****Unlisted**www.wimresource.com.au

Avonbank is world-class Zircon-rich Heavy Mineral Sands project, with Proved & Probable Reserves underpinning a 36 year operation. WIM Resource Pty Ltd welcomes discussions regarding the financing of Avonbank and interested parties are welcome to make contact for further information.

Avonbank is a world-class Zircon-rich Heavy Mineral Sands project. WIM will produce a high quality Heavy Mineral Concentrate (HMC) at site, for export overseas, where mainly Zircon & Titanium will be produced, with minor rare earth by-products.

WIM has completed a Test Pit & Demonstration Scale Wet Concentration Plant at site – demonstrating successfully that the Avonbank ore is amenable to standard mineral sands gravity separation using spirals. Detailed downstream demonstration trials have also been successful, for mineral separation and other product quality assessment trials.

The Avonbank orebody is a consistent ore body, and has a low strip ratio. It will be mined using a dry mining, rapid rehabilitation mining method. Avonbank has no significant environmental issues, and has very strong local community support.

Avonbank has existing rail at site, and power & surface water pipelines nearby to the proposed process plant – meaning a lower CAPEX, simple project start-up & operation.

Mineral inventory Commodity(ies): Zirconium, Titanium

Mineral Resources as at 31-Dec-2017 (1% THM cut-off)

Resource Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime
Measured	300	4.3	20	15	8.5	26	2.0	0.6
Indicated	150	3.6	19	17	9.3	28	1.9	0.6
Inferred	40	3.0	21	16	9.0	27	2.3	0.6
Total	490	4.0	20	16	8.8	27	2.0	0.6
Contained (kt)	-	19,600	3,920	3,136	1,725	5,292	392	118

Ore Reserves as at 1-Jun-2018 (1% THM cut-off)

Reserve Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime
Proved	220.4	4.4	20.2	14.9	8.4	26.4	2.0	0.6
Probable	91.4	4.0	19.3	16.9	9.1	28.5	2.0	0.6
Total	311.8	4.3	19.9	15.4	8.6	27.0	2.0	0.6
Contained (kt)	-	13,407	2,668	2,065	1,153	3,620	268	80

NB: Numbers may not add up due to rounding.

**PROJECT STATUS**

Feasibility Study
(DFS completed in 2021)

**IRR & NPV:**

Please contact WIM
for investor information

**PRODUCT & ANNUAL PRODUCTION RATE**

- **Heavy mineral concentrate:** 500,000 t/pa
- **Containing on average:** Zircon – 30%, Titanium – 55% RE by-products – 2%.

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

36

CAPITAL COST:

Please contact WIM
for investor information

Balranald

Iluka Resources Ltd

ASX-listed (ILU)

www.iluka.com



Iluka Resources is a leading global producer of zircon and the high grade titanium dioxide feedstocks rutile and synthetic rutile. In addition, the company has an emerging position in rare earth elements.

The Balranald project comprises of the mining of the West Balranald deposit, a large, deep, high-grade rutile-rich deposit in northern Murray Basin, NSW. Owing to Balranald's depth, Iluka is assessing the potential to develop it via a novel, internally developed, underground mining technology. The effectiveness of the trialed mining method has been confirmed and growing confidence in the application of the underground technology was a key factor in the progression to Definitive Feasibility Study (DFS) scheduled for completion in 2022.

Iluka has been working on a novel underground mining method to access the Balranald deposits, which are located below the water table. A third trial (T3) of Iluka's novel mining technology was completed in late 2020, confirming the effectiveness of the mining method and validating key elements of the mining unit design. The project's progression to DFS was announced by Iluka in August 2021.

The mining operation will produce a heavy mineral concentrate (HMC). It is planned that magnetic material will be either sold or transported to Iluka's synthetic rutile kilns at Capel, Western Australia. Non-magnetic material is planned to be shipped to Iluka's Narngulu mineral separation plant at Geraldton, Western Australia for final processing.

Final products produced will be zircon, rutile and ilmenite. The ilmenite assemblage includes sulfate and chloride ilmenite. The chloride ilmenite could be upgraded to synthetic rutile subject to trial and study outcomes.

Mineral inventory	Commodity(ies): Zirconium, Titanium					
Mineral Resources as at 31 December 2016 (3% HM cut-off Balranald, 4%HM cut-off Nepean)		Tonnes	Total HM Grade	Percentage of Total Heavy Metals Ilmenite	Zircon	Rutile
	Resource Category	(Mt)	(%)	(%)	(%)	(ppm)
	Nepean					
	Indicated	8.4	27.5	59.8	14.4	14.5
	Inferred	0.8	11.2	57.3	14.6	14.0
	Balranald					
	Measured	11.9	31.9	64.1	10.8	12.2
	Indicated	19.9	35.1	64.3	11.3	12.2
	Inferred	4.5	26.5	62.4	8.3	9.4
	Total	45.5	31.6	63.1	11.5	12.4
Contained (kt)	–	14,378	9,072	1,653	1,782	

NB: Numbers may not add up due to rounding.

Please refer to Iluka's website www.iluka.com for further detail in mineral resource and ore reserve statements.



PROJECT STATUS

Pre Feasibility Study
(DFS underway – scheduled for completion in 2022)



OFFTAKE AVAILABLE

N/A



MIN MINE LIFE (Yrs)

Anticipated to be 8-14 years



POST TAX IRR:

N/A

CAPITAL COST:

DFS to determine capex.

POST TAX NPV:

N/A



PRODUCT & ANNUAL PRODUCTION RATE

Per mining unit*:

• Concentrate ~180 ktpa – 200 ktpa

Resource Assemblage:

• Zircon ~3%

• Rutile ~14%

• Ilmenite ~3%

*the number of units are scalable

Barrambie**Neometals Ltd****ASX-listed (NMT)****www.neometals.com.au**

With one of the world's largest and highest grade hard-rock titanium vanadium deposits, Neometals Ltd welcomes discussions regarding project equity ownership, joint venturing, project financing and off-take for the Barrambie project.

The project is mine-ready with significant Mineral Resource estimate, granted mining lease, mining proposal and Ministerial Approval to construct a 3.2Mtpa processing plant. Further, it has an offtake MoU with Chinese company, Jiuxing Titanium Materials (Liaoning) Co. Ltd towards baseload offtake arrangements.

Barrambie is unique owing to its exceptionally high-grade titanium resource coupled with high vanadium content and the weathered nature of the orebody (low contaminants). A number of flow sheets and target markets have been evaluated to maximise potential viability. The current business plan contemplates conventional open-cut mining, with 'capital light' comminution and gravity concentration on site with a mixed titanium/vanadium/iron concentrate product being shipped to China for further processing.

Offtakers will likely target contained ilmenite in a smelting process to produce a chloride-grade titanium slag as well as an iron vanadium product. Titanium slag is an intermediate product used to feed the fast-growing demands of the Chinese chloride pigment market, which is switching away from sulphate feedstocks to the more environmentally sustainable chloride grade ilmenite alternative.

Mineral inventory	Commodity(ies): Titanium, Vanadium			
Global Mineral Resource as at 17 Apr-18 (> 0.2% V₂O₅ or > 10% TiO₂ cut-off)	Resource Category	Tonnes (Mt)	TiO ₂ (%)	V ₂ O ₅ (%)
	Indicated	187.1	9.61	0.46
	Inferred	93.0	8.31	0.40
	Total	280.1	9.18	0.44
	Contained (kt)	-	25,713	1,232
High-Grade V₂O₅ Resource (> 0.5% V₂O₅ cut-off)	Resource Category	Tonnes (Mt)	TiO ₂ (%)	V ₂ O ₅ (%)
	Indicated	49.0	16.93	0.82
	Inferred	16.9	16.81	0.81
	Total	64.9	16.90	0.82
	Contained (kt)	-	-	-
High-Grade TiO₂ Resource (> 14% TiO₂ cut-off)	Resource Category	Tonnes (Mt)	TiO ₂ (%)	V ₂ O ₅ (%)
	Indicated	187.1	9.61	0.46
	Inferred	93.0	8.31	0.40
	Total	280.1	9.18	0.44
	Contained (kt)	-	-	-

NB: The high-grade titanium and high-grade vanadium Mineral Resources are a sub-set of the total Mineral Resource. These figures are not additive and are reporting the same block model volume but using different cut-off grades.

**PROJECT STATUS**

Pre Feasibility Study, pending based on business model described above

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

10 (Neometals' internal modelling)

**IRR & NPV:**

TBD

CAPITAL COST:

TBD

**PRODUCT & ANNUAL PRODUCTION RATE**

• **Mixed concentrate:**
1.18 Mtpa.
Final products to be determined in PFS.

Coburn (Amy)

Strandline Resources Ltd

ASX-listed (STA)

www.strandline.com.au



Strandline's 100%-owned Coburn project is set to benefit from strengthening mineral sands commodity prices and is forecast to generate robust operating margins over its multi-decade mine life. Funding of A\$338 million is secured, meaning Coburn is fully-funded through to production and cashflow with a favourable finance structure comprised of a combination of long-tenor debt provided by NAIF (A\$150m) and a US\$60 million Bond Issue, together with the Company's strong cash position. Strandline has secured 6 sales contracts covering 100% of production revenue for the first 5 years of operation. Investor and offtake discussions are welcome.

Coburn is a world-scale mineral sands project, with a high-value product suite, low cost operation and strong financial returns. Project features include:

- Located in WA, close to Geraldton's bulk export port.
- Conventional open pit shallow dry mining with progressive backfill and full rehabilitation.
- Proven mining and processing technology combined with modern renewable energy.
- A Wet Concentrate Plant (WCP) will produce high-grade (95%) saleable Heavy Minerals Concentrate (HMC) using high-capacity gravity separation & classification.
- The HMC will be processed in a Mineral Separation Plant (MSP), using electrostatic separation, gravity and magnetic fractionation to produce a high-value product suite comprising premium zircon, zircon concentrate, rutile and a chloride ilmenite product.
- Construction is underway, with first production forecast for December Quarter 2022.
- Coburn will generate significant socio-economic benefits, indigenous and enterprise opportunities over its long life.

Mineral inventory	Commodity(ies): Titanium, Zirconium, Monazite containing rare earths					
JORC Compliant Mineral Resources as at 14 November 2018 (0.8% HM cut-off)	Resource Category	Tonnes (Mt)	Total HM (%)	Ilmenite	Zircon	Rutile
	Measured	119	1.3	45	24	5
	Indicated	607	1.3	48	22	7
	Inferred	880	1.2	49	21	7
	Total	1,606	1.2	48	22	7
	Contained (kt)	—	19,604	9,468	4,239	1,342
JORC Compliant Ore Reserves (16 April 2019)	Reserve Category	Tonnes (Mt)	Total HM (%)			
	Proved	106	1.10			
	Probable	417	1.12			
	Total	523	1.11			
	Contained HM In-Situ (Kt)	—	5,828			

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Construction



POST TAX IRR:

28%



PRODUCT & ANNUAL PRODUCTION RATE

- **Premium zircon:** (66% ZrO₂) 34 ktpa
- **Zircon concentrate:** (28% ZrO₂, 7% TiO₂ and monazite) 54 ktpa
- **Chloride grade Ilmenite:** (62% TiO₂) 110 ktpa
- **Rutile-leucoxene :** (93% TiO₂) 24 Ktpa



OFFTAKE AVAILABLE

Yes, after year 5 of production



MIN MINE LIFE (Yrs)

22.5

CAPITAL COST:

A\$260m + financing costs

POST TAX NPV_{8%}:

A\$463m

Copi

RZ Resources Ltd

Unlisted Public Company

www.rzresources.com



RZ Resources is nearing completion of the Project Definitive Feasibility Study (DFS) for the Copi Mine (the Project) which is scheduled for release in Quarter 2 2022. The DFS and current resources indicate one of Australia's largest mineral sand mines which will produce finished product from the company's Pinkenba Mineral Separation Plant in Queensland for export across the globe.

The Company is nearing finalisation of most aspects of the project execution including logistics, land ownership, mining and processing and is targeting a debt:equity structure for the construction of the project through debt facility via offtake agreement or other arrangement. The company is 100% Australian owned with \$0 debt and healthy balance sheet to see the project through to approvals.

RZ Resources welcomes discussions on investment in the project and/or offtake.

The RZ Resources Copi Mine will produce high quality Zircon, Rutile, Leucoxene, Ilmenite products as well as a Monazite and Xenotime rich concentrate. Uses for the products include the ceramics, pigments, aviation and medical markets. The Project consists of a shallow open-cut dredge mine and floating concentrator that will provide heavy mineral concentrates via gravity and magnetic separation. Heavy mineral concentrates will be transported via rail and road to the company's existing Pinkenba Mineral Separation Plant in Queensland for conversion into high-quality final products using electrostatic separation, gravity and magnetic fractionation.

RZ Resource is currently preparing submission of its Environmental Approvals following completion of a bulk metallurgical assessment for the Project. The Project is expected to be development-ready pending approvals in 2022.

The project will be powered by a solar/gas plant in an arid area of NSW providing significant employment and financial benefit to the region whilst undergoing progressive environmental rehabilitation. The heavily grazed existing land will be rehabilitated and improved to allow grazing to recommence.

Mineral inventory Titanium, Zirconium, Monazite and Xenotime

Mineral Resources as at November 2021 resources (reported within 80% to 100% revenue pit shells):

Resource Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Ilmenite	Zircon	Rutile	Leucoxene	Monazite	Xenotime
Measured	–	–	–	–	–	–	–	–
Indicated	120	2.3	15	15	13	34	1.1	0.13
Inferred	698	0.8	16	16	13	34	1.1	0.14
Total	818	1.0	16	15	13	34	1.1	0.13
Contained (kt)	–	8,261	1,322	1,239	1,074	2,809	91	11

Ore Reserves for early 2022 release. NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre-Feasibility Study, DFS is underway



IRR & NPV:

To be confirmed in 2022 following reserves reporting.



PRODUCT & ANNUAL PRODUCTION RATE

- **Zircon:** >50 ktpa
- **Rutile:** >40 ktpa
- **Leucoxene:** >20 ktpa
- **Ilmenite:** >100 ktpa
- **Monazite and Xenotime concentrate:** 6ktpa



OFFTAKE AVAILABLE

Yes

CAPITAL COST:

~A\$300m



MIN MINE LIFE (Yrs)

20+

*production profile is subject to customer product specifications

WIM 150

Murray Zircon Pty Ltd

AJV: Orient Zircon Pty Ltd & Million Up Ltd. Murray Zircon Pty Ltd manage the project

www.murrayzircon.com.au



Murray Zircon Pty Ltd welcomes discussions regarding financing for the project construction or offtake.

WIM150 is one of the largest known mineral sand's deposits in the world, with 55 years of production underwritten by reserves. The large scale, shallow deposit has a low strip ratio of 0.5:1 allowing for low cost conventional mining methods and continuous rehabilitation. The deposit is conveniently located to key infrastructure including water supplies, roads, rail and powerlines. A skilled local workforce is also available. Ore processing methods use industry standard equipment and technology.

Mineral inventory Zirconium, Titanium, Rare Earth Elements

Mineral Resources as at 18-Jun-13 (1% THM cut-off)

Resource Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Zircon	Rutile	Leucoxene	Illeminite	Monzanite	Xenotime
Measured	415	4.3	21.7	11.5	5.8	32.3	2.3	0.41
Indicated	580	4.0	20.4	11.6	6.1	31.0	2.0	0.37
Inferred	655	3.1	20.1	11.8	6.2	31.1	1.9	0.35
Total	1,650	3.7	20.7	11.7	6.0	31.4	2.1	0.38
Contained (kt)	-	61,050	12,637	7,143	3,663	19,170	1,282	232

Ore Reserves as at 18-Jun-13

Resource Category	Tonnes (Mt)	Total HM (%)	Percentage of total heavy metals					
			Zircon	Rutile	Leucoxene	Illeminite	Monzanite	Xenotime
Proved	268	4.5	22.0	11.7	5.9	32.7	2.4	0.4
Probable	283	4.2	21.3	11.6	5.9	30.8	2.2	0.4
Total	552	4.3	21.6	11.7	5.9	31.7	2.3	0.4
Contained (kt)	-	24,000	5,184	2,808	1,416	7,608	552	96

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Feasibility Study



IRR & NPV:
Not available



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$482m



MIN MINE LIFE (Yrs)
55

- **Heavy Mineral Concentrate:** 413 ktpa
- **Zircon flour:** 73.6 ktpa
- **Titanium concentrates** (containing rutile, leucoxene and ilmenite): 86.1 ktpa
- **Rare-earth elements concentrate** (containing monazite and xenotime): 14.1 ktpa

Zr

Zirconium

Cyclone Zircon Project**Diatreme Resources Ltd****ASX-listed (DRX)****www.diatreme.com.au**

Diatreme is seeking to sell the Cyclone project, or find a suitable investment partner, or joint venture partner to fund the development of this high-grade zircon project located in the zircon-rich Eucla Basin, Western Australia. The project is 'shovel-ready' with all primary approvals and permitting in place.

With shrinking supply and rising demand for Zircon, Cyclone is an attractive opportunity for the right development partner to advance Australia's mineral sands production for the global market.

Cyclone has the potential to become a significant supplier of zircon, accounting for an estimated 6% of global zircon supply. It also contains titanium minerals such as leucoxene, rutile and ilmenite and has potential for the strategic rare metal of hafnium within the zircon component of its heavy mineral concentrate (HMC). A 2018 DFS showed a post-tax NPV of A\$113m, an IRR of 27% and capital payback within three years, with estimated capex of A\$135m.

The current JORC mineral resource comprises 203 million tonnes containing 2.3% heavy minerals (HM @ 1% HM cut-off grade) with an estimated 4.7 Mt of HM and 1,262 Kt of zircon. Life of mine production is estimated at 1.94Mt of HMC containing 936 Kt of zircon and producing 772 Kt of final zircon product.

Mineral inventory	Commodity(ies): Zircon, Titanium						
Mineral Resources as at December 2020 (1% HM cut-off grade) Percentage of total heavy metals		Tonnes	Total HM	Zircon	Rutile	Leucoxene	HiTi
	Resource Category	(Mt)	(%)	(% HM)	(% HM)	(% HM)	(% HM)
	Measured	156.0	2.4	–	–	–	–
	Indicated	48.0	1.9	–	–	–	–
	Inferred	–	–	–	–	–	–
	Total	203.0	2.3	27	3	6	40
Contained (kt)	–	–	1262	–	–	–	
Ore Reserves		Tonnes	Total HM	Zircon	Rutile	Leucoxene	HiTi
	Reserve Category	(Mt)	(%)	(% HM)	(% HM)	(% HM)	(% HM)
	Proved	–	–	–	–	–	–
	Probable	138	2.6	28	3	7	36
	Total	138	–	–	–	–	–
	Contained (kt)	–	–	–	–	–	–

NB: Numbers may not add up due to rounding.

**PROJECT STATUS**

Definitive Feasibility Study

**POST TAX IRR:**

27.2%

**PRODUCT & ANNUAL PRODUCTION RATE****• Heavy Minerals Concentrate:**

LOM production of 1.94Mt of HMC, containing 936 Kt zircon. Average annual production of 58,790t zircon, 9,179t HiTi87 and 48,647t HiTi67, with zircon contributing 80% value of total final products.

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

13.2

CAPITAL COST:

A\$135m

POST TAX NPV_{10%}:

A\$113m

Fingerboards Mineral Sands Project

Kalbar Operations Pty Ltd

Kalbar Limited and Appian
Capital Advisory LLP

www.kalbaroperations.com.au



There is binding agreement in place with Appian Capital Advisory LLP (“Appian”), regarding a staged equity investment of up to A\$144 million in Kalbar Operations Pty Ltd by Appian to fund the Project. The Fingerboards Project, with its supportive shareholder, is in the position of having its equity component funded.

The balance of funds required will be raised through debt markets. An initial soundings process was undertaken in early 2021, which was well received by approximately 15-20 potential finance providers.

Kalbar has offtake contracts for over 50% of the Zircon rich non-magnetic concentrate with major Zircon consumers in China and a mineral processor in Thailand. Offtake for the remaining ~50% of the Zircon rich non-magnetic concentrate and for 100% of the ilmenite and rare earth rich magnetic concentrate are available.

The Fingerboards Mineral Sands Project is focused on a high-grade area of the 3Bt Glenaladale Mineral Resource, ~20km northwest of Bairnsdale. During the first full 10 years of production, the project will produce heavy mineral concentrate containing an average of 150ktpa of zircon and 13.5ktpa of rare earths representing over 10% of global zircon and 5% of global rare earths supply. Low cost conventional dry mining is planned to commence in 2024 with the initial mine life forecast to be 15 years during which approximately 150Mt of ore will be mined.

The project plans to produce a Zircon rich non-magnetic concentrate (“Non-Mags”), and ilmenite and rare earth rich magnetic concentrate (“Mags”).

Mineral inventory	Commodity(ies): Zirconium, Titanium, Rare Earth Elements			
Mineral Resources as at 30 June-18 above a zircon cut-off grade of 0.2%	Resource Category	Tonnes (Mt)	TiO2 (%)	TREO (%)
	Measured	88.5	1.65	0.093
	Indicated	315	1.34	0.073
	Inferred	510	1.00	0.050
	Total	910	1.18	0.062
	Contained (kt)	—	10,609	554
Ore Resources as at 30 June-18 above a zircon cut-off grade of 0.2%	Reserve Category	Tonnes (Mt)	TiO2 (%)	TREO (%)
	Proved	73	1.8	0.11
	Probable	100	1.9	0.11
	Total	173	1.9	0.11
	Contained (kt)	—	3,203	191

The Fingerboards resource contains a total resource of 910Mt @ 1.2% TiO2, 0.06% TREO and 0.65% zircon defined in 2018. The Fingerboards resource is part of the larger Glenaladale Mineral Sands mineral field which is estimated in 2016 to be 2.7Bt of resources at 2.0% total heavy mineral.



PROJECT STATUS
Feasibility Study



PRE TAX IRR:
(BFSU): 64 %



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
Stage 1: A\$231m
Stage 2: A\$126m
per BFSU

• **Magnetic Concentrate:** 205-294 ktpa

• **Non-Magnetic Concentrate:**
223-324 ktpa

• **Contained Zircon:** 110-155 ktpa

• **Contained TREO:** 10-14 ktpa

• **Contained Titanium Oxide:** 135-191 ktpa



MIN MINE LIFE (Yrs)
15

POST TAX NPV_{8%}:
A\$1,056m

Dolphin**King Island Scheelite Ltd****ASX-listed (KIS)****www.kingislandscheelite.com.au**

TAS

The following funding has been secured for the Project:

A\$ million

Debt with Warrants	29.0
Debt without Warrants	4.0
Tasmanian Government Loan	10.0
Leasing Facility (To be concluded)	10.0
Equity Subscription Sophisticated and Institutional Shareholders	14.3
Equity Subscription Existing Large Shareholders	11.0
Shareholder Purchase Plan	5.7
Total	84.0

Offtake agreements are in place with Wolfram Bergbau und Hutten AG and Traxys for 70% of the offtake. Circa 15% of the offtake remains available.

Between 1917 and 1990, the Dolphin Mine, together with the adjacent Bold Head Mine, mined some 10Mt of tungsten ore at 0.67% WO₃, which was processed into a concentrate prior to exporting. Mining was conducted by both open-cut and underground methods.

The current redevelopment plan of the Dolphin Project, which is fully approved and funded, envisages open-cut mining producing around 400,000 tonnes of ore per annum for the first 8 years, followed by underground mining expected to produce around 300,000 tonnes of ore per annum for a further 6 years.

Ore will be crushed and processed, primarily through a gravity circuit, supplemented by a simple flotation circuit to produce a tungsten concentrate for export through the Port of Grassy, less than one kilometre away.

This project hosts the highest grade known tungsten reserve outside of China.

Project detailed engineering has been completed and construction is to commence last Quarter 2021.

The Project is fully funded. The Company is soon to change its name to GROUP 6 METALS LIMITED (ASX: G6M).

Mineral inventory	Tungsten		
Mineral Resources as at June-19 (0.20% WO₃ cut-off)		Tonnes	WO₃
	Resource Category	(Mt)	(%)
	Indicated	9.6	0.90
	Contained WO₃ tonnes	–	86,400
Ore Reserves as at Dec-20 (includes open pit reserve at 0.20% WO₃ cut-off and underground reserve at 0.70% WO₃ cut-off)		Tonnes	WO₃
	Reserve Category	(Mt)	(%)
	Probable	4.4	0.92
	Contained WO₃ tonnes	–	40,480

NB: Numbers may not add up due to rounding.

**PROJECT STATUS**

Pre-Construction

**PRE TAX IRR:**

43%

**PRODUCT & ANNUAL PRODUCTION RATE**

- **Tungsten concentrate:** (>63% WO₃): 3,690 tpa
- **WO₃ in concentrate:** 2,750 tpa (275,000 mtu pa)

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

14

CAPITAL COST:

A\$73m – A\$80m

PRE TAX NPV_{8%}:

A\$241m

W

Tungsten

Molyhil

Thor Mining PLC

ASX & AIM listed (THR)

www.thormining.com



The Molyhil deposit is 100% owned by Thor Mining Plc.

The project was awarded Major Project status by the Northern Territory Government in 2020.

A Feasibility Study in 2018, confirmed the project is technically and economically viable, with strong financial returns and rapid capital payback.

Thor Mining Plc is seeking project loan finance, along with equity investment in the company and/or joint venture participation, along with product off-take agreements to progress the development of the Molyhil project.

The Molyhil deposits occurs in two adjacent skarn bodies that contain outcropping scheelite, molybdenite and chalcopyrite mineralisation.

A Feasibility Study in 2018 was based on an open pit design, with a mine life of 7 years. Beyond this period, Thor has identified portions of the resource below the pit shell which appear to allow profitable underground mining, thus extending the mine life. In addition the Bonya deposits, approximately 30km from Molyhil, with a JORC 2012 Mineral Resource of 0.74Mt @ 0.21% WO₃ and 0.09% Cu and 0.2Mt @ 2.0% Cu, have the potential to extend the operational life of Molyhil for several years.

Mining and processing activities on site will produce tungsten, molybdenum, and copper concentrates for sale using industry standard ore sorting and flotation processing techniques. Recent 3D geological modelling has identified a large magnetic target which has the potential to be an offset extension to the Molyhil mineralisation. Diamond drilling is underway to evaluate.

Mineral inventory	Commodity(ies): Tungsten, Molybdenum, Copper				
Molyhill Mineral Resources as at 31-Mar-2021 (0.07% WO ₃ cut-off)	Resource Category	Tonnes	WO ₃	Mo	Cu
	as at 10-Oct-19	(Mt)	(%)	(%)	(%)
	Measured	0.46	0.28	0.13	0.06
	Indicated	2.98	0.27	0.09	0.05
	Inferred	0.99	0.26	0.12	0.03
	Total	4.39	0.27	0.10	0.05
	Contained (kt)	-	11,800	4,400	2,190
Molyhill Ore Reserves as at 8-Jan-2018 (Max depth of 185m below surface)	Reserve Category	Tonnes	WO ₃	Mo	Cu
	as at 8-Jan-18	(Mt)	(%)	(%)	(%)
	Proven	-	-	-	-
	Probable	3.5	0.29	0.12	-
	Total	-	-	-	-
	Contained (kt)	-	10,000	4,000	-

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Feasibility Study



POST TAX IRR:
59%



PRODUCT & ANNUAL PRODUCTION RATE



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$69m

- **Tungsten Concentrate:**
(65% WO₃) 1,850 tpa
- **Molybdenum Concentrate:**
(51.4% Mo) 850 tpa
- **Copper concentrates:** minor



MIN MINE LIFE (Yrs)
7 plus Bonya

POST TAX NPV:
\$A101m

Mount Carbine**EQ Resources Ltd****ASX-listed (EQR)****www.eqresources.com.au**

EQ Resources, is currently finishing a bankable feasibility study on open pit mining and processing of the in-situ material at it's flagship Mt. Carbine tungsten mining operation which is expected to be completed December 2021. The study is anticipated to show a capital cost of A\$20 million (+/- 10%) for the construction of the crushing and screening plant as well as the upgrade on the processing plant and pre strip of the open pit. This is expected to be debt funded.

EQ Resources welcomes interest from potential investors and off-take partners.

The project is a combination of mining and processing low grade stockpiles of 12 million tonnes, open pit mining of 1.5 million tonnes ore and in the future, underground mining of about 5 million tonnes ore.

Mt. Carbine is a brownfields operation that is currently producing between 20 to 30 tonnes per month of 55% WO₃ concentrate, which is expected to increase to up to 300 tonnes per month of 60% WO₃ concentrate over the next two years.

Mineral inventory	Commodity(ies): Tungsten		
Mineral Resources as at 20 September 2021 (0.15% WO₃ cut-off)	Low Grade Stockpile		
		Tonnes	WO₃
	Resource Category	(Mt)	(%)
	Indicated	12.0	0.075
	Total	-	-
	Contained (kt)	-	9.0
	In-Situ		
		Tonnes	WO₃
	Resource Category	(Mt)	(%)
	Indicated	2.4	0.74
	Inferred	6.8	0.59
	Total	9.2	0.63
	Contained (kt)	-	57.9

NB: Numbers may not add up due to rounding.

**PROJECT STATUS**

Operating (Pilot Plant)
(BFS underway for
in-situ mining)

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

11+

**PRE TAX IRR:**

BFS not completed
yet, but above 100%.

CAPITAL COST:

A\$20m, pending
outcome of BFS

POST TAX NPV:

To be determined
with BFS

**PRODUCT & ANNUAL PRODUCTION RATE**

• **Tungsten Concentrate:**
(60% WO₃): Containing: 2300
tonnes/year
WO₃ (138,000 MTU WO₃)

Mount Lindsay

Venture Minerals Ltd

ASX-listed (VMS)

www.ventureminerals.com.au



TAS

Venture Minerals completed a Feasibility Study in 2012 on the 100% owned Mount Lindsay tin-tungsten-magnetite project which is located within the world-class West Coast of Tasmania and is one of the largest undeveloped tin-tungsten projects in the world.

An updated Underground Mine Feasibility Study is underway, targeting Mount Lindsay to become an ESG compliant producer of tin and tungsten by 2024, with access to renewable hydropower, combined with the commitment to minimizing the carbon footprint, through underground mining and processing strategies.

Venture welcomes discussion regarding financing of the project construction and/or off-take.

Venture based the 2012 Study on extracting 1.75Mtpa of tin, tungsten, magnetite and copper bearing ore from a conventional open pit mine progressing to an underground mine to access deeper mineralisation. The project has access to existing infrastructure. The work completed, included over 83,000 m of diamond core drilling within its 2 high-grade orebodies which defined a significant resource, along with extensive engineering, environmental, hydrogeological and metallurgical studies.

The process plant was designed to concentrate magnetite, copper sulfides, tin oxide and scheelite through flotation and/or gravity with the scheelite further upgraded to Ammonium Paratungstate, before being trucked to the Port of Burnie for export.

The updated Study will optimise the higher-grade portions using a cost effective, gravity-focused, processing flowsheet. Mount Lindsay was recently enhanced by the discovery of two new skarn zones after drill testing two of the high-grade priority tin-tungsten targets generated from the 2019 electromagnetic survey.

Mineral inventory	Tin, Tungsten, Copper, Iron			
Mineral Resources as at 17-Oct-12 at 0.45% SnEq Cut-off	Resource Category	Tonnes (Mt)	WO ₃ (%)	Sn (%)
	Measured	4.3	0.20	0.30
	Indicated	5.2	0.20	0.30
	Inferred	3.9	0.10	0.30
	Total	13.0	0.20	0.30
	Contained (kt)	—	26	38
Ore Reserves as at 7-Nov-12	Reserve Category	Tonnes (Mt)	WO ₃ (%)	Sn (%)
	Proved	6.4	0.20	0.20
	Probable	7.3	0.10	0.20
	Total	14.0	0.10	0.20
	Contained (kt)	—	16	30

At a lower 0.2% SnEq Cut-Off grade the Total Resource increases to over 110 kt of contained Sn + WO₃ + Cu. Resources & Reserves also contain 15% mass recovery of iron with a grade of 65% Fe.



PROJECT STATUS

Feasibility Study



POST TAX IRR:

21% (2012 Study)



PRODUCT & ANNUAL PRODUCTION RATE

- **Tin concentrate:** (45-50% Sn) 5,000 tpa. Tin in Concentrate: 2,350 tpa
- **APT:** 1,500 tpa
- **Magnetite concentrate:** (65% Fe) 240,000 tpa
- **Copper concentrate:** (~24% Cu) 3,500 tpa. Cu in concentrate: 800 tpa



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

9 (2012 Study)

CAPITAL COST:

A\$198m (2012 Study)

PRE TAX NPV_{10%}:

A\$143m (2012 Study)

Mt Mulgine

Tungsten Mining NL

ASX-listed (TGN)

www.tungstenmining.com



Tungsten Mining NL (ASX: TGN) is an Australian based resources company whose prime focus is the exploration, acquisition and development of tungsten projects in Australia. The Mt Mulgine Tungsten Project is the cornerstone of the Company's strategic development plan, focused on demonstrating a pathway to long term sustainable mining activities. The immediate focus for the Mt Mulgine project is engaging with potential offtake and development partners to ensure Mt Mulgine fulfills its potential as a major tungsten producer for many years.

Tungsten Mining's flagship Mt Mulgine tungsten project sits on 3 granted mining leases, located approximately 350km NNE of Perth in the Murchison Region of Western Australia. The recently completed (January 2021) Pre Feasibility Study confirmed a large scale, long life, low cost mining and processing operation treating 6mtpa of run of mine (ROM) ore, producing 460,000 MTU's of WO₃ annually. In addition, the project will produce by-product concentrates of molybdenum and copper (containing gold and silver).

The Mt Mulgine deposits are suitable for open pit mining and will be mined by conventional bulk drill and blast and load and haul methods. The ore will be processed and concentrate recovered using conventional processing methods including crushing, ore sorting, grinding, flotation and gravity. Tailings will be stored in a single wet tailings storage facility.

Large diameter drilling to provide a bulk sample for ongoing metallurgical testwork has been completed. Environmental and groundwater studies are continuing.

There is no native title, or native title claims over the project footprint.

Mineral inventory	Commodity(ies): Tungsten, Molybdenum, Gold, Silver, Copper						
Mineral Resources as at 4 May-20 (0.05% WO ₃ cut-off)	Resource Category	Tonnes (Mt)	WO ₃ (%)	Mo ppm	Au g/t	Ag g/t	Cu (%)
	Measured	—	—	—	—	—	—
	Indicated	183	0.11	290	0.13	5	0.04
	Inferred	76	0.11	240	0.09	5	0.03
	Total	259	0.11	270	0.12	5	0.03
	Contained (kt)	—	290 kt	71 kt	1,000 KOz	44 MOz	92 kt
Ore Reserves as at 29 Jan-21 (0.074% WO ₃ equivalent cut-off grade)	Reserve Category	Tonnes (Mt)	WO ₃ (%)	Mo ppm	Au g/t	Ag g/t	Cu (%)
	Proved	—	—	—	—	—	—
	Probable	140	0.10	288	0.12	5.9	0.03
	Total	140	0.10	288	0.12	5.9	0.03
	Contained (kt)	—	145 kt	40 kt	542 KOz	27 MOz	48 kt

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre Feasibility Study



POST TAX IRR:

9.31%



PRODUCT & ANNUAL PRODUCTION RATE

- **Tungsten concentrate:** 7.1 Ktpa
Containing: WO₃: 460,000 MTU's p.a
- **Molybdenum concentrate:** 2.4 Ktpa
Containing: Mo: 1,070 tpa
- **Copper concentrate:** 5.7 Ktpa
Containing: Cu: 1,265 tpa,
Au: 9,400 oz pa, Ag: 525,000 oz pa



OFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

23.5

CAPITAL COST:

A\$669m

POST TAX NPV_{5%}:

A\$265m



Vanadium

Australian Vanadium Project

Australian Vanadium Ltd

ASX-listed (AVL)

www.australianvanadium.com.au



With one of the most progressed, high-quality vanadium projects in the world, Australian Vanadium Ltd is seeking both debt and equity, in addition to offtake for its project. AVL has recently engaged debt advisers HCF International and Grant Thornton Australia to assist with the debt component.

The project was awarded Federal Major Project Status by the Australian Government in 2019 and State Lead Agency Status by the Western Australian Government in 2020 due to its importance as a battery and critical metal project.

The project is based on an open pit mine with on-site crushing, milling & beneficiation (CMB) and a processing plant located east of Geraldton for final conversion of high-quality vanadium pentoxide (V_2O_5). The CMB flowsheet is based on standard, industry proven processes and includes magnetic beneficiation producing a magnetic concentrate of nominally 1.4% V_2O_5 . The project has a high LOM vanadium ore grade to the CMB plant (1.03% V_2O_5), thereby realising a high concentrate mass yield; possibly the highest of all current operations worldwide.

The Geraldton processing plant flowsheet is based on an alkaline roast leach and ammonium metavanadate (AMV) extraction process producing 11,000 tonnes of high purity V_2O_5 product and 900,000 tonnes of titanomagnetite co-product annually.

The current mine life for the project is 25 years, with potential for additional Resources to be incorporated.

AVL has strong ESG credentials including its 100% owned vanadium redox flow battery focused subsidiary VSUN Energy. Engagement with the local communities is strong and the project is well supported both locally and nationally.

Mineral inventory	Commodity(ies): Vanadium, Titanium	
Mineral Resources as at Nov-21	Resource Category	Tonnes (Mt)
	Measured	11.3
	Indicated	82.4
	Inferred	145.3
	Total	239
	Contained (kt)	1,745
Ore Reserves as at Dec-20	Reserve Category	Tonnes (Mt)
	Proved	9.8
	Probable	22.4
	Total	32.1
	Contained (kt)	222

Within the Total Mineral Resource, a Total High-Grade Portion of the Resource of 95.6Mt @ 1.07% V_2O_5 was also defined in November 2021.



PROJECT STATUS

Feasibility Study



POST TAX IRR:

17.5%



PRODUCT & ANNUAL PRODUCTION RATE

• V_2O_5 as mix of flake or powder: 11,000 tpa

• FeTi Co-product (54%Fe): 900 ktpa



OFFTAKE AVAILABLE

Yes



MIN MINE LIFE (Yrs)

25

CAPITAL COST:

US\$399m

POST TAX NPV_{8%}:

US\$909m @ US\$8.67/lb and A\$:US\$ 0.72



Vanadium

Murchison Technology Metals

Technology Metals Australia Ltd

ASX-listed (TMT)

www.tmtlimited.com.au



The Company is developing one of the world's leading primary vanadium projects, with feasibility study work confirming that the Murchison Technology Metals Project (MTMP) will be a large scale, low cost, long life, high quality vanadium producer.

Cornerstone investment by Resource Capital Funds (RCF VII) endorses the asset quality and underpins establishment of a clear pathway to project funding, supported by end-user engagement in both the steel and battery industries.

The company is progressing the development of the MTMP in line with recent increases in vanadium demand and to support the Vanadium Redox Flow Battery market, and welcomes discussions with strategic investors and additional long term offtake partners.

MTMP represents one of the highest grade undeveloped vanadium projects in the world, located in a Tier 1 mining jurisdiction serviced by excellent infrastructure. The project is made up of Gabanintha and the satellite Yarrabubba deposit, with the proposed development of three open-cut mines feeding a fully integrated processing plant to be developed at Gabanintha incorporating beneficiation, salt roasting and leaching to produce very high purity premium (>99%) V_2O_5 vanadium pentoxide product, with forecast lowest quartile operating costs, over a mine life in excess of 23 years.

Work is underway to integrate the high grade vanadium concentrate generated from the Yarrabubba deposit into Gabanintha, with the expectation that this will materially enhance the processing efficiency and improve economic returns compared to the earlier Gabanintha DFS.

All MTMP mining leases and associated tenure are in place, with environmental approvals and permitting progressing to ensure a development-ready Project in 2022.

Mineral inventory	Commodity(ies): Vanadium, Titanium, Iron				
Mineral Resources as at June 2020. The Mineral Resources are quoted above a lower cut-off grade of 0.4% V ₂ O ₅ %	Tonnes	V ₂ O ₅	TiO2	Fe	
	Resource Category	(Mt)	(%)	(%)	(%)
	Measured	1.2	1	11.4	44.7
	Indicated	38.4	0.9	11.1	42.7
	Inferred	97.6	0.6	9.7	37.3
	Total	137.2	0.9	10.5	38.8
	Contained (kt)	—	1,235	14,439	53,281
Ore Reserves as at September 2020	Tonnes	V ₂ O ₅	TiO2	Fe	
	Reserve Category	(Mt)	(%)	(%)	(%)
	Proved	1.1	0.96	—	—
	Probable	37.9	0.9	—	—
	Total	39.0	0.90	—	—
	Contained (kt)	—	351	—	—

See ASX release dated 16 September 2020 for notes on ore reserve estimation including recovery and dilution factors.



PROJECT STATUS
Feasibility Study



PRE TAX IRR:
34.2%



PRODUCT & ANNUAL PRODUCTION RATE
• High-purity vanadium pentoxide (V_2O_5) +99% purity: 12,800 tpa
Possibility of TiO₂ and Co-Cu-Ni concentrate production from tailings stream.



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$470m

PRE TAX NPV_{8%}:
A\$1,320m



MIN MINE LIFE (Yrs)
23+



Vanadium

Mount Peake Vanadium-Titanium-Iron Project

TNG Limited

ASX-listed (ASX: TNG)

www.tngltd.com.au



A Front-End Engineering and Design (FEED) study for Mount Peake was completed in July 2021, with final engineering optimisation, regulatory approvals and execution planning now progressing in parallel with TNG seeking debt and equity funding for development. Germany's KfW IPEX-Bank has been appointed as exclusive senior debt arranger to raise up to US\$600M in debt with commercial lenders. KPMG Corporate Finance has been appointed as global financial advisor to assist with debt funding and progression of the equity raising strategy. TNG is moving towards confirmation of final capital requirements and funding structure, supported by final engineering optimisations and execution planning, and completion of commercial processes. 100% of planned production is under offtake.

Mount Peake is a world-scale critical minerals project that will produce high-purity vanadium pentoxide (V_2O_5), titanium pigment (TiO_2) and iron fines for global markets. The Project is well advanced, with a FEED study completed, Mining Licences granted, Native Title agreement secured and mine development environmental approvals in place.

Mount Peake hosts a JORC Compliant Resource of 160 million tonnes, making it one of the largest undeveloped vanadium-titanium-iron projects in the world. The project will operate a conventional open-pit mine over a 37-year initial mine life, using TNG's 100% owned TIVAN® processing technology to convert magnetite concentrate into the three high purity final products. TNG has secured off-take agreements for 100% of production with an impressive group of global offtake partners – Gunvor and Woojin (V_2O_5), DKSH (TiO_2) and Vimson Group (iron).

Mount Peake has Major Project Status with both the Federal and Northern Territory Governments.

Mineral inventory	Vanadium, Titanium, Iron				
Mineral Resources as at 26-Mar-13 (0.1% V2O5 cut-off)	Resource Category	Tonnes (Mt)	V ₂ O ₅ (%)	TiO ₂ (%)	Fe (%)
	Measured	118	0.29	5.50	24.00
	Indicated	20	0.28	5.30	22.00
	Inferred	22	0.22	4.40	19.00
	Total	160	0.28	5.30	23.00
	Contained (kt)	—	448	8,480	36,800
	Ore Reserves as at 31-Jul-15 (15% Fe cut-off)	Reserve Category	Tonnes (Mt)	V ₂ O ₅ (%)	TiO ₂ (%)
Proved					
Probable		41.1	0.42	7.99	28.00
Total					
Contained (kt)		—	173	3,284	11,508

NB: Numbers may not add up due to rounding.



PROJECT STATUS

Pre-Construction



POST TAX IRR:

33%



PRODUCT & ANNUAL PRODUCTION RATE

- Magnetic concentrate: 700,000 tpa
- Titanium Dioxide Pigment: 100,000 tpa
- Vanadium Pentoxide: 6,000 tpa
- Iron Oxide: 500,000 tpa



OFFTAKE AVAILABLE

No

CAPITAL COST:

A\$824M (estimate subject to final engineering)

PRE TAX NPV_{8%}: A\$2.8b



MIN MINE LIFE (Yrs)

37



Richmond – Julia Creek Vanadium

**Horizon Minerals Limited;
Richmond Vanadium Technology Pty Ltd**

JV: ASX-listed HRZ (25%) & unlisted RVT (75%)

www.horizonminerals.com.au



The Richmond-Julia Creek project is one of the largest undeveloped oxide vanadium resources in the world and can produce globally significant supply for the steel and emerging energy storage markets. What sets this project apart is its minimal impact on the environment with shallow open pit mining, progressive rehabilitation, low capex, conventional processing, non-toxic waste slurry, long mine life and first quartile operating costs. The project is expected to deliver significant economic benefits to regional Queensland and to the national economy. The DFS for the project is underway and is expected to be completed during 2022. The Company welcomes discussion regarding construction financing or off-take agreements.

The Richmond–Julia Creek Vanadium deposit commences from the surface and is hosted in soft marine sediments within oxidised limestone-rich clay. The shallow, soft nature of the deposit makes it amenable to an open-cut, free-dig mining operation.

The project is expected to have low strip, conventional open pit mining with a potential mine life of over 100 years, at a production rate of 4.2Mtpa ore mined and processed on-site to produce 790,000 tpa vanadium concentrate (or 12,700tpa vanadium pentoxide flake (V_2O_5)). Testwork has shown that over 90% of the contained metal lies in the $-38\mu m$ size fraction. This fine fraction is amenable to low cost removal via scrubbing, trommelling, screening, cycloning and potentially flotation to produce a high-grade vanadium concentrate of 1.82% V_2O_5 , for smelting.

Metallurgical testwork completed in 2020 has shown that a $>1.8\%$ V_2O_5 concentrate can be produced at 64% recovery. Simulated production trials were undertaken in Q3 CY2020.

Mineral inventory	Commodity(ies): Vanadium, Molybdenum, Nickel		
Mineral resources as at Dec-2019 with 0.30% V_2O_5 cut off	Resource Category & Deposit	Tonnes (Mt)	V_2O_5 (%)
	Indicated – Lilyvale	430	0.50
	Inferred – Lilyvale	130	0.41
	Inferred – Rothbury	1,202	0.31
	Inferred – Manfred	76	0.345
	Total	1,838	0.364
	Contained (kt)	–	6,650
Ore Reserves for Lilyvale Deposit as at Jan20 (0.30% V_2O_5 cut off)	Reserve Category & Deposit	Tonnes (Mt)	V_2O_5 (%)
	Proved	0	0.00
	Probable	459.2	0.49
	Total	459.2	0.49

For Mineral Resources and Ore Reserves refer HZN ASX release entitled “Pre-Feasibility Study and Maiden Ore Reserve for Richmond-Julia Creek Vanadium Project”, 27 October 2020



PROJECT STATUS
Pre Feasibility Study



POST TAX IRR:
19% at US\$7.10/lb
 V_2O_5 price



PRODUCT & ANNUAL PRODUCTION RATE
• **Vanadium concentrate (1.82% V_2O_5):** 4790,000 tpa concentrate, with potential to refine to 12,700tpa of vanadium pentoxide flake (V_2O_5)



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
US\$176.8m (A\$242.2m)



MIN MINE LIFE (Yrs)
100+

POST TAX NPV ^{10%}:
US\$150.0m at
US\$7.10/lb V_2O_5 price

Saint Elmo**Multicom Resources****Unlisted Public Company****www.mcres.com.au**

Multicom's Saint Elmo Project (SEP) is a fully permitted critical minerals project that will sustainably co-produce Vanadium, High Purity Alumina and potentially other high purity minerals. Designated as a Major Project by the Australian Government, it is being fast-tracked to meet the growing global demand for lighter-weight and higher-strength steels plus energy-efficient technology applications such as battery energy storage systems and LED's. The Project's Definitive Feasibility Study is due imminently.

Multicom's focus in 2022 will be on operating a demonstration plant, securing long term offtake, attracting investment and targeting financial close.

Multicom's Saint Elmo Project (SEP) is being developed to take advantage of the increasing demand for high purity, low-carbon, sustainably produced and Australian sourced supply of Vanadium and High Purity Alumina. Increasing demand for lighter-weight and higher-strength steels as well as for renewable energy solutions such as Vanadium Redox Flow Batteries, Electric Vehicle Batteries and solid state lighting applications, enables Multicom's mission to bring high purity critical minerals to the world, as a reliable supplier for global technology manufacturers.

SEP will be developed as a shallow, low strip ratio, open-cut mine, situated in the North West Minerals Province, only 260 km from Mount Isa. Ore will be processed on site via a roast, leach and purification process to produce >99% purity Vanadium pentoxide (V_2O_5) and >99.99% High Purity Alumina with product to be shipped via Townsville.

This low-impact, low-carbon-footprint project builds on Australia's record in the development and supply of ethically and responsibly sourced raw materials.

Mineral inventory	Commodity(ies): Vanadium, High Purity Alumina		
Mineral Resources as at Apr-21 (0.20% V_2O_5 cut-off, Coquina lithology only – as per pending DFS)	Resource Category	Tonnes (Mt)	V_2O_5 (%)
	Indicated	144.0	0.26
	Inferred	145.0	0.25
	Total	289.0	0.25
	Contained (kt)	—	743.9
			5,054.3

NB: All Project numerical information provided is from internal modelling and is indicative only. It may be unrepresentative of final outcomes and should not be relied upon.

**PROJECT STATUS**

Definitive Feasibility Study due in Q1 2022 for Vanadium and HPA co-production

**OFFTAKE AVAILABLE**

Yes

**MIN MINE LIFE (Yrs)**

30

**POST TAX IRR:**

Not available

CAPITAL COST:

~A\$300M*

POST TAX NPV_{8%}:

Not available

**PRODUCT & ANNUAL PRODUCTION RATE**

- V_2O_5 (>99% purity): 3,000 tpa
- Al_2O_3 (>99.99% purity): 6,000 tpa

*SEP internal modelling for the DFS is due in Q1 2022 and financial information is not yet available. Upon DFS completion and once under NDA, a detailed financial model plus technical information will be available for review.



Vanadium

Windimurra

Atlantic Vanadium Pty Ltd (AVPL)

Private company

www.atlanticptyltd.com.au



AVPL owns 100% of the world class Windimurra vanadium project. AVPL has completed a successful Definitive Feasibility Study for the Windimurra project development and expects to make a final investment decision for the project development in the first half of 2022. AVPL is currently in advanced discussions with prospective project financiers and strategic off-take partners for the Windimurra project, however AVPL welcomes interest from prospective project financiers and off-take partners.

Windimurra will be the world's next major primary vanadium producer leveraging significant existing infrastructure at the project site. In particular, Windimurra enjoys the following competitive advantages:

- Significant historic investment, making it the lowest capital intensity primary vanadium project development in the world.
- All development approvals in place.
- JORC 2012 compliant reserves deliver an initial 31 year mine life with upside through additional large JORC 2012 compliant resources.
- All critical infrastructure is already developed (roads, mine pit, gas pipeline, kiln, power station).
- Attractive economics based on low strip ratio, legacy investment and long mine life.
- Attractive vanadium market fundamentals with forecast strong vanadium demand growth driven by new Chinese rebar standards and vanadium flow battery demand.

The Windimurra project will produce a high purity V_2O_5 flake product utilising proven open-cut mining and vanadium production processes including ore milling, magnetic separation, salt roasting, leaching and furnace processing to produce the final product.

Mineral inventory	Commodity(ies): Vanadium		
Mineral Resources as at 30 June 2021 at 0.28% V_2O_5 cut-off		Tonnes	V_2O_5
	Resource Category	(Mt)	(%)
	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 30 June 2021 at 0.28% V_2O_5 cut-off		Tonnes	V_2O_5
	Reserve Category	(Mt)	(%)
	Proved	–	–
	Probable	87.5	0.49
	Total	87.5	0.49
	Contained (kt)	–	429

NB: Numbers may not add up due to rounding.



PROJECT STATUS
Pre-Construction



POST TAX IRR:
Not disclosed



PRODUCT & ANNUAL PRODUCTION RATE
• High purity V_2O_5 flake:
7,600 tonnes per annum



OFFTAKE AVAILABLE
Yes

CAPITAL COST:
A\$213m

POST TAX NPV:
Not disclosed



MIN MINE LIFE (Yrs)
31



Australian Government supporting the Critical Minerals Sector

Australian Trade and Investment Commission (Austrade)

Austrade, the Australian Government's lead trade and investment facilitation agency, contributes to Australian critical minerals strategy by developing commercial partnerships that connect Australia with our trade partners. In doing so, Austrade works closely with the CMFO, DFAT, and state and territory investment agencies, as well as counterpart agencies in other countries.

Austrade's three principal focus areas are:

1. offtake agreements for (and investment and potential equity in) Australian critical minerals projects to accelerate project development;
2. foreign investment in downstream processing and value-chain creation; and
3. foreign investment into greenfields critical minerals opportunities.

Austrade delivers this capability through specialised services to Australian critical minerals companies, including bespoke client engagement programs and targeted trade missions. These initiatives build on the agency's understanding of the specific needs of global critical mineral end-users and their tiered suppliers and in facilitating commercial partnerships with targeted global partners. Interested investors, project proponents and offtake partners can contact Austrade via our website (www.austrade.gov.au) or email criticalminerals@austrade.gov.au.

Export Finance Australia

is committed to supporting critical minerals projects and related infrastructure, and businesses involved with the critical minerals export supply chain. EFA administers the A\$2 billion finance facility established by the Australian Government in 2021. To find out more, please visit: exportfinance.gov.au/criticalminerals or call 1800 093 724.

Critical Minerals Facilitation Office

The Critical Minerals Facilitation Office (CMFO) was established within DISER as the policy lead and coordinator for critical minerals and leads the delivery of a National Critical Minerals Roadmap with state and territory governments. A priority work stream under the National Roadmap is the delivery of an ethical certification scheme that includes provenance and blockchain technology pilots, as well as the establishment of critical minerals processing precincts to unlock government regulatory and infrastructure support.

To find out more about the CMFO's initiatives, visit: www.industry.gov.au/criticalminerals, subscribe to Australian Critical Minerals News or email criticalminerals@industry.gov.au.

Department of Foreign Affairs and Trade

The Department of Foreign Affairs and Trade, Australia's diplomatic missions overseas are building strategic partnerships to showcase Australia's strengths in the critical minerals sector, creating the right government to government settings for developing the sector and delivering government to government commercial agreements.

The Clean Energy Finance Corporation (CEFC)

The Clean Energy Finance Corporation (CEFC) is a specialist investor charged with increasing investment in technologies and businesses with the potential to lower Australia's emissions. The CEFC pursues investment opportunities across the economy. It can support the delivery of the Critical Minerals Strategy where there is a demonstrated contribution to renewable energy, energy efficiency or low emissions technologies. The precondition of strong offtake agreements is an essential component to the development of these resources.

Geoscience Australia

Geoscience Australia is a trusted source of information on Australia's geology and geography. It provides technical capability, geoscience information, innovation and advice on critical minerals. The organisation, working with its state and territory partners, delivers programs of continental-scale data acquisition, and develops tools for mapping, prediction and decision making.

Geoscience Australia's critical minerals activities aim to underpin new exploration technologies, stimulate mineral exploration investment, drive new discoveries and open up new, producing critical minerals provinces.

To find out more about Geoscience Australia's critical minerals activities, publications and data, visit: www.ga.gov.au/about/projects/resources/critical-minerals.

Northern Australia Infrastructure Facility

NAIF is a A\$5bn lending facility to provide loans to infrastructure projects in northern Australia. NAIF investments can be used for the development of new infrastructure or materially enhancing existing infrastructure. NAIF can lend up to 100 per cent of the debt, provided there is appropriate risk-sharing. Loans can be on concessional terms, relative to private sector financing arrangements– if the infrastructure generates public benefit and there is an ability repay or refinance. Access to dual funding through Export Finance Australia as well NAIF may be available to eligible projects.

Contact Austrade for coordinated Australian government support on critical minerals projects – email: criticalminerals@austrade.gov.au



