

NSW Mining Investor Register

Edition 2

2022

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Cover image: Balranald Mineral Sands Project. Image courtesy of Iluka Resources Limited.

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The NSW Mining Investor Register aims to promote New South Wales (NSW) mining projects to domestic and global investors to facilitate investment.

The Investor Register is a selection of 13 non-coal investment-ready mining projects in NSW that have a reported resource, have completed or are completing a scoping study (at minimum), and have commenced the approvals process to obtain a development consent and a mining lease.

Broken Hill Cobalt Project drillcore.
Image courtesy of Cobalt Blue Holdings.

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Deputy Premier's Foreword



This register highlights current 'investor-ready' projects for investment opportunities in the state's mining and minerals sector, with project owners actively seeking capital or offtake agreements. The register will be updated frequently to highlight new projects and those progressing through the development pipeline.

With a long mining history, New South Wales is a great all-rounder when it comes to mineral endowment. NSW played host to Australia's first gold rush in the 1850s. In 1893, the discovery of the world's largest silver-lead-zinc deposit at Broken Hill turned out to be both a company and country maker. The increasing demand and importance of critical minerals and high-tech metals has once again put the spotlight on NSW as a highly prospective location with a growing pipeline of mining investment opportunities.

NSW has identified exploration potential for 17 of the 24 critical minerals highlighted by the Commonwealth Government in the Australian Critical Minerals Prospectus 2021. This includes battery metals like cobalt and nickel, and rare earth elements, including concentrations of scandium not seen elsewhere on the globe, and of course, copper, which is the metal of the 21st century, due to its widespread use in all electrical components.

Security of supply and responsible and ethical sourcing of minerals are key drivers in current investment trends. These trends are creating value for mining in NSW, with a renewed focus on low sovereign risk and our high regulatory standards that drive strong environmental, social and governance (ESG) outcomes.

NSW has seen a significant rise in new mineral exploration licences and areas being explored. All this exploration activity has resulted in a significant volume of drilling results captured in exploration maps which can be found at the NSW Government's DIGS portal (search.geoscience.nsw.gov.au).

The NSW Government is making it easier for investors to identify projects that are ready for investment. These projects have progressed sufficiently along the mine development pathway with defined mineral resources, have completed key studies and are progressing. These projects demonstrate a lower level of risk from an investment perspective.

We have announced \$130 million over 5 years for the Critical Minerals and High-Tech Metals Activation Fund to attract mining and processing investment to NSW and develop regional projects that help to secure a local supply of valuable critical minerals and high-tech metals.

The NSW Government ensures that all NSW projects uphold the strongest ESG standards. Environmental and social protections controlled at both the State and Commonwealth level are supported by compliance monitoring.

The Hon Paul Toole
Deputy Premier
Minister for Regional New South Wales
Minister for Police

Mining, Exploration and Geoscience

Mining, Exploration and Geoscience (MEG) is the key point of contact in the NSW Government for mining investment enquiries. Our NSW Mining Concierge and Investment Attraction teams deliver strategic initiatives to support mineral resource investment in NSW, with a strong focus on critical minerals and high-tech metals.

Assistance for investors includes:

- identification of suitable investment locations, investment opportunities and partners in NSW.
- connection to domestic and global investor networks.
- facilitating connections with NSW Government agencies, and between all tiers of government in Australia.
- provision of market intelligence on mineral endowment and pre-competitive data offerings.
- advice and support with the approvals process for mining projects.
- developing new market opportunities, setting-up greenfield operations or expanding an existing operation.

MEG is committed to ensuring NSW is the preferred investment destination for safe and sustainable exploration and mining, which generates prosperity for the people of NSW.

For mining investment-related enquiries, contact us at megindustry.development@regional.nsw.gov.au



MEG geoscientist at work.

Why NSW: the NSW value proposition

NSW has significant critical minerals and high-tech metals potential with an abundance of copper, cobalt, zirconium, titanium, REEs, antimony and scandium to meet the increased global demand for new and emerging technologies.



NSW has known endowments of 17 of the 24 minerals identified in the Australian Critical Minerals Prospectus 2021.

The Geological Survey of NSW has a well-developed understanding of the state's minerals potential with a wealth of pre-competitive data, and provides industry assistance during the project development phase.

The NSW Government supports critical minerals exploration and early-stage development through streamlined and modernised titles assessment and administration.



1,739 minerals titles allocated in NSW as at May 2022 (mining and exploration), with 239 minerals titles granted in the 12 months to end May 2022.

NSW's Central West and Orana region is a major hub for mining production and critical minerals, and is also the site of Australia's first Renewable Energy Zone which will provide significant amounts of energy close to mining operations and stimulate the development of advanced manufacturing and critical minerals and high-tech metals processing.

The NSW Government's A\$130 million for the Critical Minerals and High-Tech Metals Activation Fund will attract mining and processing investment to NSW and develop regional projects that help to secure a local supply of valuable critical minerals and high-tech metals.

The NSW Government's A\$750 million investment via the Net Zero Industry and Innovation Program will drive demand in technologies requiring critical minerals.

The NSW Government's A\$4.2 billion Snowy Hydro Legacy Fund is delivering major, transformative infrastructure in areas crucial to mining development, including water security, activation of regional centres and improved freight linkages.

Investments by the NSW Government in Special Activation Precincts (SAP), such as the Parkes SAP, support the development of downstream industries.



Centred around the Inland Rail and National Logistics Hub, the Parkes SAP is an ideal location for processing and manufacturing, close to mineral developments in the Central West.

NSW has a mature mining equipment, technology and services (METS) sector, with at least 25% of Australian METS headquartered in NSW.

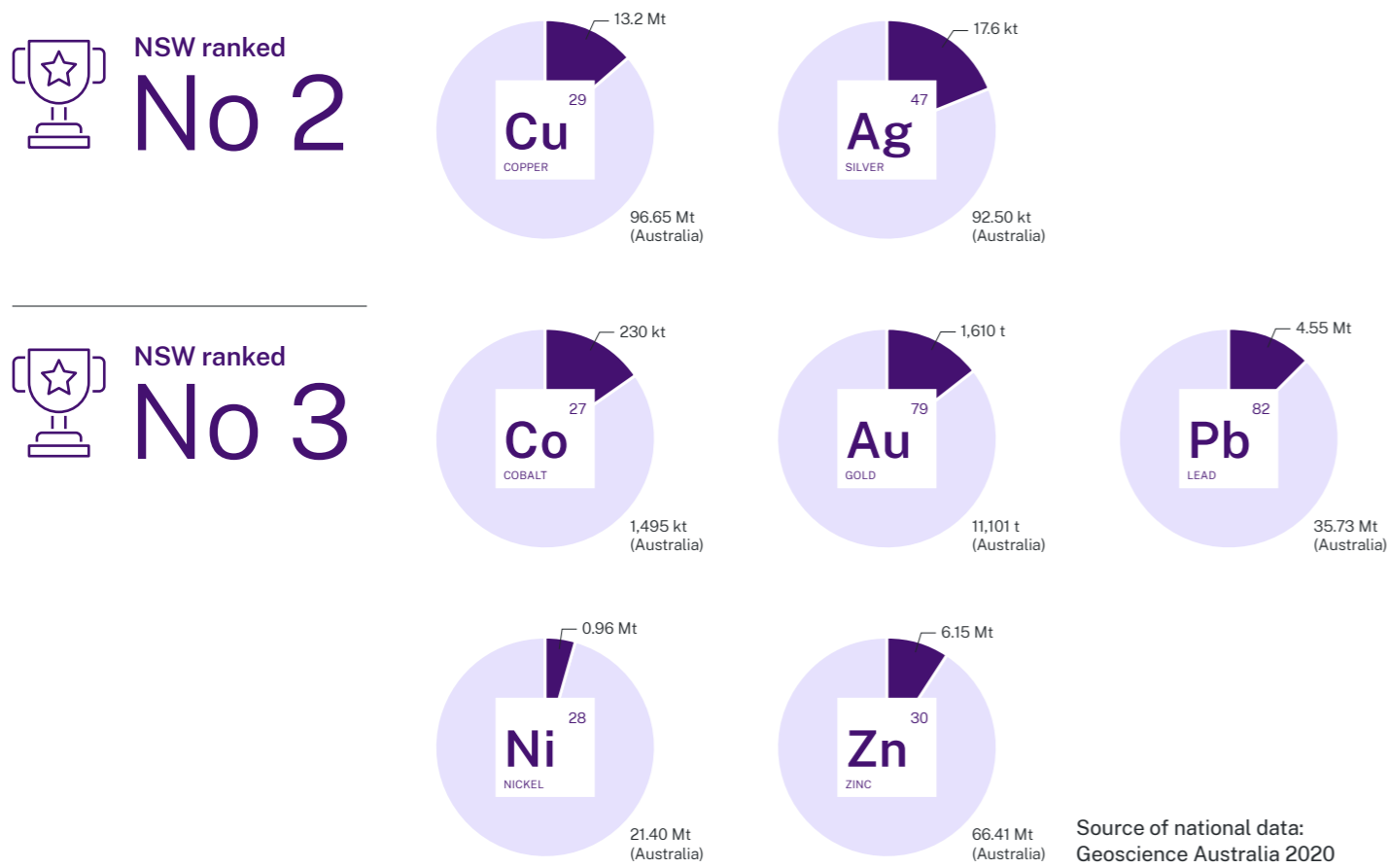
NSW has a strong workforce, with 28,000 people employed in the mining industry in 2020–21, and a large pool of skilled workers in industries with transferable skills across regional NSW.

NSW's mining governance and compliance promotes positive long-term relationships with communities to improve the overall social licence of the mining sector, leading to project longevity and security of supply.

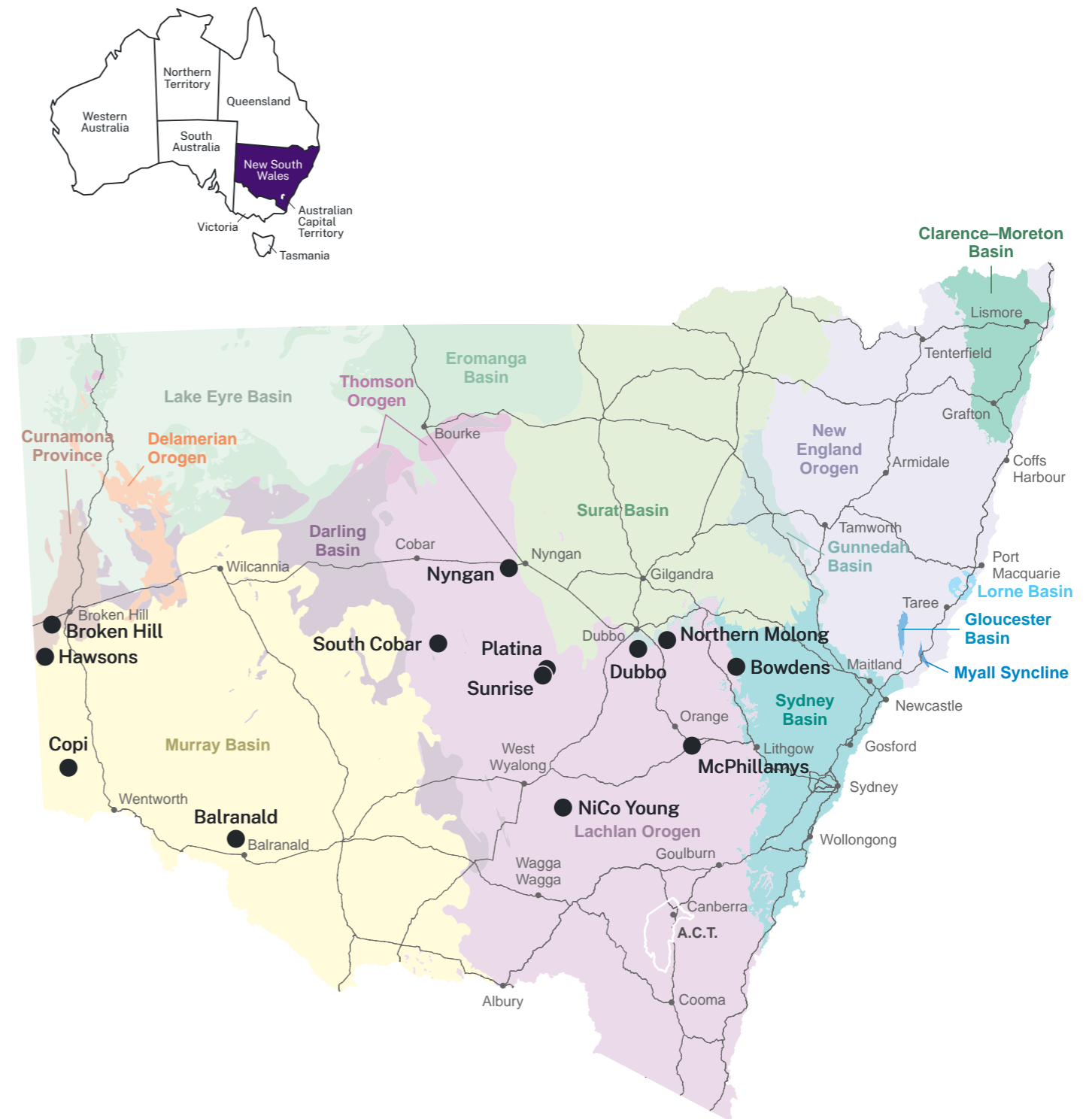
NSW identified mineral resources

NSW is ranked second nationally in economic demonstrated resources (EDR)¹ endowment for copper and silver, and ranked third for cobalt, gold, lead, nickel and zinc.

NSW identified mineral resources compared to Australian resources as at December 2020



Investment-ready projects



Annual production in NSW (FY 2020–21)

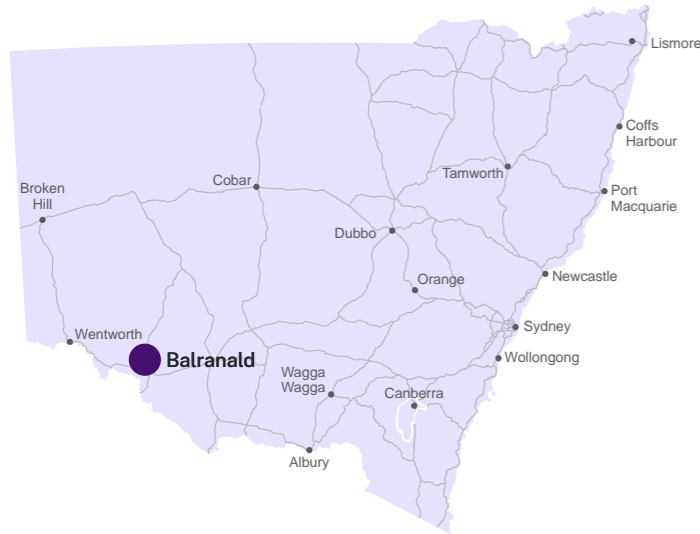
Mineral	Annual production (t)	Approximate equivalent (comparative weight)
Mineral sands*	243,398	5 Sydney Harbour Bridges
Copper	204,915	4 Sydney Harbour Bridges
Zinc	174,628	3 Sydney Harbour Bridges
Lead	90,700	2 Sydney Harbour Bridges
Silver	111	7 Double Decker Buses
Gold	37	2 Double Decker Buses

* Comprises ilmenite, rutile, leucoxene, monazite and zircon.

Legend: Sydney Harbour Bridge = 52,800 t; Double Decker bus = 15 t

¹ EDR is the category used by the Australian Government in the national classification of Identified Mineral Resources. EDR provides a basis for meaningful comparisons of Australia's economic resources with those of other jurisdictions.

Balranald Mineral Sands Project



Balranald Mineral Sands Project. Image courtesy of Iluka Resources Limited.

Profile

Company name	Iluka Resources Limited
ASX	ILU
Commodities	Mineral sands – rutile, zircon, ilmenite, monazite, xenotime
Project stage	Definitive feasibility study (to be completed late 2022)
Planning stage	Development consent (granted in 2016)
Mineral rights	Mining lease
Company website	iluka.com

titanium feedstocks (rutile and synthetic rutile), and set to become a global material supplier of refined rare earth oxides.

Balranald is a rutile-rich deposit in the NSW Murray Basin. Owing to its relative depth (approximately 60 m), Iluka is assessing the potential to develop the deposit via a novel, internally developed, underground mining technology.

Potential benefits of this approach are expected to include reduced environmental impacts, lower capital-intensive development and phased production expansion.


Iluka completed the third trial (T3) of the proposed underground mining method in late 2020. The trial confirmed the effectiveness of the underground mining method and validated key elements of the mining unit design.

The definitive feasibility study (DFS) for Balranald, approved in August 2021, continues to advance, with engineering and estimating materially complete. The study remains on track for completion in Q4 2022.

Project overview

Iluka Resources Limited (Iluka) is an international mineral sands company with more than 70 years industry experience. The company is the world's largest producer of zircon, a significant producer of high-grade

Mineral inventory

	Tonnes (kt)	Mineral sands (kt)	Ilmenite (%)	Rutile (%)	Zircon (%)
Resource total	36,300	11,979	64.1	12.2	10.8
Reserves	To be confirmed by outcomes of DFS.				

ESG commitment

Iluka's approach to sustainability is aligned with recognised voluntary principles and frameworks, and contributes to the advancement of the United Nations Sustainable Development Goals.

Iluka has a commitment to the integration of its approach to sustainability into everyday business practices and to the continuous improvement of the company's sustainability performance.

Underpinning the company's approach is Iluka's commitment to transparency, behaving ethically and conducting business in accordance with high standards of corporate governance through comprehensive systems and processes.

Iluka's goal is to be a safe, responsible and sustainable supplier of critical minerals. Iluka's sustainability strategy can be read at iluka.com/sustainability-at-iluka



Rutile and zircon product. Images courtesy of Iluka Resources Limited.

Projected project employment



150

direct construction jobs with a peak of 200 jobs



150

operational jobs (average)

Bowdens Silver Project



Bowdens Silver Project exploration. Image courtesy of Silver Mines Limited.

Profile

Company name	Silver Mines Limited
ASX	SVL
Commodities	Silver, zinc, lead
Project stage	Feasibility (completed 2018), EIS (completed 2020)
Planning stage	Planning application advanced
Mineral rights	Mining lease application lodged
Company website	silvermines.com.au

The project comprises mineral tenements covering 1,950 km² (480,000 acres) across the mineralised Rylstone Volcanics on the western edge of the Great Dividing Range in NSW.

In June 2018, Silver Mines Limited (Silver Mines) completed a feasibility study comprising a single open-cut mine with an initial life of mine of 16.5 years.

The feasibility study indicated that the project will produce an average of 3.4 Moz of silver per year, with approximately 6,900 tonnes per annum (tpa) of zinc and 5,100 tpa of lead. Due to higher silver grades in the early stages of mining, average production during the first 3 years of operation will be approximately 5.4 Moz of silver annually, 6,000 tpa of zinc and 5,200 tpa of lead.

Silver Mines has an aggressive exploration program, particularly in high-grade silver zones close to the proposed mine. High-grade zinc with gold and copper is also prevalent close to the silver resource. An underground development scoping study is currently underway. Mineral resources are likely to increase.

Project overview

The Bowdens Silver Project is the largest known undeveloped silver deposit in Australia with substantial resources totalling 275 million ounces (Moz) of silver equivalent. A considerable body of high-quality technical work has been completed. The project boasts outstanding logistics for future mine development and plans to be self-sufficient for water.

Mineral inventory

	Tonnes (Mt)	Silver (g/t)	Zinc (%)	Lead (%)	Silver Equ (g/t)
Resource total	128	40	0.38	0.26	67
Reserve total	30	69	0.44	0.32	101

Product and annual production rate

First 3 years: 5.4 Moz of silver annually, 6,000 tpa of zinc and 5,200 tpa of lead.

Investment opportunities

Project funding/partnerships

In process and will be further developed with the nearing of development consent.

Project economics

Project development capital cost	Initial capital costs are estimated at A\$246 million with a further A\$53.9 million expended over the life of mine in sustaining capital.
Pre-tax net present value (NPV)	A\$317.2 million
Project internal rate of return (IRR)	24.1%
All-in sustaining cost	A\$17.53/oz
Payback period	3 years
Revenue	A\$2,162 million life of mine
Life of mine	16.5 years (initial)

ESG commitment

Standard commitments relevant to a developing production company.

Projected project employment

 **320**
construction jobs

 **250**
operational jobs
(includes exploration team)

Broken Hill Cobalt Project



Profile

Company name	Cobalt Blue Holdings
ASX	COB
Commodities	Cobalt sulfate heptahydrate, sulfur
Project stage	Feasibility (to be completed in 2023)
Planning stage	Planning application lodged
Mineral rights	Mining leases (2); exploration licences (4); mining lease application lodged
Company website	cobaltblueholdings.com

Project overview

The Broken Hill Cobalt Project is an integrated open cut mine and refinery located in Broken Hill, far western NSW. In terms of annual production (~3,500 tpa cobalt metal equivalent), it is one of the largest greenfields cobalt projects in the world, with an expected lifespan of at least 17 years.

The project aims to mine and refine cobalt into an intermediate mixed hydroxide precipitate (MHP) or battery-grade cobalt sulfate. The products will be shipped directly to global battery makers, ensuring an unbroken chain of custody for ethically sourced cobalt from Australia.

Cobalt Blue Holdings (Cobalt Blue) has confirmed the cobalt is locked inside the pyrite mineral and they have subsequently developed and patented a tailored metallurgical process with the following characteristics:

- high cobalt recoveries (85–90%)
- no sulfur dioxide emissions
- produces high-quality cobalt sulfate (CoSO₄) with 20.8% cobalt and high-purity elemental sulfur
- low capital and operational costs compared to other processing methods.

In 2022, Cobalt Blue commissioned a Demonstration Plant that comprises 2 phases of operations. Firstly, mined ore will be crushed, milled and treated to produce a cobalt-pyrite concentrate at the Pyrite Hill site. Secondly, the concentrate will then be trucked to the Demonstration Plant in Broken Hill for extraction and recovery of cobalt as MHP and/or cobalt sulfate.

In March 2022 the Broken Hill Cobalt Project achieved Major Project Status through the Australian Government. This recognises the economic significance of the project through its contribution to growth, productivity, government revenue, industry and regional development.

The Australian Government also awarded Cobalt Blue A\$15 million in April 2022 through the Critical Minerals Accelerator Initiative for the Broken Hill Cobalt Project. This funding will enable Cobalt Blue to accelerate the development of the project by expanding the scope

of feasibility studies, bringing forward infrastructure and services work packages, and decreasing start-up commissioning risks.

The project represents a strong, ethical investment opportunity, with Cobalt Blue looking at horizons beyond Broken Hill. The Broken Hill Cobalt Project will produce 16,700 tpa of high-purity cobalt sulfate once up and running.

Mineral inventory

	Tonnes (Mt)	Cobalt (kt)	Sulfur (kt)	Nickel (kt)
Resource total	118	81.1 (contained)	8,968 (contained)	15.7 (contained)
Reserve total	71.8	710 (ppm)	7.6 (%)	

Based on a mineral resource estimate released in September 2021.

Product and annual production rate

- 3,500 tpa cobalt metal as 10,000 tpa MHP or 16,700 tpa CoSO₄
- 300,000 tpa elemental sulfur.

Investment opportunities

Investment in Cobalt Blue provides substantial leverage to ethically sourced cobalt.

Seeking

Cobalt Blue is seeking potential partners for offtake and/or equity/debt interest in the project. Advanced discussions are expected as the Demonstration Plant comes into operation and the feasibility study is completed in 2023.

Project funding/partnerships

Existing partnerships with several international corporations including LG international, Mitsubishi Corporation, and Sojitz Corporation.

Offtake available

Yes.

Project economics

Project development capital cost	Pre-production capital expenditure of A\$560 million (includes A\$70 million contingencies)
Pre-tax net present value	A\$861 million
Project internal rate of return (post tax)	19%
All-in sustaining cost	US\$12/lb cobalt
Payback period	4.5 years
Revenue	A\$6,126 million
Life of mine	17+ years

ESG commitment

Cobalt Industry Responsible Assessment Framework Self-Assessment 2021–22.

Projected project employment

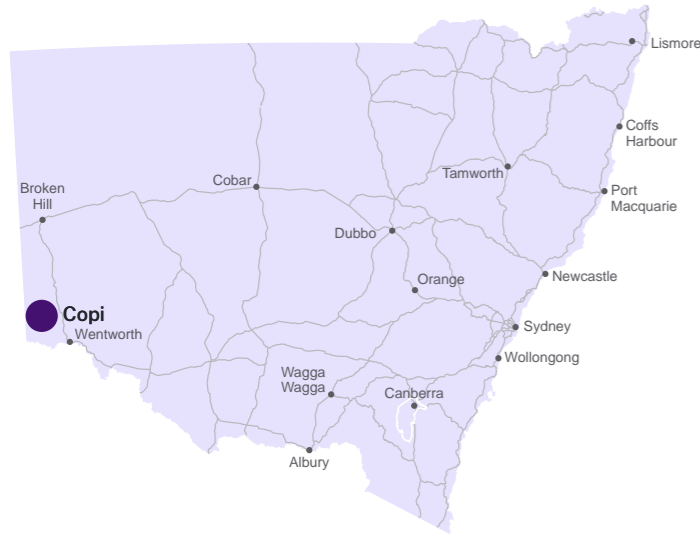
 **450**
construction jobs over 2 years

 **400**
operational jobs



Broken Hill Cobalt Project -Pyrite Hill mine site. Image courtesy of Cobalt Blue Holdings.

Copi Mineral Sands Project



Copi Mineral Sands Project drill rig. Image courtesy of RZ Resources.

Profile

Company name	RZ Resources
ASX	Not listed
Commodities	Rare earth elements (monazite, xenotime), titanium (rutile, ilmenite), zircon
Project stage	Definitive feasibility study (pending Q3 2022)
Planning stage	Undergoing regulatory approvals
Mineral rights	Exploration lease with MLA drafting underway
Company website	rzresources.com


Project overview

RZ Resources is an Australian-owned mining company focused on mineral sand resources—including critical minerals and rare earths. RZ Resources has a portfolio of 14 tenements, including the flagship Copi Mineral Sands Project located in the Murray Basin of western NSW, which is nearing completion of its definitive feasibility study.

The Copi Mineral Sands project is well advanced and has commenced regulatory approvals. The project will be a dredge mine with low costs and low environmental impacts matching similar methods to its neighbouring mines. The project logistics network has been confirmed and is under MOU with network providers.

RZ Resources has acquired a mineral separation plant (MSP) at the mouth of the Brisbane River and is the only MSP located on the east coast of Australia significantly reducing capital cost and time to production. RZ Resources expect the mine to be in construction in 2023 for production to commence in 2024.

Mineral inventory

	Tonnes (Mt)	Xenotime (%)	Monazite (%)	Rutile (%)	Zircon (%)	Ilmenite (%)	Leucoxene (%)
Resource total	1,207	0.1	1.1	14	15	15	35

Product and annual production rate

~200 thousand tonnes per annum (ktpa) ilmenite, >40 ktpa rutile and HITI, >90 ktpa zircon, ~5 ktpa rare earth element concentrate.

Investment opportunities

Seeking

Product offtake, debt and equity funding.

Project funding/partnerships

- currently well-funded private investors, nil debt and clean ownership structure
- funded to project regulatory approvals with negotiations underway with various financial institutions for project capital funding.

Offtake available

Yes.

Project economics

Project development capital cost	A\$300 million
Life of mine	Current estimate is 25 years with a further 25 years indicated in resource drilling.

ESG commitment

ESG policy in place with ESG strategy well advanced and full Environmental and Social Studies 90% complete.

RZ Resources has committed to various community and landholder agreements/sponsorships. The company is in negotiations for various Indigenous employment opportunities, and is employing a number of graduates who will work towards apprenticeships and traineeships as the mine advances.

Projected project employment

 **250**
construction jobs (approximately)

 **250**
operational jobs (approximately)

Dubbo Project



Profile

Company name	Australian Strategic Materials Ltd
ASX	ASM
Commodities	Rare earth elements, zirconium, hafnium, niobium
Project stage	Financing (in progress)
Planning stage	Development consent approved
Mineral rights	Mining lease granted
Company website	asm-au.com

Project overview

Australian Strategic Materials Ltd (ASM) is a vertically integrated 'mine to metals' producer of critical metals for new growth industries, high technologies and sustainable energy solutions.

Mineral inventory

	Tonnes (Mt)	ZrO ₂ (%)	HfO ₂ (%)	Nb ₂ O ₅ (%)	Ta ₂ O ₅ (%)	Y ₂ O ₃ (%)	TREO* (%)
Resource total	75.18	1.89	0.04	0.44	0.03	0.14	0.74
Reserve total	18.90	1.85	0.04	0.44	0.03	0.14	0.74

* TREO is the sum of all rare earth oxides excluding zirconium dioxide (ZrO₂), hafnium oxide (HfO₂), niobium oxygen (Nb₂O₃), tantalum pentoxide (Ta₂O₅), yttrium oxide (Y₂O₃).

Product and annual production rate

	Zirconia	Dehafniated zirconia	Hafnium oxide	FerroNiobium	SmEuGd chloride	Nd/Pr oxide	Y + HRE chloride	Tb oxide	Dy oxide
Production (metric tonnes per annum)	13,500	2,500	30	2,650	454	1,342	1,180	22	142

Investment opportunities

Project development capital cost

A\$1,678 million comprises direct capital of A\$1,307 million, indirect capital of A\$208 million and a contingency of A\$163 million.

Optimisation work has reduced annual operation costs, improved the ESG performance and optimised the production of neodymium, praseodymium, zirconium, hafnium, dysprosium, terbium and niobium oxides.

Global companies have been identified to progress a build/own/operate development for the provision of renewable power and a chlor-alkali plant directly for the project.

Project funding/partnerships

Financing for the project is expected to be a mix of debt and equity. Strategic joint venture partnerships may cover ASM's equity financing component.

In 2021, ASM received a non-binding letter of support from Export Finance Australia to secure A\$200 million of debt funding. Other countries' Export Credit Agencies are also expected to be part of a debt consortium.

ASM is continuing discussions with potential strategic investors and financial institutions to fund the project.

Offtake available

ASM intends for the majority of its products from the Dubbo Project to be supplied to its Korean Metals Plant, and its other plants as they are developed, for conversion into metals and alloys.

Project economics

Project development capital cost A\$1,678 million

Pre-tax net present value A\$2,361 million

Project internal rate of return (post tax) 20.1%

Free cash flow A\$7.4 billion

Revenue A\$15.8 billion

Life of mine 20 years

ESG commitment

ASM upholds stringent ESG standards across all its activities. As part of this commitment, ASM intends for its direct supply chain of rare earth elements and critical metals from the Dubbo Project to be highly traceable for ethical and sustainable accountability from mine to market.

ASM also intends for the Dubbo Project to be a flagship for clean resource development, targeting operational net-zero carbon and adopting key strategy from its Optimisation Study that significantly improve ESG performance.

Projected project employment

 **1,000**
construction jobs over 2 years (approximately)

 **270**
operational jobs (approximately)

Hawsons Iron Project



Profile

Company name	Hawsons Iron Ltd
ASX	HIO
Commodities	High-grade magnetite (iron ore – 70% Fe)
Project stage	Bankable feasibility study (due December 2022)
Planning stage	Progressing an environmental impact statement
Mineral rights	Mining application lodged
Company website	hawsons.com.au

Project overview

The Hawsons Iron Project is in the mining heartland region near Broken Hill, NSW.

The project, independently rated by Wood Mackenzie as one of the world’s leading undeveloped, high-quality iron ore mines, was the subject of a successful pre-feasibility study (2017) which showed it is capable of meeting demand from steelmakers for premium-grade product that is essential to curbing pollution and increasing productivity.

With producers from Asia to the Middle East, a lengthening queue of blue-chip companies has lined up to secure the Hawsons Supergrade® product which, at 70% Fe, offers the highest iron content available on the seaborne market.

The Hawsons Iron Project is located just 60 km southwest of Broken Hill and its highly skilled mining workforce. The proposed US\$1.4 billion plus project (PFS2017) is ideally placed with access to all necessary rail, road, port, energy and water infrastructure to sustain planned production of up to 20 million tonnes per annum (Mtpa) for a life of mine exceeding 20 years.

Investment opportunities

Pre-feasibility study results have shown the Hawsons Iron Project is capable of producing a high-grade iron product (70% Fe) within the first quartile on the global cost curve. A full bankable feasibility study (BFS) is now underway and due for completion by the end of 2022 to confirm and update the project’s economics.

The project, targeting production of up to 20 Mtpa over a life of mine exceeding 20 years, was declared a ‘State Significant Development’ by the New South Wales Government in 2012.

Importantly, this project answers increasing global demand from steelmakers for premium, low-impurity feedstock. This can help reduce emissions as an ESG investment imperative and calls for environmentally sustainable production gain increasing traction.

Seeking

Hawsons Iron Project is seeking expressions of interest from potential institutional equity investors and providers of project finance prior to completion of the BFS.

Project development capital cost

The BFS will confirm the project economics and development costs, which have been estimated at US\$1.4 billion, based on a 10 Mtpa mining operation and associated infrastructure. This project option would access existing rail, road, power and port infrastructure on the Yorke Peninsula, South Australia.

The BFS will also assess a 20 Mtpa mining operation using a new underground, direct-to-port slurry pipeline. Preliminary analysis has indicated that this could deliver improved economies of scale and additional ESG benefits, offsetting higher capital cost.

Project funding/partnerships

The project will be financed with a mix of debt provided by a consortium of banks and equity capital sourced from existing shareholders, institutional investors and end-users seeking to take a direct investment in production.

Offtake available

Hawsons Iron Ltd has already secured non-binding Letters of Intent from leading end-users from Asia and the Middle East for 12 Mtpa and is in discussions with others, demonstrating the strength of demand for the product.

Project economics

Project development capital cost	US\$1.4 billion
Pre-tax net present value	US\$1.1 billion (geared) US\$867 million (ungeared)
Project internal rate of return (post tax)	29.9% (geared) 17.8% (ungeared)
All-in sustaining cost	US\$480 million
Revenue	US\$881 million (life of mine annual revenue)

ESG commitment

Hawsons Iron Project has the opportunity to develop world’s best practice mining operations to achieve as low as reasonably achievable Scope 1 and Scope 2 emission targets and importantly lead the world in Scope 3 emissions through to iron and steel products.

All project areas are being re-assessed in terms of ESG benefit. This includes the use of renewable solar-and wind-powered sources of energy to run the associated plant and infrastructure.

The orebody’s softness means it uses less power to extract and process the magnetite concentrate, (significantly cheaper) and the ore is easily separated from waste to produce a high-grade, 70% Fe product.

As a greenfield project, the Hawsons Iron Project can be a leader towards zero emissions mining and provide a new, high-quality source of iron product for steel that can meet the climate change challenge. Hawsons Iron Project is ideally placed to enable the steel industry to transition to decarbonising steelmaking, which currently accounts for around 7% of global carbon emissions.

McPhillamys Gold Project



Profile

Company name	Regis Resources Ltd
ASX	RRL
Commodities	Gold doré
Project stage	Definitive feasibility study (completed 2021)
Planning stage	Planning assessment report pending
Mineral rights	Mining application lodged
Company website	regisresources.com.au

Project overview

Regis Resources Ltd (Regis Resources) owns 100% of the McPhillamys Gold Project, one of Australia's larger undeveloped open-pit gold resources. It is located near Orange in the Central Tablelands region of NSW.

The project has an ore reserve of 60.8 Mt at 1.04 g/t for 2.02 Moz with approximately 10 years of mining and processing.

Regis Resources is awaiting the project's planning consent and mining licence.

The project is a single circular open-cut mine with an approximate final depth of 460 m developed by conventional open-cut mining methods, with a strip ratio of 4.29 (w:o), supported by a conventional carbon in leach processing plant.

The project requires approximately up to 2 years of construction, with a total project life of 15 years.

Mineral inventory

	Tonnes (Mt)	Gold grade (g/t)	Gold total (Moz)
Reserve total	60.8	1.04	2.02

Investment opportunities

The McPhillamys Gold Project is one of several projects held by Regis Resources, a low-cost gold producer with a clear production growth profile.

The development application is being determined with significant ongoing community and stakeholder consultation. Regis Resources has responded to submissions, with the feedback considered as part of the definitive feasibility study.



The DFS will shape the project feasibility study, providing estimates of operating parameters, capital expenditure, operating expenditure and proposed development timetable.

Regis expects the project will provide A\$67 million annually in direct and indirect household income to the regional economy.

Project economics

Project development capital cost	Pre-production capital is estimated at A\$216 million. The processing facility will be designed for a nominal 841 tph milling rate and capacity of 7 Mtpa for an operating life >10 years.
Pre-tax net present value	A\$525 million (5%) (@1600/oz gold)
All-in sustaining cost	A\$990 (oz)
LOM gold produced	1,728,000

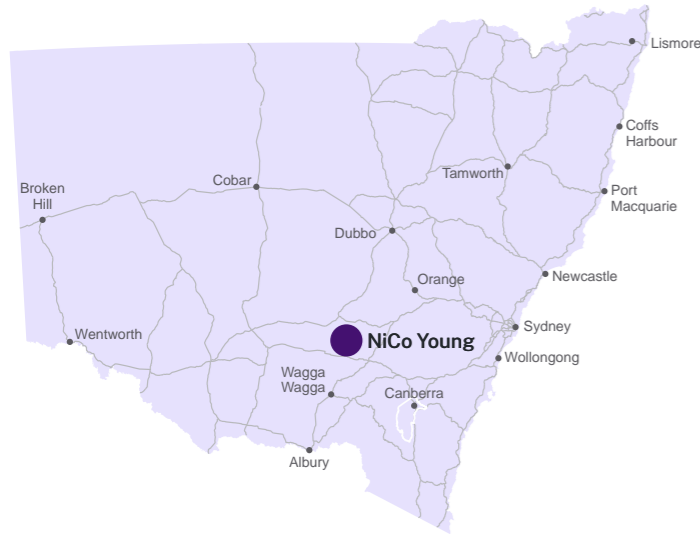
Projected project employment

 600	 260
construction jobs per year (including water pipeline)	operational jobs per year



McPhillamys Gold Project. Image courtesy of Regis Resources Ltd.

NiCo Young Project



NiCo Young Project exploration. Image courtesy of Jervois Global Ltd.

Profile

Company name	Jervois Global Ltd
ASX	JRV
Commodities	Nickel, cobalt
Project stage	Preliminary economic assessment (completed April 2019)
Planning stage	Feasibility study/resource definition drilling funding
Mineral rights	Exploration licences (3)
Company website	jervoisglobal.com

Project overview

Jervois Global Ltd (JRV) is a cobalt chemical-producing company which aims to become a leading global supplier of responsibly sourced cobalt and nickel to serve both the battery and chemical markets.

The NiCo Young Project is located approximately 30 km west-northwest of Young in the South West Slopes region of NSW and comprises 3 exploration licences covering 40.6 km². The mineral resource is hosted in 2 main deposits:

- the Ardnaree deposit which extends over 9 km along strike and up to 700 m across strike, with mineralisation present from surface to a maximum vertical depth of 56 m
- the Thuddungra deposit which extends 5.9 km along strike up to the northern boundary of the JRV licences and up to 715 m across strike, with mineralisation present from 6 m below the topography surface to a maximum vertical depth of 98 m.

In April 2019 the company completed a preliminary economic assessment (PEA) of the project comprising an open cut mining operation, heap-leach extraction and downstream refinery with an initial life of mine of 20 years. The PEA was based on an operation to produce an average of 15,000 tpa of nickel in sulfate and 1,400 tpa of cobalt in sulfide at a processing rate of 3.0 Mtpa of ore.

Additional resource definition drilling is planned for 2022 to improve orebody definition and to upgrade the mineral resource estimate.

Mineral inventory

	Tonnes (Mt)	Nickel (%)	Nickel (t)	Cobalt (%)	Cobalt (t)
Indicated	3.2	0.67	21,440	0.04	1,280
Inferred	90.1	0.63	567,630	0.05	45,050
Resource total	93.3	0.63	589,070	0.05	46,330

As at June 2018.

Product and annual production rate

- 15,000 tpa nickel in sulfate
- 1,400 tpa cobalt in sulfide.

Investment opportunities

Seeking

JRV is seeking potential partners to co-fund a definitive feasibility study followed by co-development of the NiCo Young Project.

Offtake available

Discussions with potential partners are welcome with regard to offtake from the project.

Project economics

Project development capital cost	A\$20 million – feasibility study (estimate) A\$1,113 million – project
Pre-tax net present value @8%	A\$487 million
Project internal rate of return (post tax)	14.4%
Payback period	5.6
Revenue	A\$10,109 million
Life of mine	20 years

All values as per April 2019 PEA unless otherwise indicated.

ESG commitment

JRV is firmly committed to supporting sustainability by:

- meeting its high standards for environmental stewardship and the protection of the safety, health and wellbeing of their employees and communities
- forging meaningful and valued relationships with communities, governments and partners where they operate
- ensuring sustainable development is integrated into all aspects of their business.

Northern Molong Porphyry Project



Profile

Company name	Alkane Resources Ltd
ASX	ALK
Commodities	Gold, copper
Project stage	Advanced exploration stage
Mineral rights	Exploration licences (4)
Company website	alkane.com.au

Project overview

Alkane Resources Ltd (Alkane) is a gold production and exploration company that has been active in the Central West of NSW for more than 2 decades. Its subsidiary, Tomingley Gold Operations, began producing gold in 2014 and is scheduled to operate beyond 2030.

Development of the large-scale Northern Molong Porphyry Project (NMPP) would see Alkane become a large multi-mine gold producer.

The NMPP covers an area of 115 km², centred about 35 km east of Dubbo. Significant porphyry-style gold-copper mineralisation has been identified at the

project's Kaiser-Boda target (5 km long by 1 km wide corridor), indicating the potential for a large, tier-one gold-copper project.


The first extensive porphyry gold-copper style mineralisation was discovered at the Boda Prospect in September 2019. Since the discovery hole, Alkane has continued drilling and undertaken geophysical surveys at the Boda Prospect and surrounding areas (Boda 2, Boda 3 and Kaiser) to test the size and shape of the mineralisation.

Alkane released the initial Inferred Mineral Resource for the Boda deposit on 30 May 2022. It has been estimated at 10.1 Moz gold equivalent (AuEq) (624 Mt grading at 0.51 g/t AuEq for 10.1 MEqoz – 5.21 Moz Au, 0.90 Mt Cu) using a cut-off of 0.3 g/t. The resource estimate is for a surface area of 1,000 m strike length and 500 m width, however the deposit remains open at depth and along strike to the south and northwest.

Alkane is still in the early stages of defining the complete Kaiser-Boda system, but the results of drilling programs confirm the presence of a very large mineralised corridor of up to 5 km long.

Due to this project, Alkane was named NSW Minerals Council's 2021 Explorer of the Year.

Mineral inventory – Boda inferred resource

	Tonnes (Mt)	Gold equivalent (g/t)*	Gold (g/t)	Copper (%)
Inferred resource (0.3 g/t AuEq)	624	0.51	0.27	0.14
Inferred resource (0.4 g/t AuEq)	353	0.63	0.33	0.18

As at 30 May 2022.

* The equivalent calculation formula is $AuEq(g/t) = Au(g/t) + Cu\%/100 * 31.1035 * \text{copper price } (\$/t) / \text{gold price } (\$/oz)$. The prices used were US\$1,770/oz gold and US\$9,750/t copper, and A\$:US\$0.70. Recoveries are assumed at 85% per economic element from preliminary metallurgical studies. In Alkane's opinion all the elements included in the metal equivalents calculation have reasonable potential to be recovered and sold.

Notable drill results

- Boda discovery hole KSDD003 – 502 m at 0.48 g/t gold, 0.20% copper from 211 m.
- World-class intercept of KSDD007 – 1,167 m at 0.55 g/t gold, 0.25% copper from 75 m, including a sulfide cemented breccia with a stunning intercept of 96.8 m grading 3.97 g/t gold, 1.52% copper from 768 m.

Project funding/partnerships

The project is self-funded by Alkane.

ESG commitment

Alkane upholds stringent social and environmental standards and employs comprehensive systems of control and accountability. The company's aim is to leave a positive legacy for both local communities and the land that long outlasts activities in the region.

Investment opportunities

Project development capital cost

The project is currently in advanced exploration phase.



Northern Molong Porphyry Project – Boda Prospect exploration. Image courtesy of Alkane Resources Ltd.

Nyngan Scandium Project



Profile

Company name	Scandium International Mining Corporation
ASX	SCY
Commodities	High-grade scandium oxide powder
Project stage	Feasibility
Planning stage	Development consent approved
Mineral rights	Mining application lodged
Company website	scandiummining.com


Project overview

The Nyngan Scandium Project in central NSW represents the world's first scandium-only mining project.

The project is a shallow and surface-mineable lateritic clay deposit with an attractive scandium enrichment. It is a simple operation, with an annual mining activity conducted in short campaigns lasting 4 to 6 weeks each.

The 2016 independent feasibility study considered a 20-year project and used approximately 8.5% of the total established mineral resource, grading 409 ppm scandium average over the stage 1 project period.

Mineral inventory (JORC 2012)

	Tonnes (Mt)	Scandium (ppm)
 Measured	5.7	256
Inferred	11.2	225
Total	16.9	235
Contained mineral (kt)	-	4

Product and annual production rate

38,000 kg/yr of scandium oxide (target).

Investment opportunities

Scandium aluminium alloys with scandium provide superior strength and weldability, but the market has historically been constrained by lack of supply options. This is changing, as scandium is experiencing renewed interest, with Rio Tinto announcing the construction of a new commercial scale demonstration plant in Quebec, Canada.

The metal's greatest opportunity is as an aluminium alloy targeting aerospace, marine, military and automobile industries. Pure play scandium projects like the Nyngan Scandium Project offer stable sources of non-by-product supply and will be needed to support and stimulate further demand growth in the future. The project is well positioned to supply a growing scandium market.

Seeking

Scandium International Mining Corporation is currently seeking scandium product offtakes with potential customers, in order to proceed to project financing and construction.

Project funding/partnerships

Scandium International Mining Corporation welcomes discussions regarding financing of the project construction.

Offtake available

Scandium International Mining Corporation welcomes discussions regarding scandium product offtake agreements.

Project economics

Project development capital cost	The feasibility study capital cost is estimated at US\$87 million, and includes: <ul style="list-style-type: none"> • US\$3 million of pre-strip/mining • US\$26 million in infrastructure costs • US\$8 million (11%) as contingency.
Pre-tax net present value (8%)	US\$225 million
Project internal rate of return (post tax)	33%
Payback period	3.3 years
Revenue	US\$16.3 billion

Platina Scandium Project



Profile

Company name	Platina Resources Limited
ASX	PGM
Commodities	Scandium oxide of 99.99% purity Stage 2: potential to generate cobalt, nickel, platinum, aluminium
Project stage	Feasibility (completed)
Planning stage	Preparing the environmental impact statement
Mineral rights	Mining application lodged
Company website	platinaresources.com.au

Project overview


The Platina Scandium Project in the Central West of NSW is one of the largest and highest-grade scandium deposits in the world. It has the potential to become Australia's first scandium producer with cobalt, platinum and nickel credits.

The project is a simple, low-cost, open-cut mining operation using a conventional processing plant to produce 99.99% scandium oxide.

The project feasibility study has confirmed the technical and financial viability with a net present value (8%) of A\$236 million and IRR 29% for a low stage one capital cost of A\$68 million.

The ore reserves and mineral resources are extremely well defined, with more than 48,000 m of drilling. The laterite hosted deposit is amenable to simple, low-cost, open-cut mining techniques at a low waste to ore ratio, with the mineralisation remaining open in all directions.

Mineral inventory

	Tonnes (kt)	Scandium (ppm)	Nickel (%)	Cobalt (%)	Scandium (t)	Cobalt (t)	Nickel (t)
Reserve total	4,027	570	0.12	0.09	3,512	3,599	4,821

Investment opportunities

Scandium aluminium alloys with scandium provide superior strength and weldability, but the market has historically been constrained by lack of supply options. This is changing, as scandium is experiencing renewed interest, with Rio Tinto announcing the construction of a new commercial scale demonstration plant in Quebec, Canada.

The metal's greatest opportunity is as an aluminium alloy targeting aerospace, marine, military and automobile industries. Pure play scandium projects, like the Platina Scandium Project, offer stable sources of non-by-product supply and will be needed to support and stimulate further demand growth in the future. The project is well positioned to supply all markets and a world-class opportunity to participate in this market growth.

Seeking

The project construction is dependent on an offtake agreement to facilitate financing. Platina Resources is seeking project funding, strategic partnerships and offtake agreements and welcomes discussions.

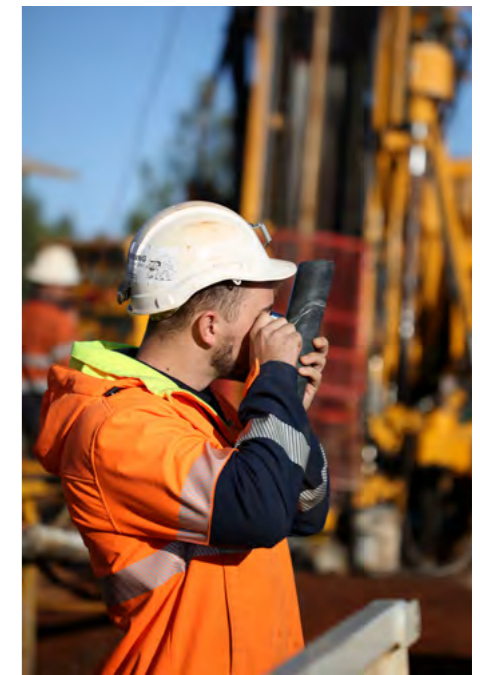
Offtake available

Platina Resources is currently seeking scandium product offtakes with customers, in order to proceed to project financing and construction.

Project economics

Project development capital cost	The capital cost for stage 1 of the project is US\$48.1 million which includes the development of the mine, process plant and associated infrastructure. The capital cost for Stage 2 of the project is US\$11.1 million.
Post-tax net present value	A\$234 million/\$US166 million (8% discount rate)
Project internal rate of return (post tax)	29%
Payback period	5.3 years
Revenue	A\$77 million
Ave. scandium oxide price	US\$1,550/kg
Life of mine	30 years

South Cobar Copper Project



South Cobar Copper Project. Images courtesy of Peel Mining Limited.

Profile

Company name	Peel Mining Limited
ASX	PEX
Commodities	Copper, zinc, lead, silver, gold
Project stage	Resource growth drilling and project scoping (2022)
Planning stage	Preparing concept and environmental studies
Mineral rights	Granted exploration licences
Company website	peelmining.com.au

The company is targeting a critical mass of 10–15 Mt of copper resources centred around a copper-first strategy.

This copper development strategy offers potential for reduced infrastructure and operating and capital costs in an area supported by excellent infrastructure, including highways, secondary roads and power.


The project has defined resources for all 5 deposits with expanding copper-rich resources, in one of Australia's prominent polymetallic regions.

A maiden Mineral Resource was recently published for the Wirlong copper deposit where drilling is continuing for further resource growth. Resource infill drilling at the Mallee Bull copper deposit, to upgrade to predominantly Indicated Resources was completed in early 2022. Mallee Bull also remains open for further copper resource growth.

Project overview

Peel Mining Limited (Peel Mining) holds a number of base and precious metal rich deposits including one of Australia's highest-grade undeveloped copper projects south of Cobar in the Central West of NSW.

Mineral inventory

	Tonnes (kt)	Copper (%)	Zinc (%)	Lead (%)	Gold (g/t)	Silver (g/t)
Mallee Bull	6,760	1.8	0.6	0.6	0.4	31
Wirlong	2,450	2.4	–	–	–	8.7
May Day	1,070	0.0	0.7	0.5	1.0	26
Southern Nights	4,140	0.2	5.0	2.0	0.3	77
Wagga Tank	810	0.4	5.0	2.4	0.5	81
Total resources	15,230	1.3	1.9	1.0	0.4	42

Investment opportunities

Peel Mining's South Cobar Copper Project offers significant exposure to high-grade copper, with potential for long-life/low-risk mining operation, and with a pipeline of growth opportunities.

Seeking

Peel Mining is seeking potential investment partners who are primarily seeking exposure to copper within a proven world-class mineral jurisdiction.

Project development capital cost

Subject to ongoing study work.

Project funding

Debt and Equity funding will occur when a final investment decision is made, and development consent has been received.

ESG commitment

The NSW Government regulates mining operations to uphold strong environmental, social, and governance standards. Peel Mining recognises that strong environmental performance is essential to their business success, and their positive contribution to the community. Through effective management practises, Peel Mining aims to minimise any adverse impacts its activities may have on the environment.

Sunrise Battery Materials Project



Profile

Company name	Sunrise Energy Metals Limited
ASX	SRL
Commodities	Battery-grade nickel sulfate (and/or cathode precursor), battery-grade cobalt sulfate (and/or cathode precursor), scandium oxide, ammonium sulfate
Project stage	Feasibility study (completed 2020)
Planning stage	Development consent approved
Mineral rights	Mining lease granted
Company website	sunriseem.com

Project overview

The Sunrise Battery Materials Project is Australia's largest project of its kind. Located in the Central West of NSW, it hosts a shallow laterite resource extending

over approximately 5 km, containing one of the world's largest nickel and cobalt resources, as well as the world's largest scandium deposit.

The project's unique mineral resource, when combined with the company's proprietary ion-exchange processing technology, will provide high-quality cathode feedstock for the lithium-ion battery industry. It will also provide scandium to produce the next generation of lightweight aluminium alloys for aerospace and automotive markets.

The Project Execution Plan (the equivalent of a bankable feasibility study) was completed in September 2020. Approximately A\$250 million has been invested in pre-construction capital to date. Sourcing 100% renewable power, the project provides a sustainable, long-life, low-cost source of high-purity cobalt and nickel sulfates for the battery industry. Work is also progressing on production of cathode precursor materials and the recycling of black mass to recover metals.

In December 2021, the Sunrise Battery Materials Project was awarded Commonwealth Government Major Project Status, which formally recognises the significance of the project to the Australian economy and regional communities in NSW.

Mineral inventory

	Tonnes (Mt)	Nickel metal (t)	Cobalt metal (t)	Scandium oxide (t)	Platinum (oz)
Resource total	177	935,000	168,000	24,700	1,084,000
Reserve total	143	843,000	142,000	6,800	n/a

Product and annual production rate (years 2–11)

- 21,300 tpa nickel as nickel sulfate
- 4,400 tpa cobalt as cobalt sulfate
- 18 tpa scandium oxide.

Investment opportunities

Project funding

Sunrise Energy Metals is targeting at least 50% of construction capital to be provided under a standard, non-recourse project debt facility from a consortium of international banks.

Strategic investment partners are being sought to integrate Sunrise production into existing EV supply chains, with a view to managing supply chain costs. This includes cell manufacturers, cathode producers, auto original equipment manufacturers and trading houses.

In January 2022, Sunrise Energy Metals announced conditional finance support from Export Finance Australia for up to A\$400 million of debt funding for the Sunrise Battery Materials Project.

Offtake available

Sunrise Energy Metals is seeking offtake partners for its production in connection with financing proposals.

Project economics

Project development capital cost	The pre-production capital cost is estimated at US\$1.658 billion (A\$2.368 billion, excluding contingency). The cost reflects a significantly de-risked estimate, as a result of significant engineering. Construction will take approximately 3 years.
Post-tax net present value	US\$1.21 billion
Project internal rate of return (post tax)	15.4%
C1 operating costs (before by-products)	4.31/lb nickel (years 2–11)
C1 operating costs (after by-products)	1.97/lb nickel (years 2–11)
Payback period	5.1 years
Revenue	US\$16.3 billion (first 25 years)
Life of mine	50 year reserve life


ESG commitment

The project is designed to source 100% of its power from renewable sources, giving it one of the lowest carbon footprints in the industry.

A voluntary planning agreement is in place with the Shire Councils of Lachlan, Forbes and Parkes located near the project site. Under the agreement, Sunrise Energy Metals will make significant contributions to community and infrastructure enhancements over the life of the project.

The project is set to deliver significant economic and social benefits to a range of stakeholders over many decades, including safe and well-paid employment, infrastructure upgrades, royalties, taxes and local community contributions.

Projected project employment

 **1,900**
construction jobs

 **350**
operational jobs over initial 25-year life of mine

Industry Development

E: megindustry.development@regional.nsw.gov.au

W: regional.nsw.gov.au/meg

