AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Accelerating critical mineral discovery and development

Allison Britt
Director Mineral Resources Advice and Promotion
Geoscience Australia

Australia's Critical Minerals List (as of February 2024)

High Potential | Moderate Potential | Low Potential | Australia produces

- Antimony
- Arsenic
- Beryllium
- Bismuth
- Chromium
- Cobalt
- Fluorine
- Gallium
- Germanium
- Graphite
- Hafnium
- High Purity Alumina
- Indium
- Lithium
- Magnesium
- Manganese
- Molybdenum
- Nickel
- Niobium
- Platinum Group Elements
- Rare Earths
- Rhenium
- Scandium
- Selenium
- Silicon
- Tantalum
- Tellurium
- Titanium
- Tungsten
- Vanadium
- Zirconium

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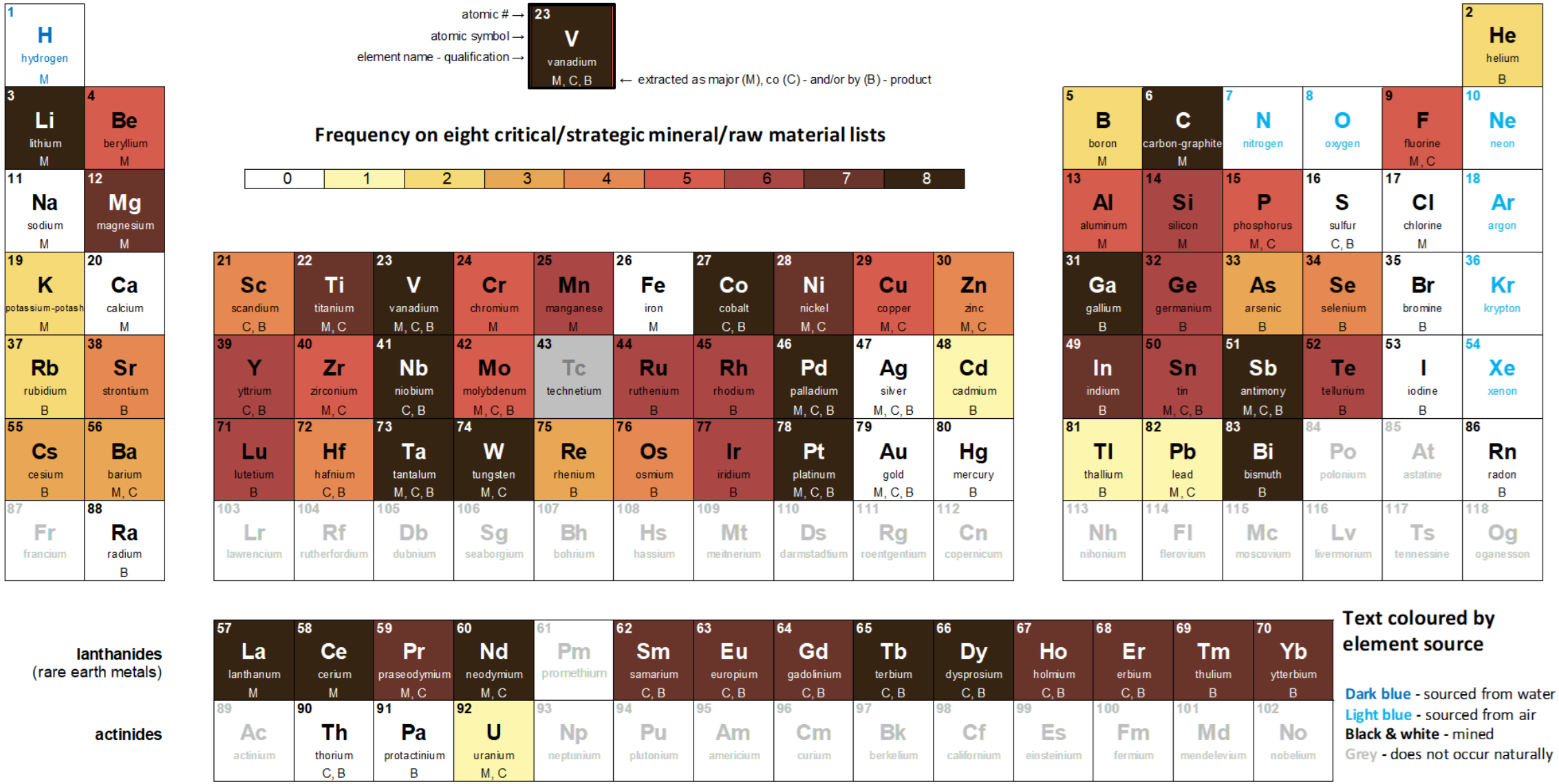
Critical minerals – A synthesis of 8 lists (Australia, Canada, India, Japan, Korea, EU, UK and USA)



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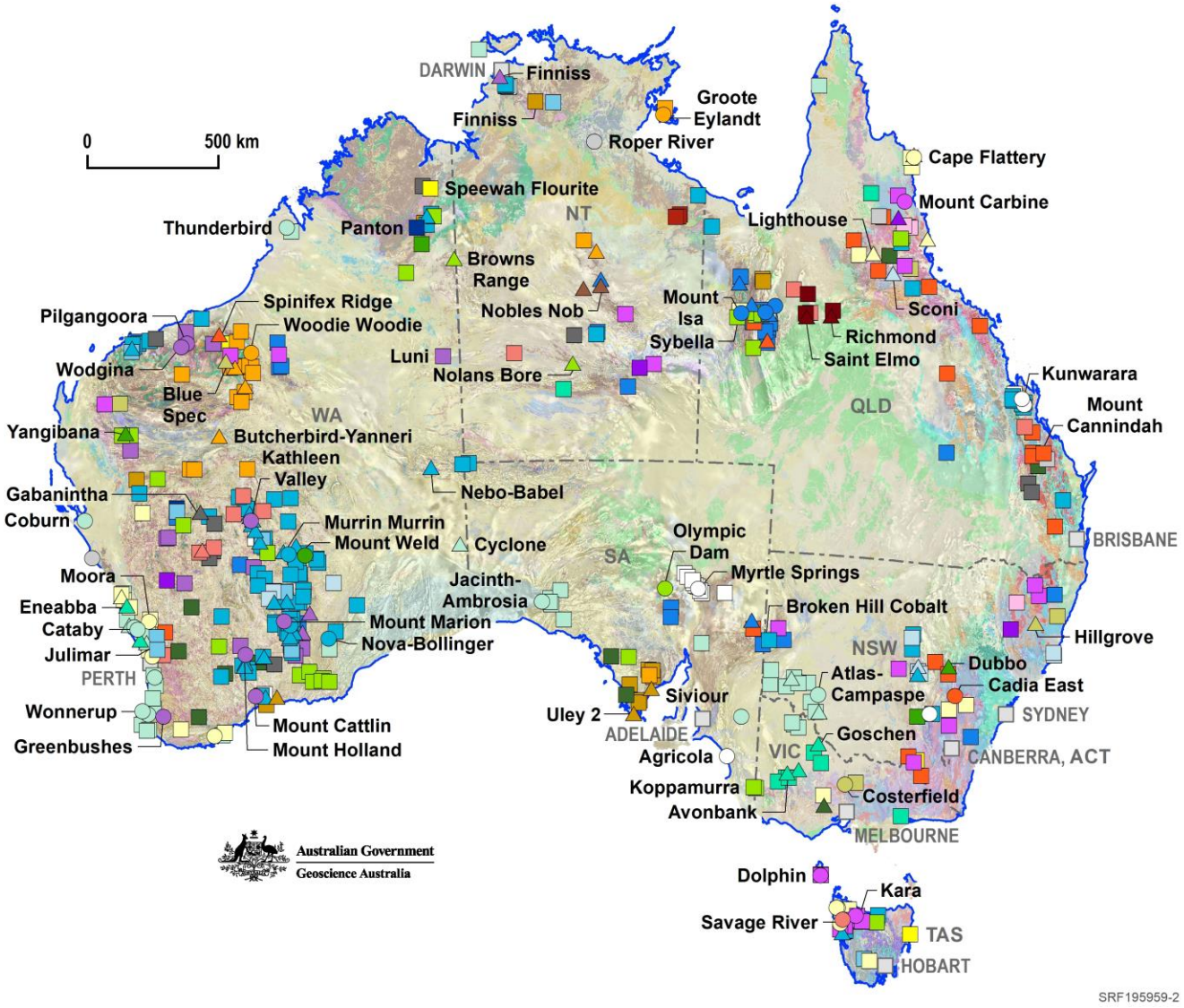
From: Britt and Czarnota, 2024. Australian Journal of Earth Sciences.

Australian Critical Minerals Map 2024



Commodity Type

- *Antimony*
- *Bismuth, +/- Cobalt, +/- Indium*
- *Chromium, +/- Cobalt, +/- Nickel, +/- PGE*
- *Cobalt*
- *Nickel, +/- Cobalt, +/- PGE*
- *Platinum Group Elements (PGE), +/- Cobalt, +/- Nickel*
- *Scandium, +/- Cobalt, +/- PGE, +/- Nickel*
- *Fluorine*
- *Graphite*
- *High Purity Alumina*
- *Indium*
- *Lithium, +/- Tantalum, +/- Niobium*
- *Magnesium*
- *Manganese*
- *Molybdenum, +/- Rhenium*
- *Heavy Mineral Sands (HMS) – Titanium, Zirconium*
- *HMS – Titanium, Zirconium, REE*
- *Rare Earth Elements (REE)*
- *REE, Niobium, Zirconium, +/- Hafnium, Lithium, Tantalum, Gallium*
- *Silicon (High Purity Silica/Quartz)*
- *Tungsten*
- *Tungsten, Molybdenum*
- *Titanium*
- *Titanium, Vanadium*
- *Vanadium*
- *Vanadium, +/- REE, +/- Gallium*
- *Vanadium, Molybdenum*

Project Status

- ○ *Operating mine*
- △ *Mine – under development/care and maintenance*
- □ *Mineral deposit*

Australia’s minerals industry

Financial Year 2023–24

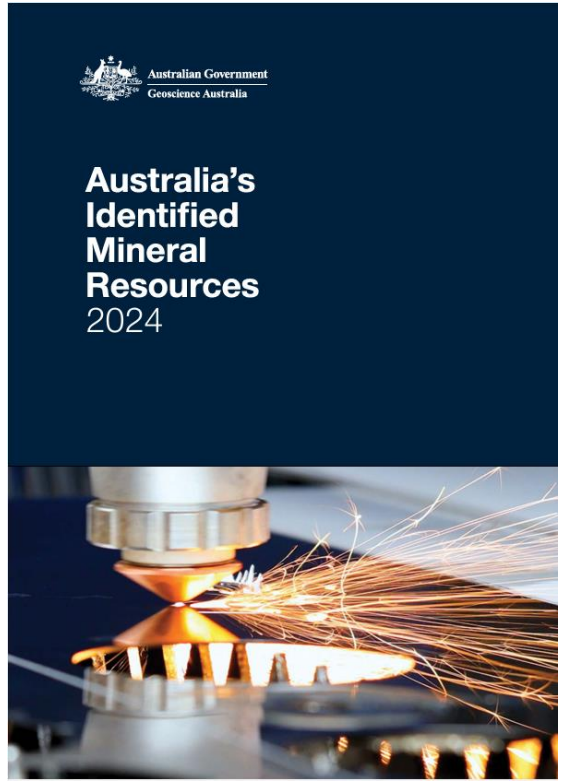
11.4% GDP

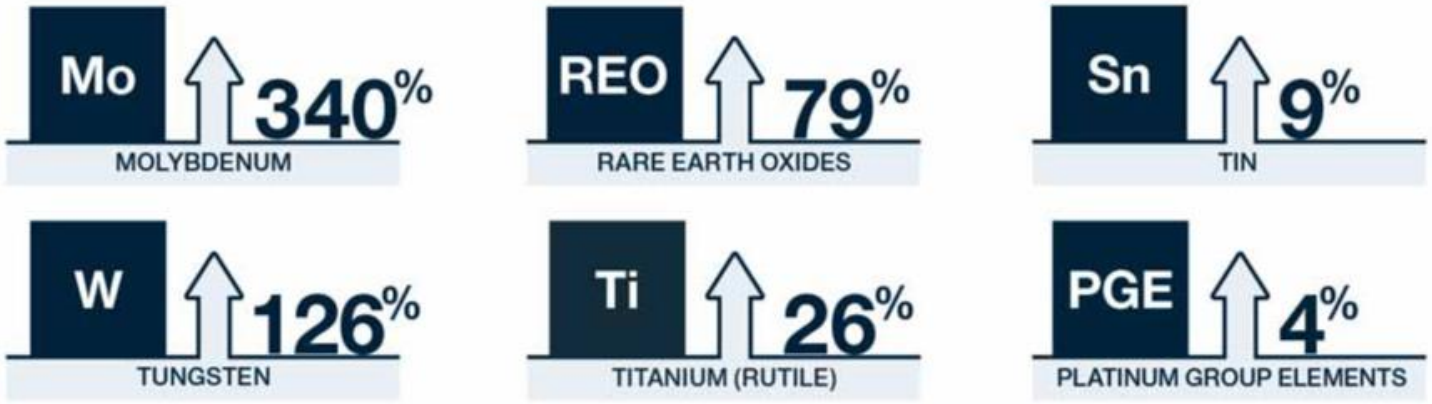
300k direct employment, 1.1m indirect

$414b exports (65%)

Iron ore, Bauxite, rutile and lithium

Top 5 producer of zinc zircon, cobalt, manganese, tantalum and rare earth elements





The Future Made in Australia

"…we need to aim high, be bold and build big to match the size of the opportunity in front of us."

Prime Minister Albanese, 11 April 2024

$22.7B over 10 years

Net zero transition stream

- Renewable hydrogen
- Green metals
- Low carbon liquid fuels

Economic resilience & security stream

- Critical minerals processing
- Clean energy manufacturing

Unprecedented Australian Government support for critical minerals

- **A$7B Critical Minerals Production Tax Incentive**
- **A$7B Northern Australian Infrastructure Facility**
- **A$15B National Reconstruction Fund**
  - A$3B Renewables and low emissions technologies
  - A$1B Advanced manufacturing
  - A$1B Value-adding in resources
- **A$4B Critical Minerals Facility**
- **A$50M Critical Minerals Development Program**
- **A$50M Critical Minerals R&D Hub**
- **A$40M International Partnerships in Critical Minerals**
- **A$225M Exploring for the Future program (ended)**
- **A$3.4B Resourcing Australia's Prosperity initiative over 35 years**
  - A$566.1M over first 10 years

'Front door' investment facilitation

Up next…

Victoria’s energising critical minerals: antimony, mineral sands and more

Melanie Phillips, Team Leader, Exploration Geoscience Information
Geological Survey of Victoria

Critical minerals in Tasmania

Rebecca Sproule, Chief Government Geologist,
Mineral Resources Tasmania

Capitalising on the Northern Territory’s critical minerals

Dorothy Close, Director Regional Geoscience,
Northern Territory Geological Survey

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Victoria’s energising critical minerals: Antimony, mineral sands and more

Melanie Phillips
Team Leader – Exploration Geoscience Information
Resources Victoria

VICTORIA State Government Australia

Victoria: Where in the world?

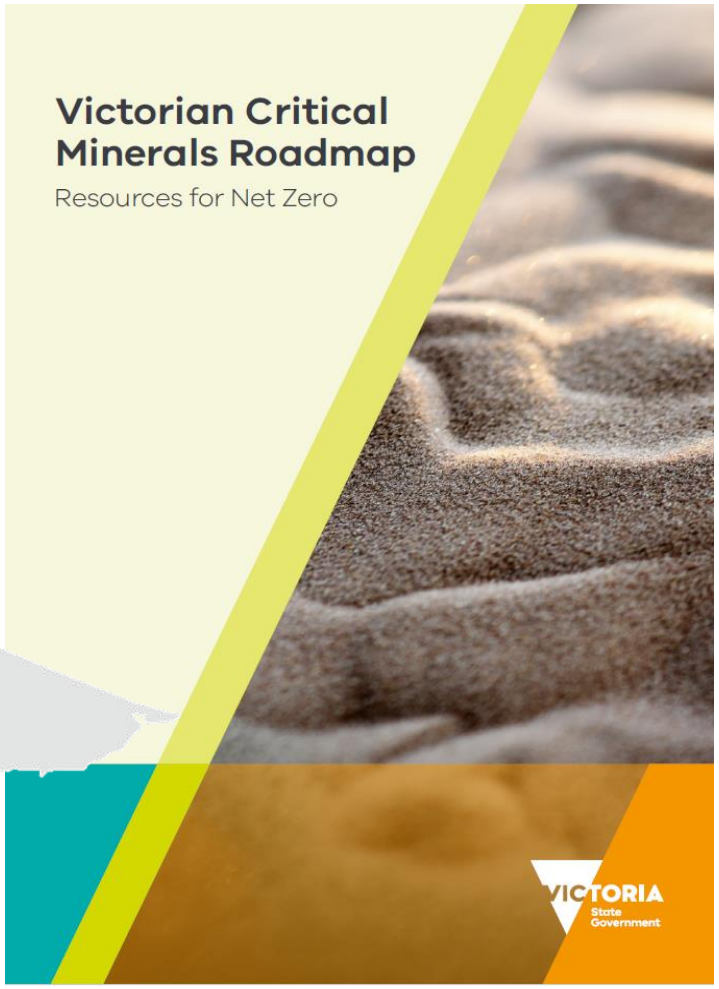
Victoria: a world-renowned jurisdiction

Capital: Melbourne (one of world's most livable cities)

Population: 6.59 million (75% in Melbourne)

- Highly skilled residential workforce: One third of Australian graduates
  - Australia's highest ranked and largest university
- Thriving METS sector
- Excellent transport linkages
  - Well connected rail
  - Melbourne Airport: Busiest passenger and container airport, 73 direct international flights to 21 countries
  - Port of Melbourne: Largest container and automotive port in Australia

Victoria’s demonstrated critical minerals



Costerfield: Australia's only producing antimony mine

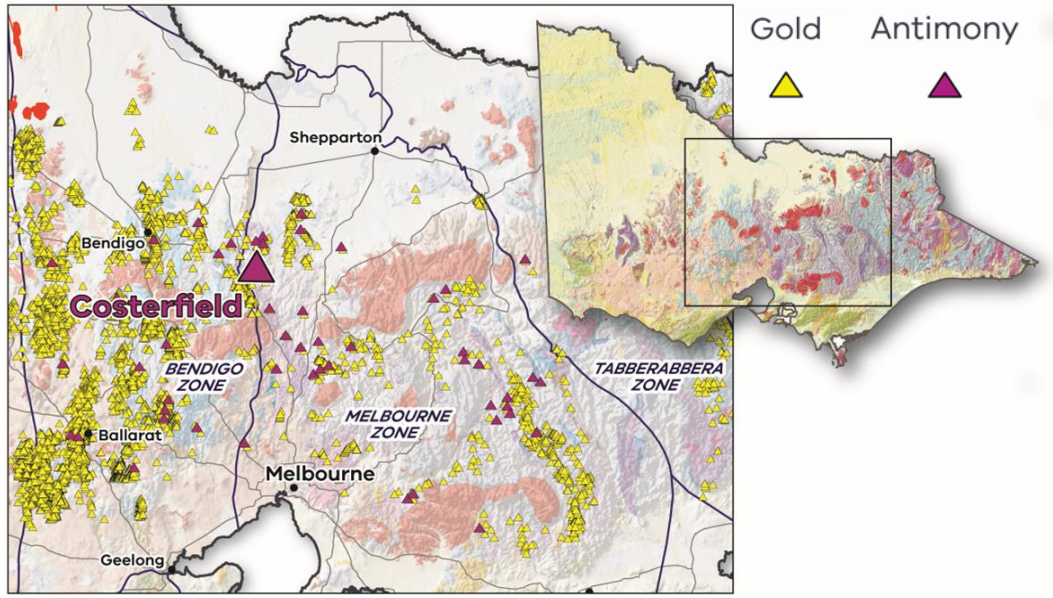
Mandalay Resources' gold-antimony Costerfield mine is the largest producer of antimony outside of Russia, China and Tajikistan.

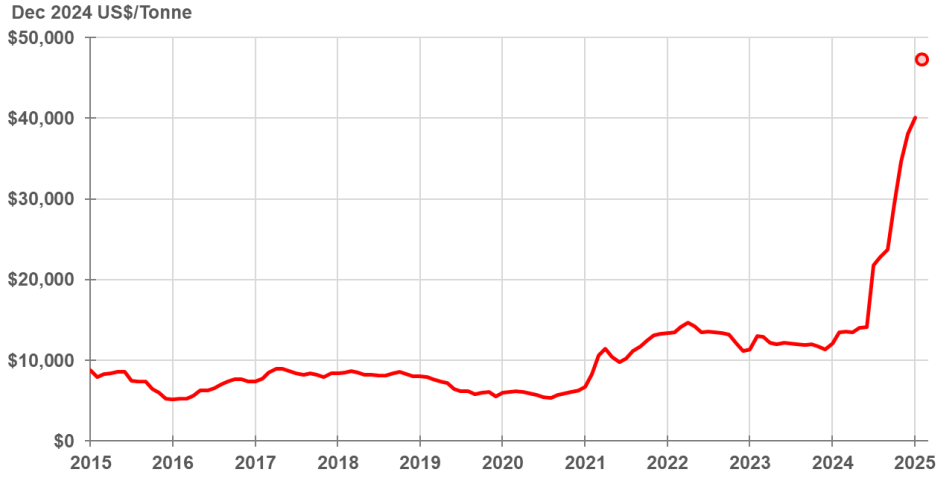
2024 gold production	Gold grade	2024 antimony production	Antimony grade
43,346 ounces	11.05 g/t Au	1,282 tonnes	1.83% Sb

All-in cash cost / AuEq oz: $1,118 USD

Mine life: 3.5 years

Reserve: 604 kt @ 8.7 g/t Au and 1.8% Sb for 168,000 oz Au and 11,000 tonnes Sb





Antimony price since 2015 (Minex Consulting)

Critical uses:

- Semiconductors
- Solar panels
- Batteries (liquid metal (Sb-Ca) and Na-ion anode)
- Fire retardants
- Defence

Costerfield: exploration upside

Recent drilling is uncovering new areas for resource extension and new corridors for production

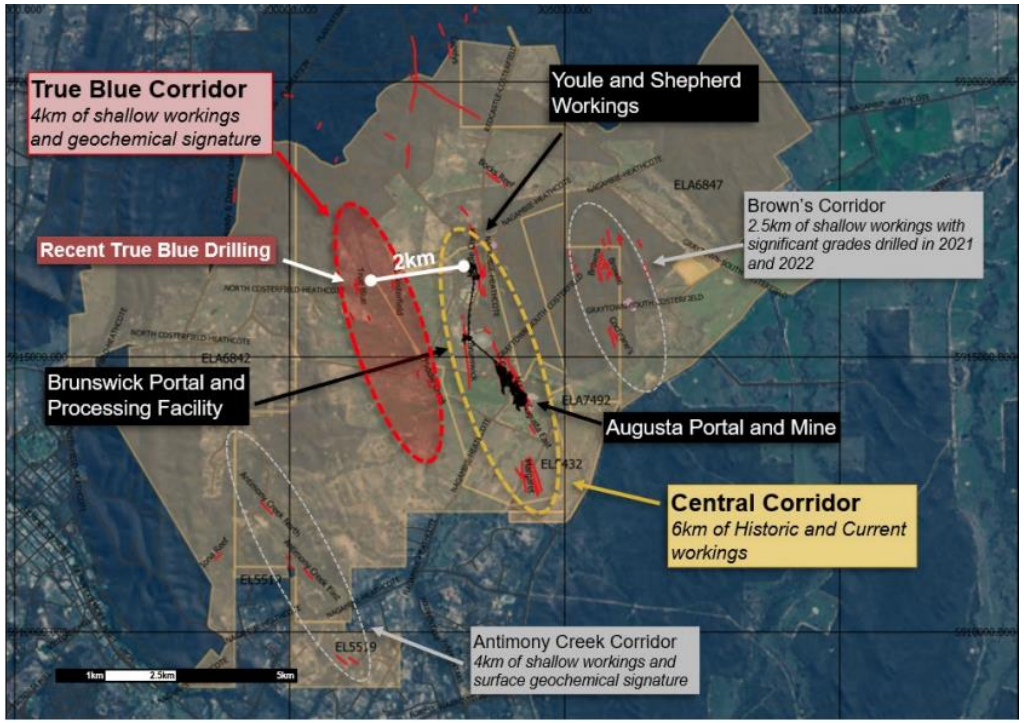
Central Corridor:

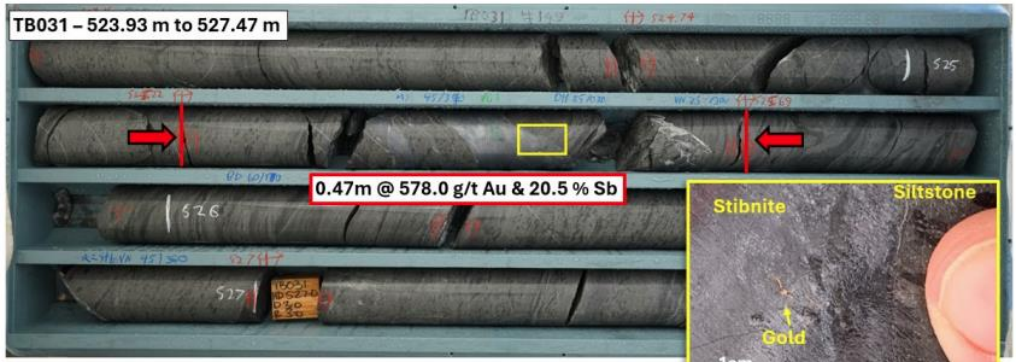
Deposit	Recent drilling intercepts
Shepherd and Kendall	• PD021: 751.7 g/t Au, 1.8% Sb over 0.22 m (ETW 0.21 m) • BC399: 33.4 g/t Au, 31.4% Sb over 1.0 m (ETW 0.67 m)
Cuffley Deeps South	• AD203: 58.4 g/t Au, 17.6% Sb over 0.77 m (ETW 0.55 m)
Cuffley North	• TP021: 4.0 g/t Au, 20.2% Sb over 0.45 m (ETW 0.34 m) • CB001: 17.1 g/t Au, 0.3% Sb over 1.20 m (ETW 1.12 m)

Regional

Prospect	Highlights
True Blue	• TB031: 578.0 g/t Au, 20.5% Sb over 0.47 m (ETW 0.33 m) • Inferred resource: 145,000 t @ 13.1 g/t Au and 3.1% Sb for 4,500 t Sb and 61,000 oz Au

Booth **2301** Investors Exchange





True Blue intercept from TB031

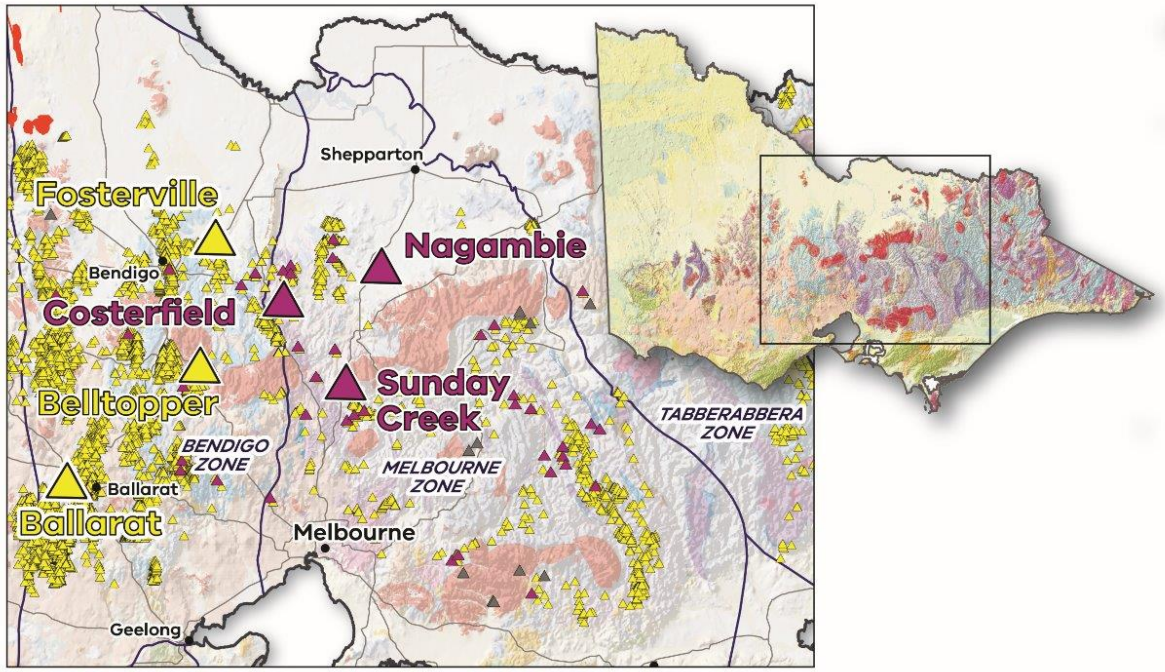
Multiple explorers discovering Victoria's antimony

Southern Cross Gold – Sunday Creek Project

- Initial exploration target: 53.5 – 62.8 kt antimony and 0.74 – 1.28 Moz gold - upgrade expected early March 2025
- Exceptional drilling results
  - 54 individual intersections >100 g/t AuEq x m
  - SDDSC144: 242.1 m @ 6.0 g/t Au (uncut)
    - Incl. 0.16 m @ 3,330.0 Au, 11.7% Sb
  - SDDSC107: 1 m @ 2,381.4 g/t Au, 0.3% Sb
- Booth **2939** Investors Exchange

Nagambie Resources – Nagambie Mine

- JORC inferred resource of 20.8 kt antimony and 58,013 oz gold
- Recent drilling highlights:
  - NAD046: 1.26 m @ 4.7% Sb and 3.1 g/t Au (EHT)
  - NAD048 1.2 m @ 3.3% Sb and 4.5 g/t Au (EHT)



Left: Stibnite in drill core, Nagambie Mine
Above: Stibnite with visible gold in drill core, Sunday Creek

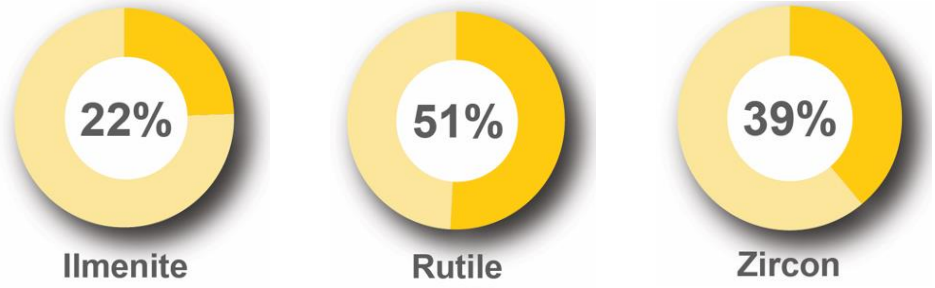
Australia’s next global mining province

Northwest Victoria is home to the critical minerals required for electrification and decarbonisation.

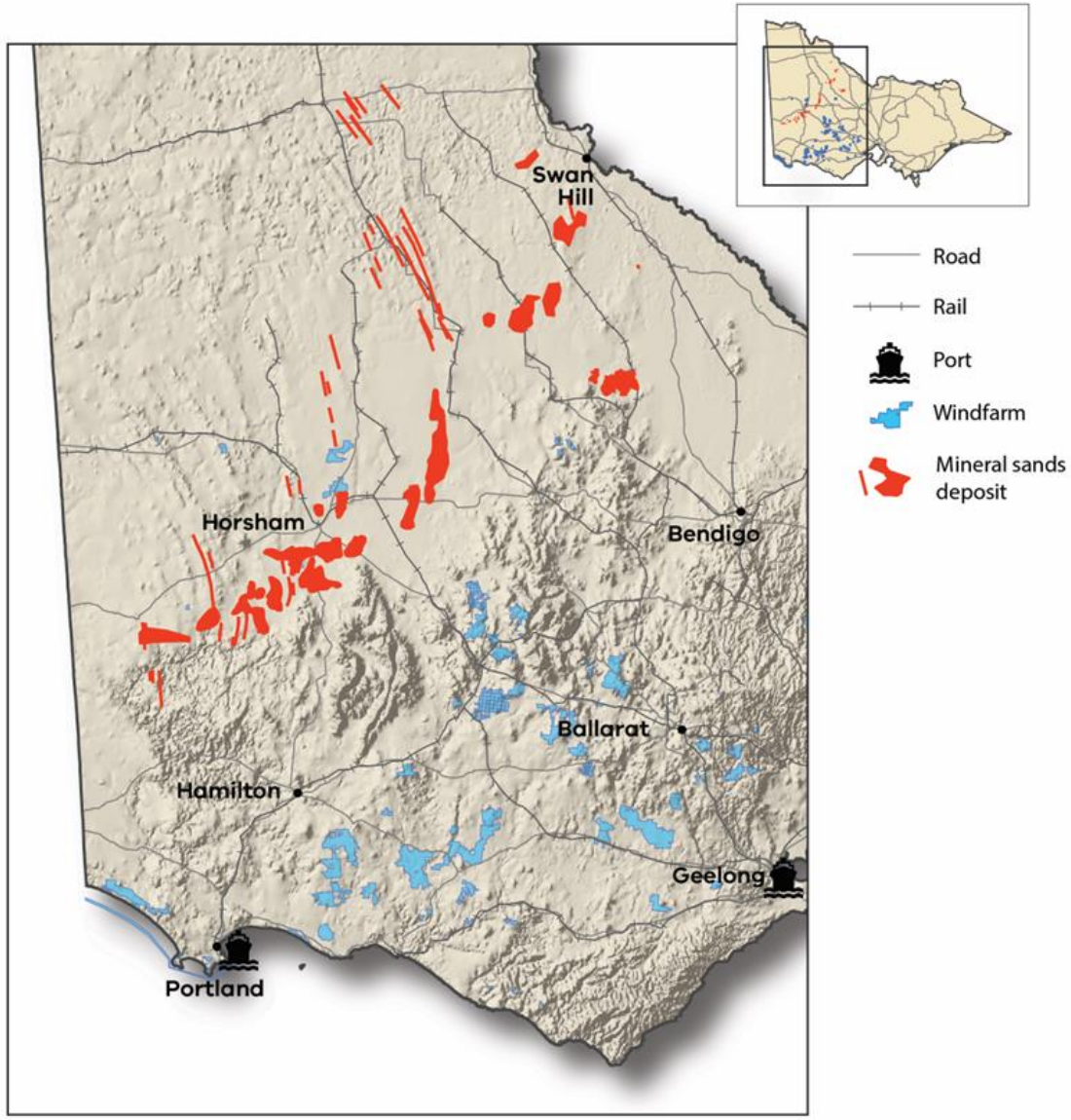
There are two different types of heavy mineral sands deposits:

- WIM-style
- Strandline

Victoria’s share of Australia’s mineral sands



Critical Mineral	Application
Titanium (ilmenite and rutile)	Advanced healthcare (implants), aerospace, solar panels
Zirconium (zircon)	Hydrogen production, water and air purification, turbine blades, fuel cells
Rare Earth Elements (monazite and xenotime)	Permanent magnets, wind turbines, electric vehicles, aircraft, submarines, satellites

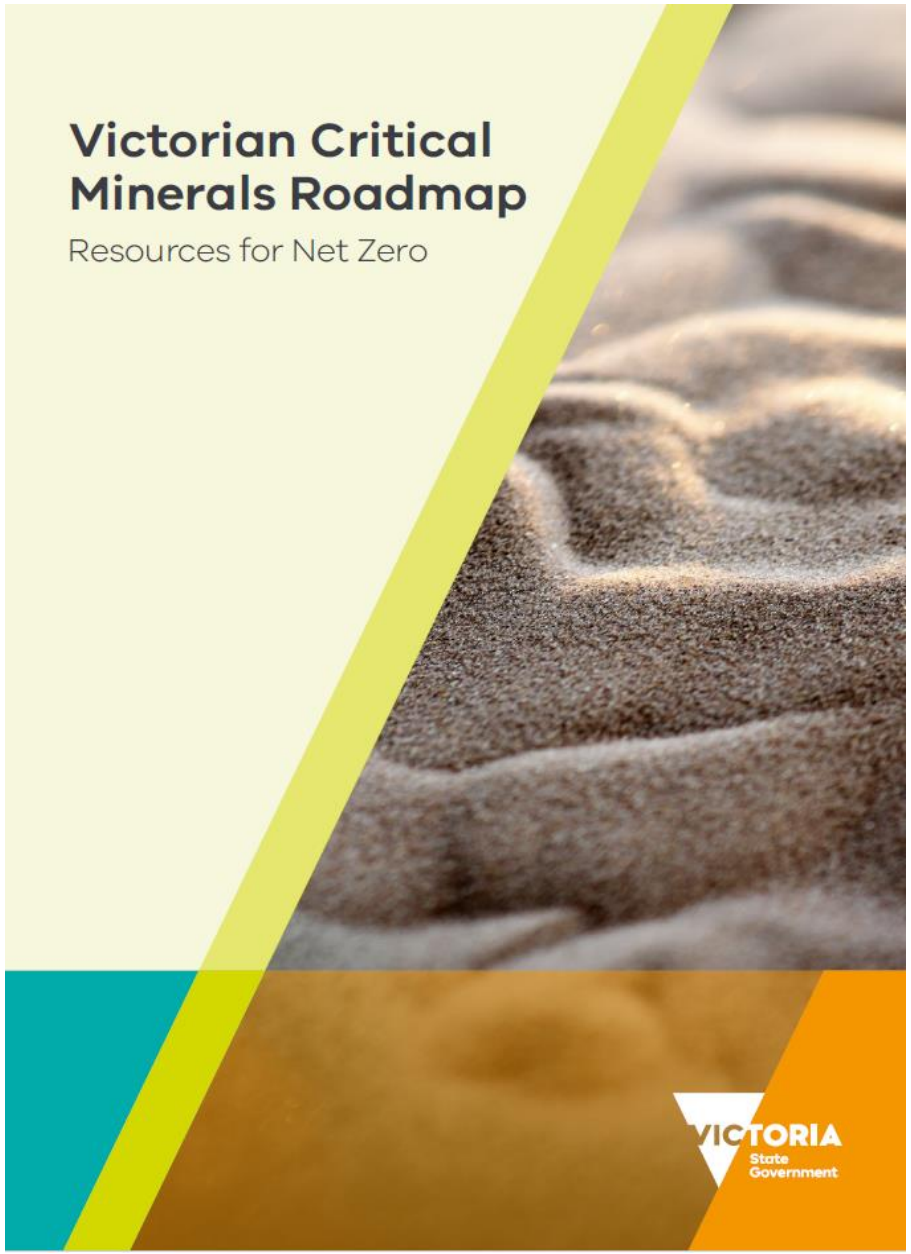


Abundant mineral sands opportunities

Five current projects ranging from advanced exploration to development

- Multiple long-life deposits, billions of tonnes each
  - Heavy Rare Earth Elements (e.g. dysprosium, terbium)
  - Light Rare Earth Elements (e.g. neodymium, praseodymium)
- Excellent infrastructure, existing route to market
  - Potential renewable energy offtake opportunities
- Residential skilled workforce
- Mining, Engineering, Technology service providers

Astron Corporation Donald Mineral Sands Project	VHM Limited Goschen Project	WIM Resource Avonbank	Iluka Resources Wimmera Project WIM100, WIM50 and WIM50 North	ACDC Metals Goschen Central
5,783 Mt Mineral Resource 185 Mt of total heavy minerals Definitive Feasibility Study published in 2021 Environmental Effects Statement approved Mining Licence granted	**629 Mt Mineral Resource** 18.3 Mt of total heavy minerals Definitive Feasibility Study published in 2023 Environmental Effects Statement approved in December 2024	**311.8 Mt Ore reserve** 13.4 Mt of total heavy minerals Definitive Feasibility Study published 2021 Environmental Effects Statement approved in November 2024	**1,380 Mt Mineral Resource** 69 Mt of total heavy minerals Definitive Feasibility Study currently underway Environmental Effects Statement underway	**620 Mt Mineral Resource** 13.6 Mt of total heavy minerals Scoping Study currently underway Drilling planned for 2025 Environmental Effects Statement approved in December 2024



Theme 1
Mapping the opportunities

Theme 2
A modernised regulatory regime

Theme 3
Critical minerals production and processing in Victoria

Theme 4
Sharing the benefits of Victoria's minerals

[Download here]

New data and knowledge

8 initial critical mineral studies:

- >40,000 new analyses
- >100 new age dates
- Geological setting and context

Further studies underway:

- Antimony
- Platinum group elements
- Alkaline-silicate REE
- Lithium
- Tin and tungsten

[GSV Search Assistant: Critical Minerals]

Victoria’s geoscience: A wealth of freely accessible information

Pre-competitive data and knowledge

- Free maps, reports and data
- GeoVic – free online mapping application

Geology

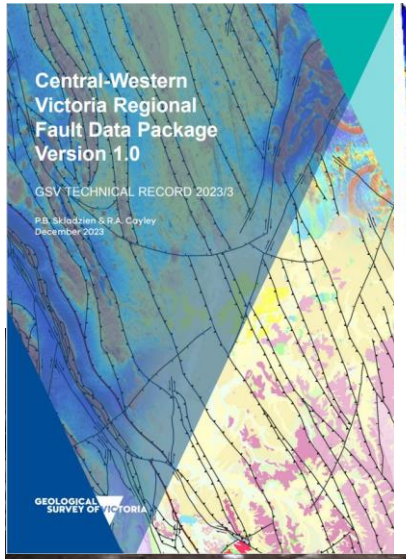
- Seamless – 1:250k and 1:50k
- 3D geological full crust model

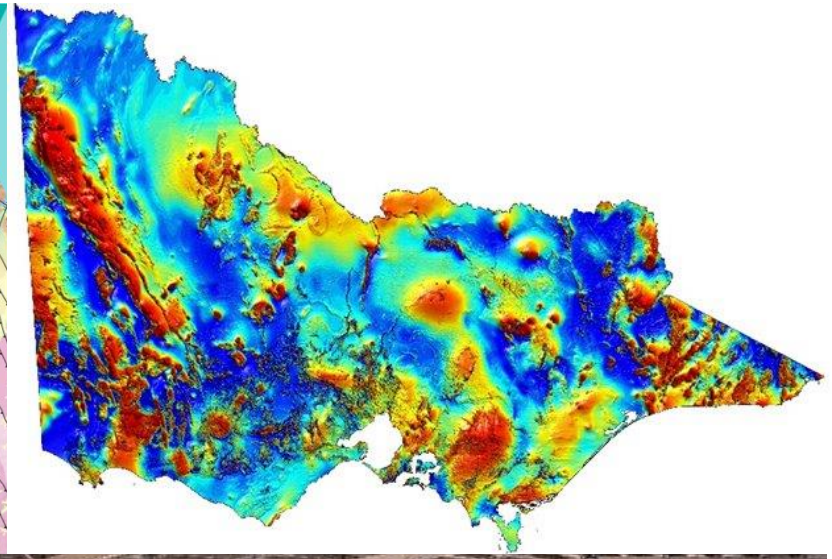
Geophysics

- Modern, state-wide

Drill Core Library

- 1.5 million metres of drill core and cuttings
- >13,000 drill holes





Victoria’s critical minerals: Australia’s best kept secret? Come and find out.

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Thank you

Melanie Phillips
Team Leader – Exploration Geoscience Information
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VICTORIA State Government Australia

AUSTRALIA MINERALS

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Critical minerals in Tasmania

A mining-friendly jurisdiction with critical minerals production and a future pipeline

Dr Rebecca Sproule
Chief Government Geologist
Mineral Resources Tasmania

Tasmanian Government

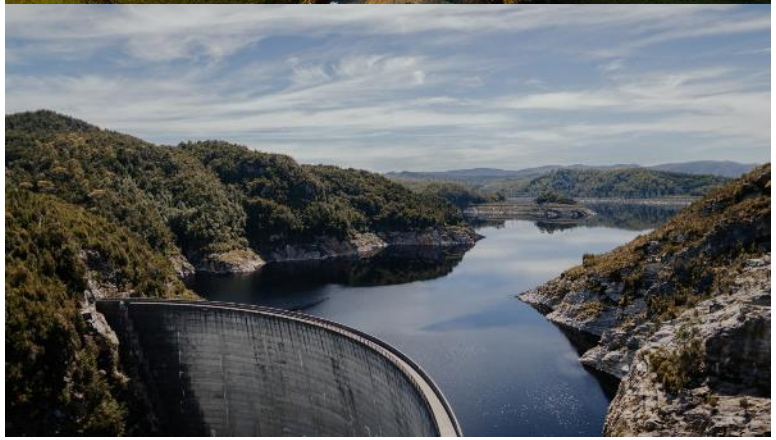
Tasmania

The ‘Island State’

- 0.9% of Australia’s landmass
- In year ending June 2024, Tasmania had the third highest exploration spend per square kilometre in Australia
- Highest critical mineral ‘deposit’ density in Australia (25 per 100,000 km^2)
- Products of mining and mineral processing constitute >60 per cent of mercantile exports

Tasmania – Mining-friendly jurisdiction

- **Supportive government**: The government actively promotes mining through policies and legislation designed to minimize sovereign risk
- **Robust infrastructure**: The region boasts well-developed infrastructure tailored to support mining activities
- **Enhanced capacity**: Recent upgrades to rail and port facilities ensure efficient transport and logistics
- **Sustainable energy**: The area is currently net zero in emissions, powered by hydroelectricity and wind farms
- **Rich mining heritage**: With over 100 years of mining history, the region has a highly experienced local workforce
- **Geological framework:** High quality, freely available pre-competitive geoscience datasets to minimize exploration risks



Why Tasmania?

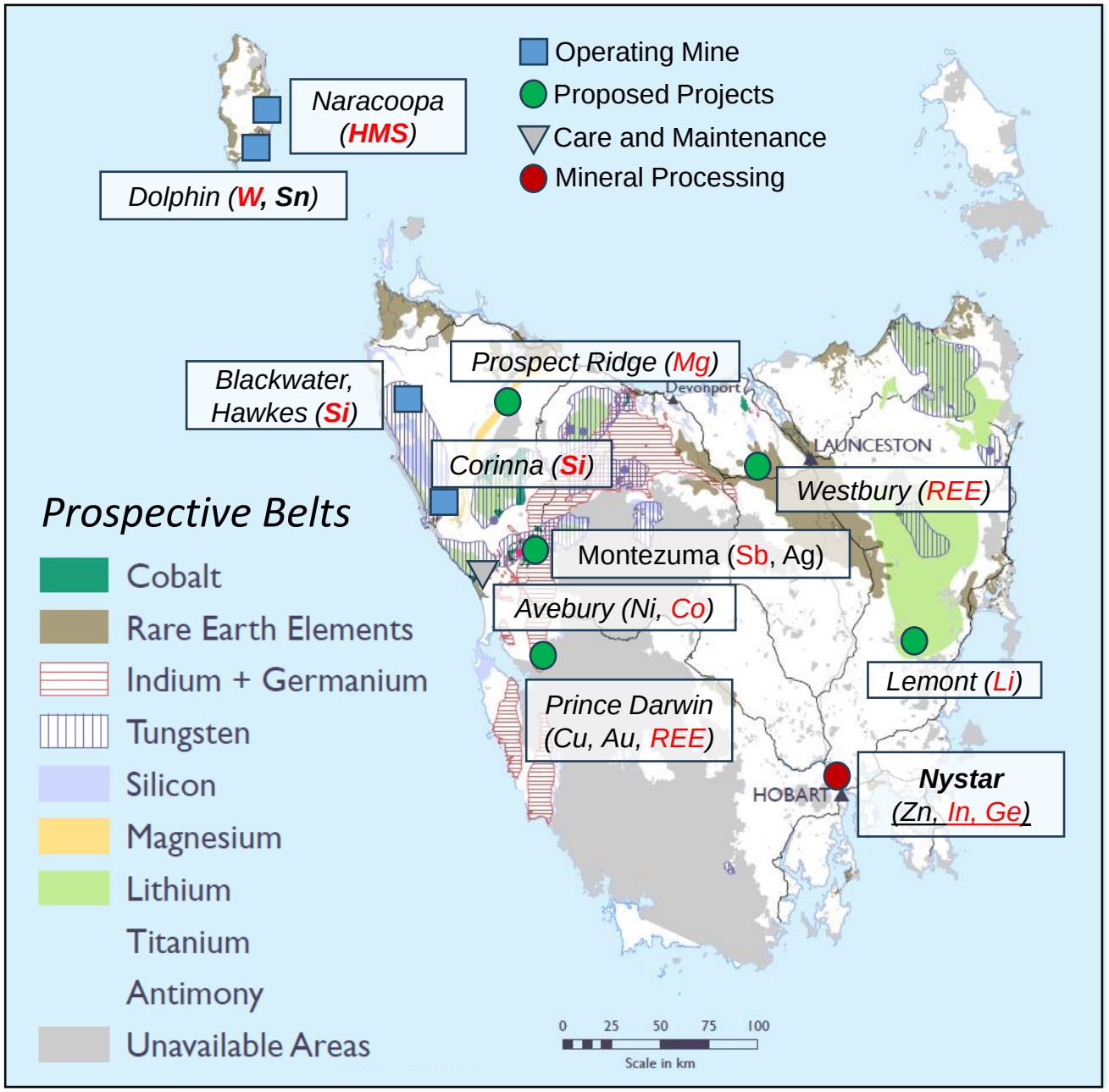
Critical Minerals

- Current **production** (primary and by-product) and <u>processing</u> with an exploration pipeline and further potential in prospective belts:
  - Cu, Zn, Pb, Sb
  - Au, Ag, Sb
  - **<u>W,</u> Sn**, F
  - Ni, Co, Li
  - REE
  - Cu, Au, REE
  - Fe (magnetite, hematite), Mg
  - **Si** (silica flour)
  - **HMS**
  - <u>Zn, In, Ge</u>

Production in bold

<u>Processing underlined</u>

Critical minerals in red



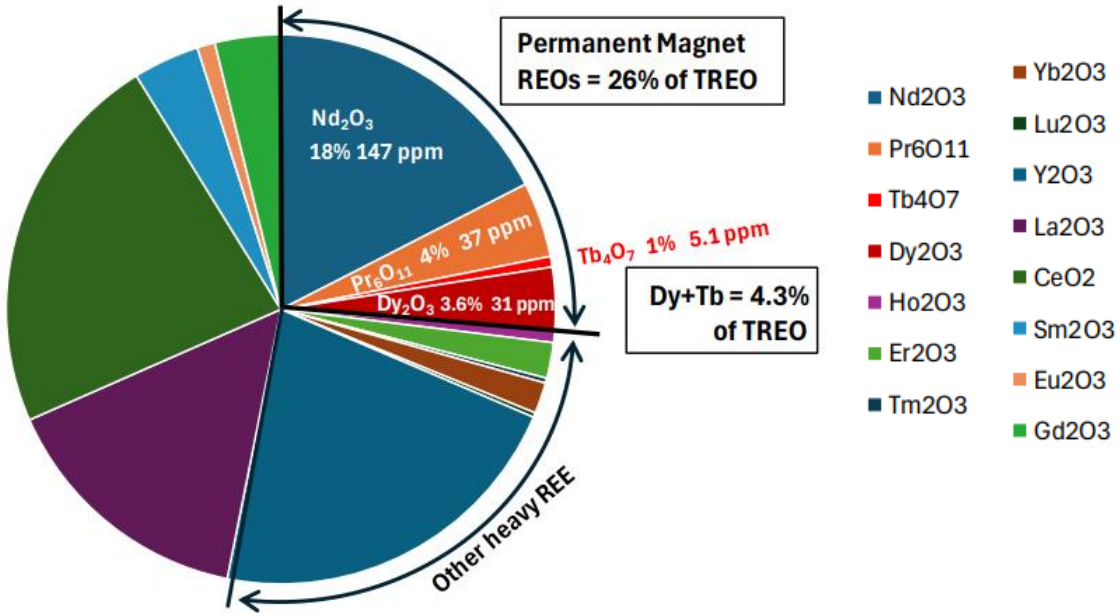
Critical Metals Strategy 2024

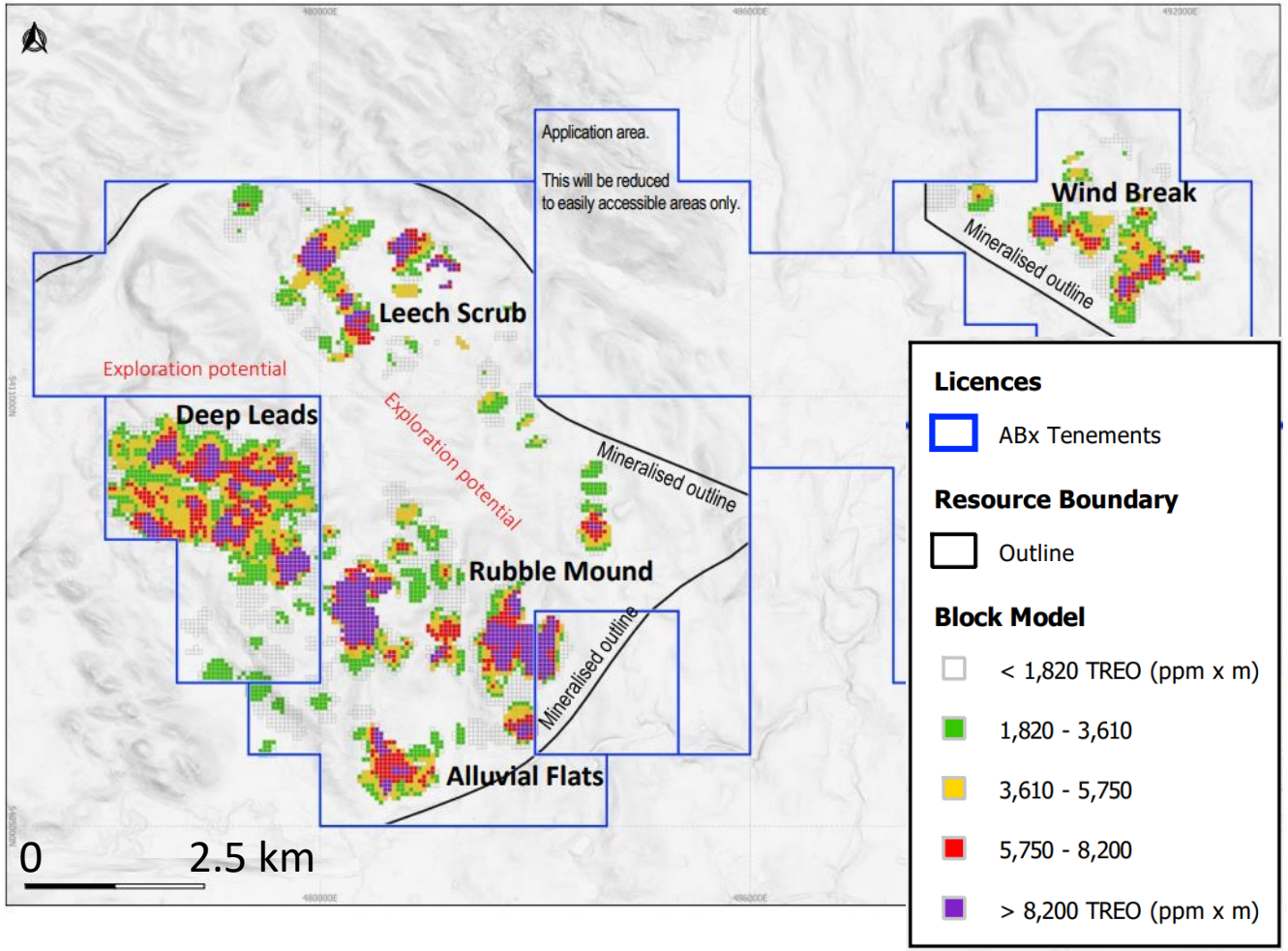
- Released in October 2024
- Vision:
  - Establish a sustainable critical minerals industry in Tasmania leveraging our geological and infrastructure advantages and harness our clean energy
- Objectives:
  - Grow exploration for critical minerals
  - Support critical minerals projects
  - Increase on-island processing and value-adding of critical minerals
  - Increase Tasmania's trade and investment footprints in critical minerals

Project Pipeline – Deep Leads

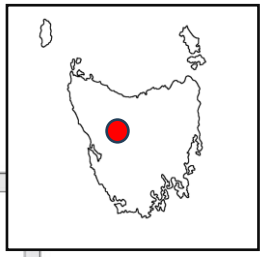
Rare earth elements

- 89 Mt at 844 ppm TREO (May 2024) based on drill out of only 29% of identified mineralized outline
- Ionic adsorption Clay (IAC) type with highest Dy and Tb grades of any IAC worldwide
- Highly favourable test work with rare earth extraction in 30 minutes or less at pH4 or above for low acid consumption



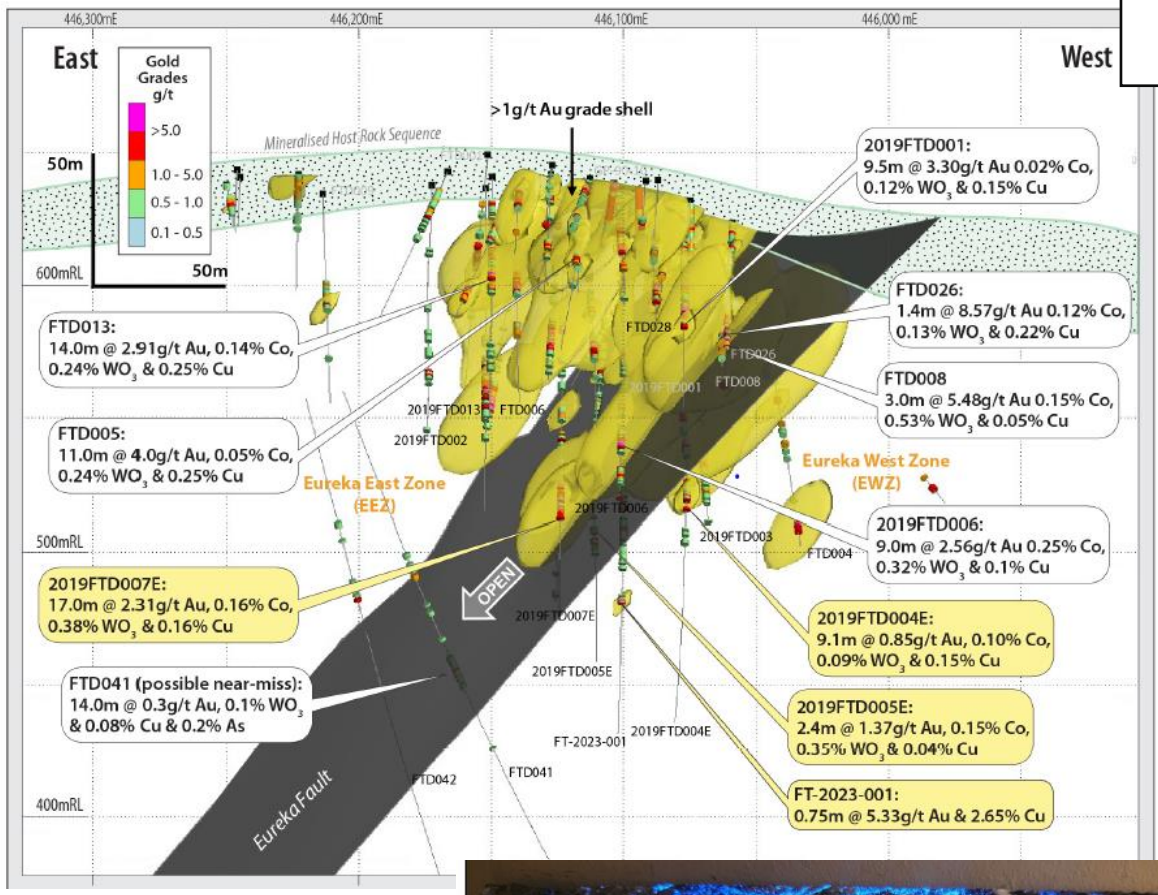


Project Pipeline – Firetower Au-Co-W

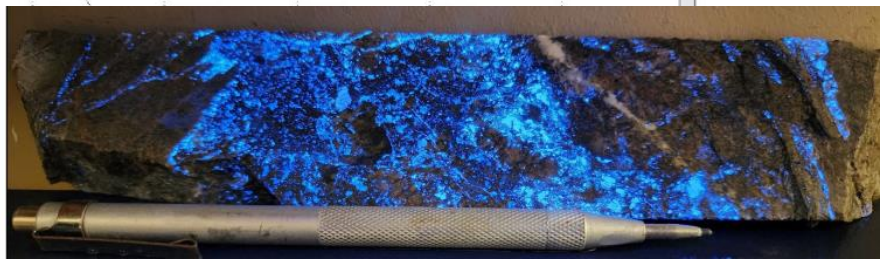


Tungsten

- Prior exploration for Au but recent work has identified anomalous W
- New geological interpretation – defined Eureka East Zone
- Best intersection: 17 m @ 5.37 g/t Au and 5.5 m @ 3.27 g/t Au, 0.24% Co, 0.53% WO_3 and 0.33% Cu



Section with preliminary model

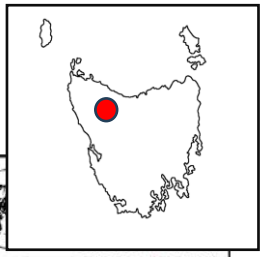


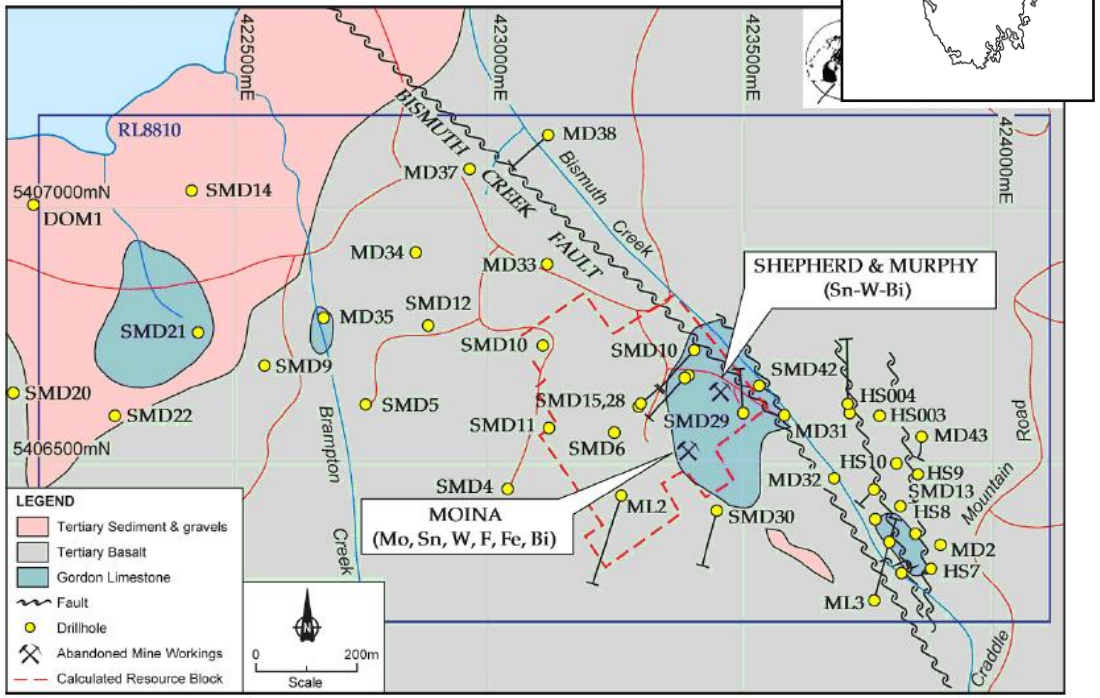
Flynn Gold

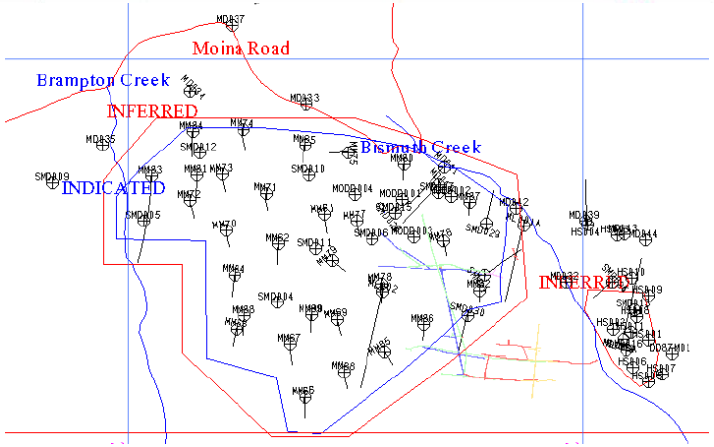
Project Pipeline – Moina Wrigglite Skarn

Fluorite

- Historic drill recent drilling have been used to define a resource at the Moina Wrigglite Skarn:
  - 59.2 Mt at 6.0% F indicated, with 0.11% Sn and 595 pm W
  - Cited as Australia's largest F resource
- Drilling planned to bring inferred resources to indicated
- Pre-feasibility studies in progress







MAZEL RESOURCES

Summary

- Tasmania is a mining friendly jurisdiction with supportive infrastructure with net zero emissions
- Highest density of critical mineral deposits in Australia
- Operating primary and by-product critical mineral production and byproduct processing
- Developing pipeline of critical mineral projects
- New Critical Mineral Initiative will further develop the supportive framework for discovery

For further information

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Thank you

Dr. Rebecca Sproule

Chief Geologist

Mineral Resources Tasmania

Tasmanian Government

AUSTRALIA MINERALS

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Capitalising on the Northern Territory's critical minerals

Dorothy Close
Director Regional Geoscience
Northern Territory Geological Survey

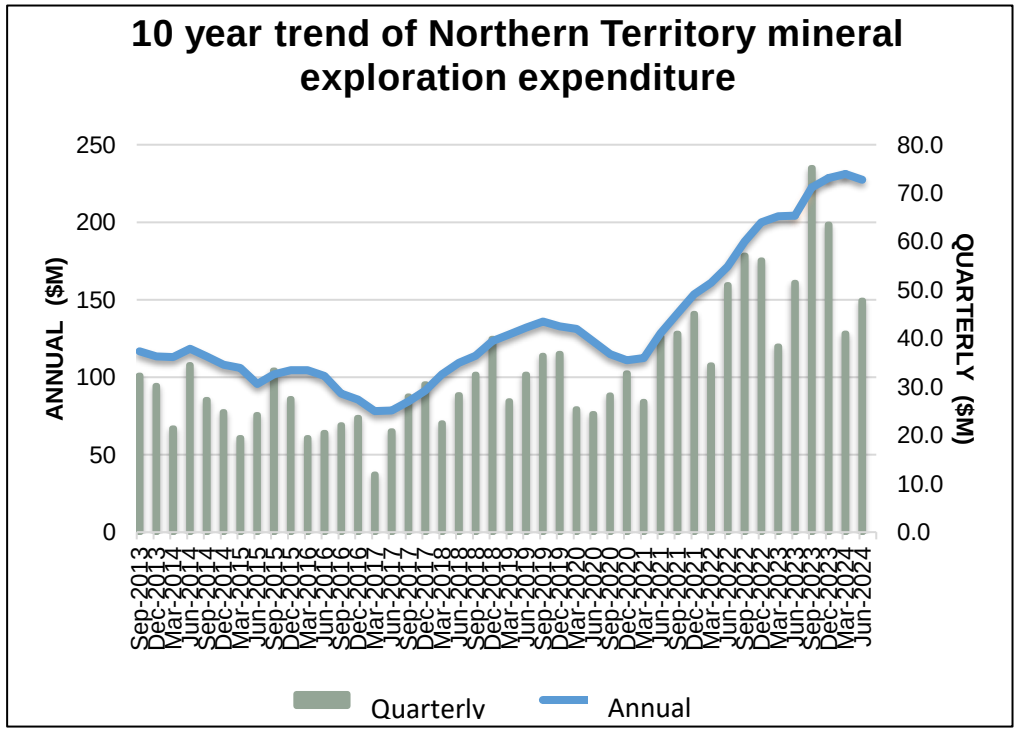
AUSTRALIA'S NORTHERN TERRITORY

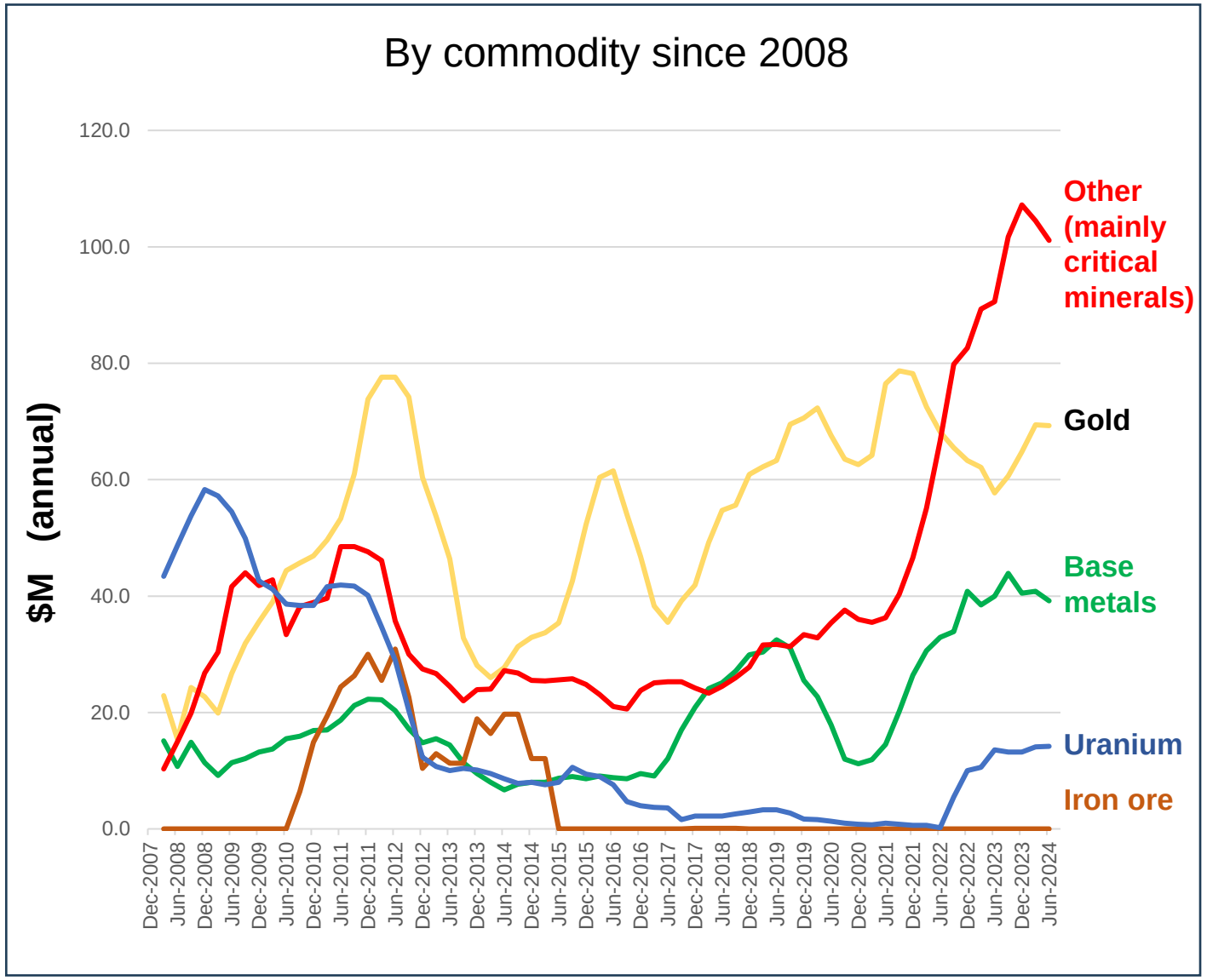
Australia’s Northern Territory

- 1.3 million km^2 in land area, 250,000 people
- Strategic location on Australia’s north coast
- Resources-driven economy
- Currently a major producer of manganese, bauxite, lead-zinc-silver, gold, LNG
- Strong history of uranium mining
- NT mining sector is expanding into critical minerals (lithium, REE, graphite, copper, tungsten, phosphate, cobalt)
- 19 projects in the approvals or financing process, primarily for copper, critical minerals and gold - mainly junior ASX-listed companies
- The NT Government has a strong focus on encouraging exploration and downstream processing of critical minerals.

Northern Territory mineral exploration expenditure

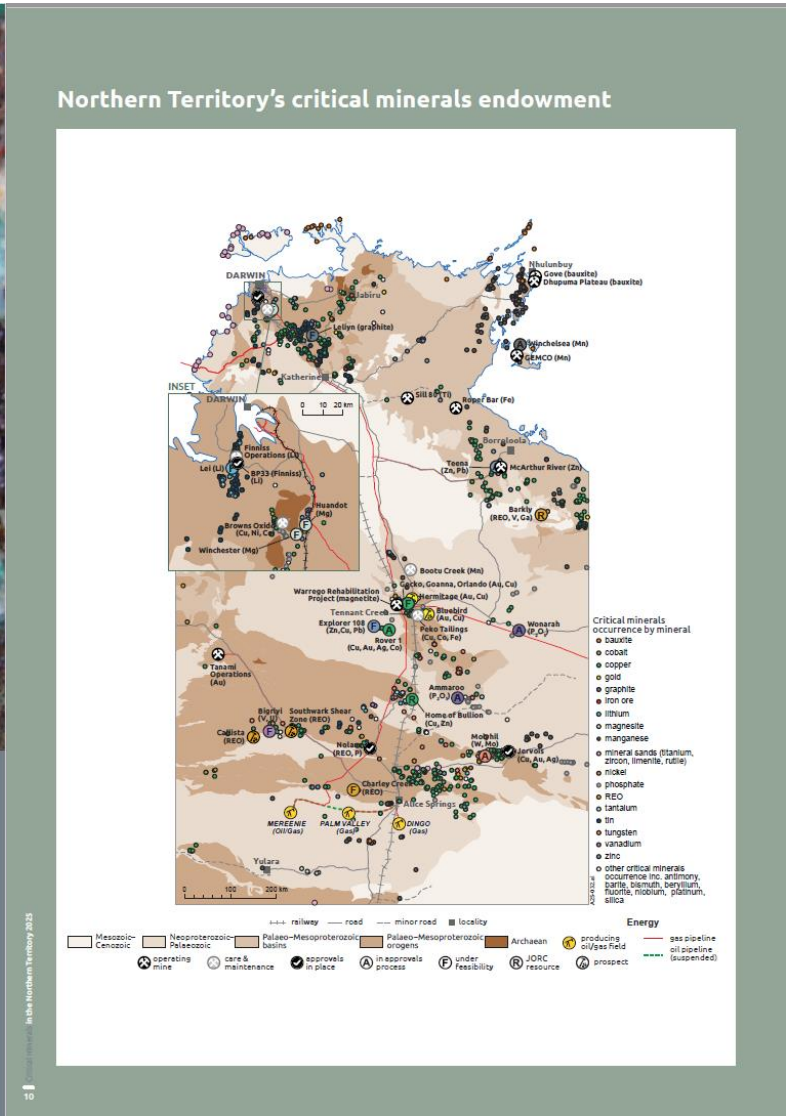
- Mineral exploration expenditure is at record levels
- $227.4 million spent in 2023/24
- Growth led by critical minerals (lithium, rare earths), copper and uranium





Critical minerals in the Northern Territory

- The Northern Territory has defined mineral resources in **17 critical minerals** as defined by key trading partners
- Geological potential for a further **13 emerging critical minerals**
- An overview of the Northern Territory's critical minerals **resource inventory** plus case studies on advanced projects are provided in the Critical Minerals in the Northern Territory 2025



AUSTRALIA MINERALS

Pipeline of critical minerals projects: REEs

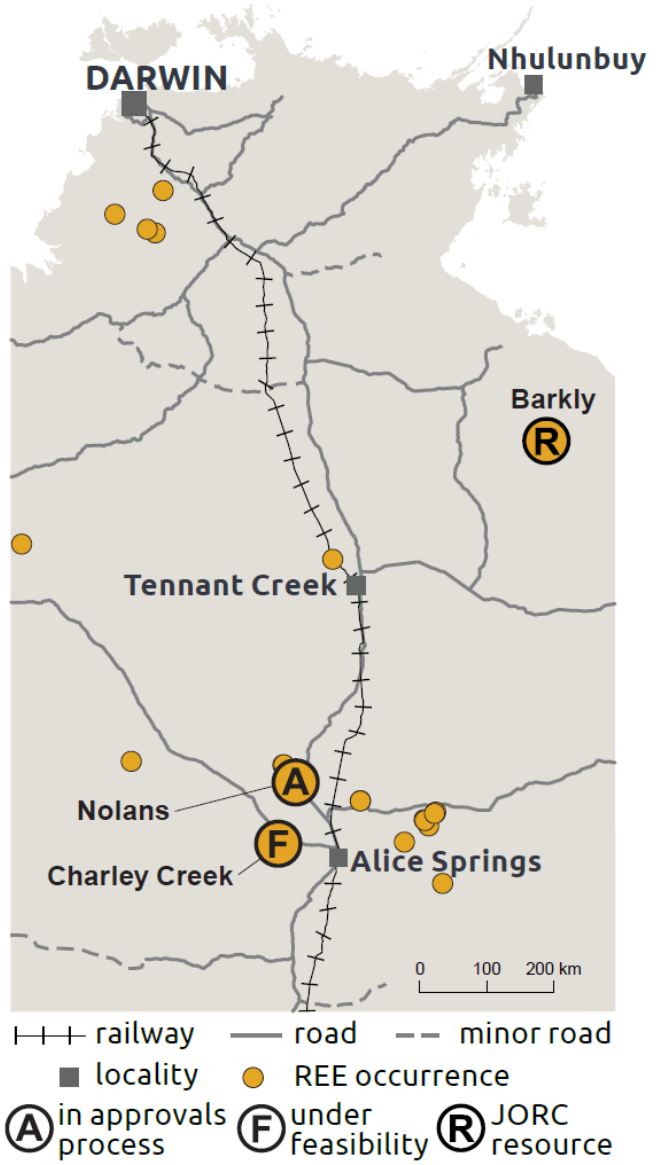
Advanced development

Arafura Rare Earths - Nolans NdPr project

- World-class resource of magnet-feed rare earths (NdPr),
- On-site downstream processing to produce separated rare earths (including NdPr oxide)
- Binding offtakes with Siemens Gamesa, Hyundai Motor Co and Kia;
- Debt funding now secured – US$1.05B debt package
- Approvals in place, targeting FID 2025, enabling construction works completed in 2023

Advanced exploration

- Diverse opportunities, including clay-hosted, unconformity-style and carbonatite-hosted mineralisation

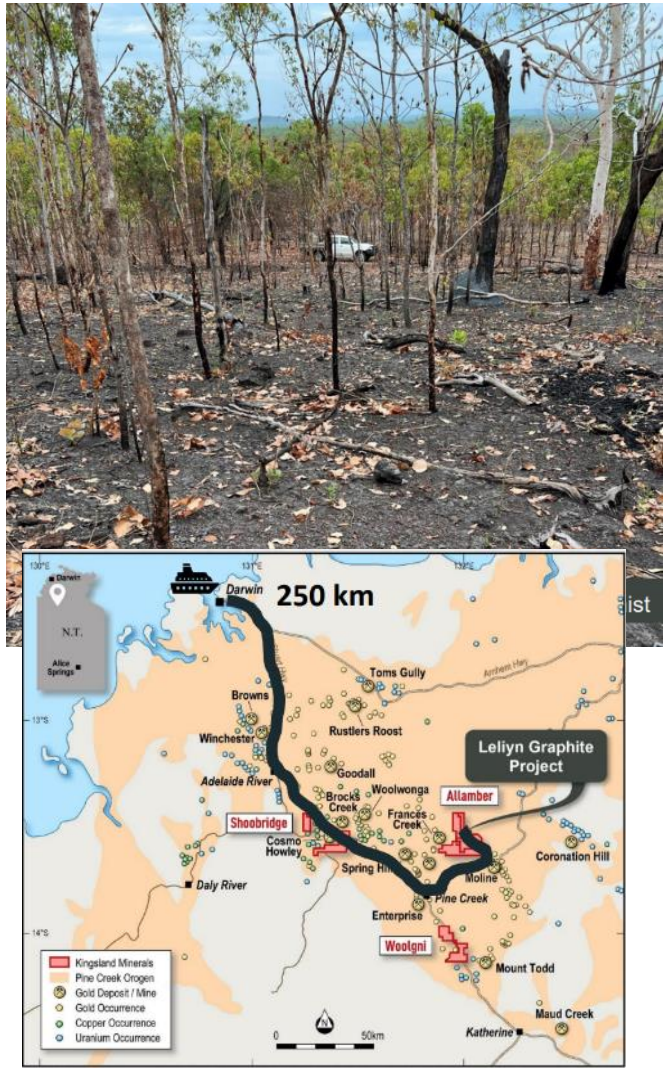


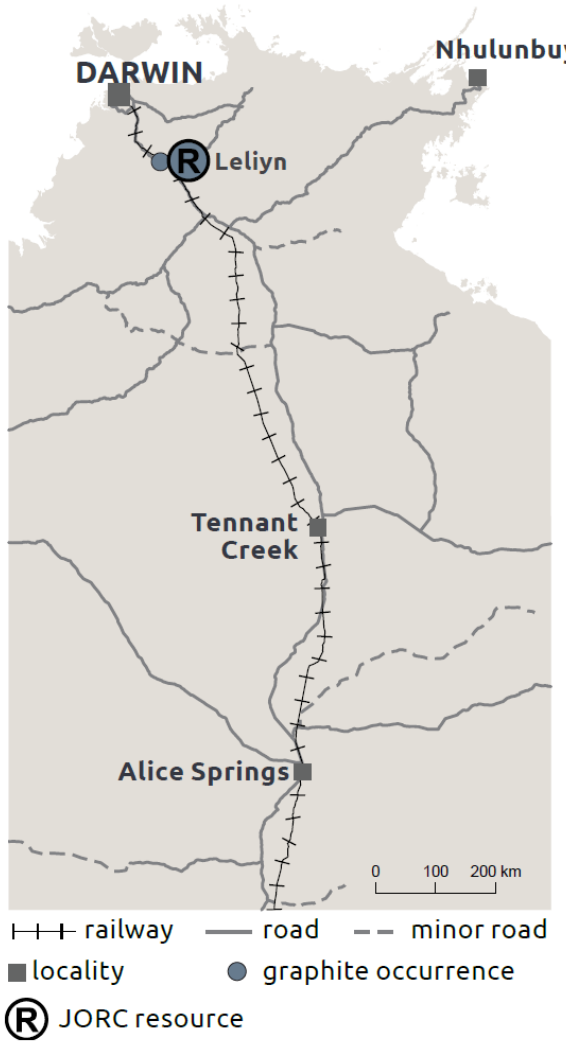
Pipeline of critical minerals projects: graphite

Advanced exploration

Leliyn – Australia's largest graphite deposit

- 20 kilometre-long graphitic schist
- Exploration Target 700–1,100 Mt @ 7-8% TGC
- Flake size <150 microns, favourable for anode material
- **Maiden Resource: 194.6 Mt @ 7.3% TGC** (14.2 Mt contained graphite
- Flotation test-work has produced a commercial grade concentrate >94% TGC
- Strategic investment by **Quinbrook Infrastructure Partners** in Oct 2024 – includes equity, and binding offtake agreement for graphite concentrate
- Quinbrook investigating feasibility of locating downstream graphite processing facility at the Middle Arm Sustainable Development Precinct in Darwin





Pipeline of critical minerals projects: copper

Multiple advanced projects

Tennant Creek – emerging copper production

Emerging high-grade copper-gold (-cobalt) projects around Tennant Creek (**Castile Resources** – *Rover 1*; **Tennant Minerals** – *Bluebird;* **Cu-Fe Ltd** – *Orlando-Gecko;* **Tennant Mining** – *Warrego;* **Emmerson Resources** - *Hermitage*)

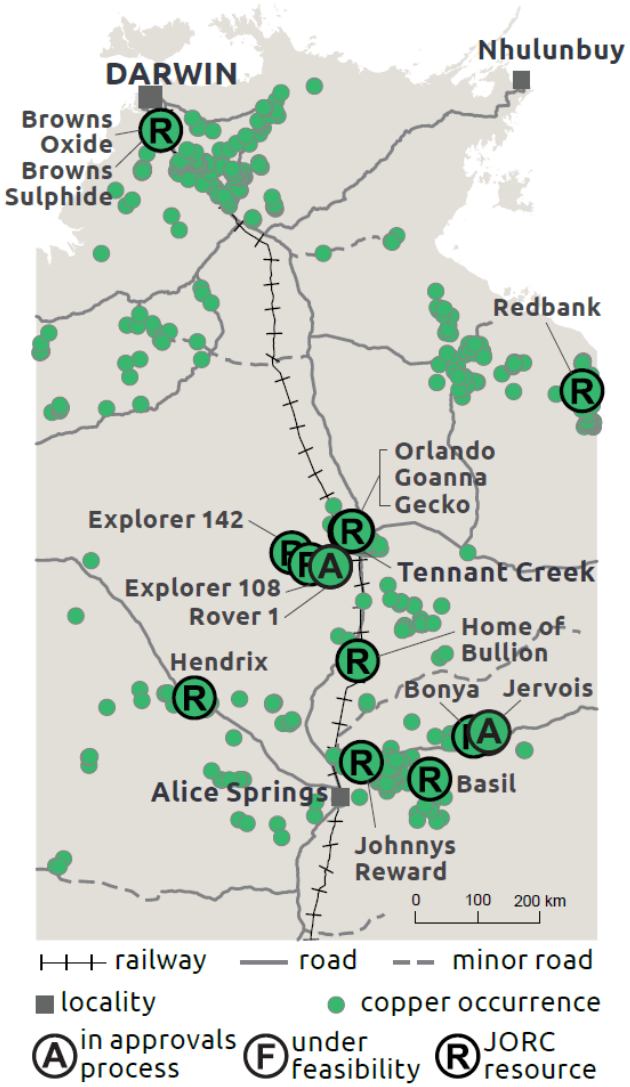
Multiple options for copper processing

- Castile Resources: option for copper-cobalt-gold plant at Middle Arm in Darwin to process copper concentrate from Rover 1 and other sources
- Tennant Minerals, Emmerson Resources and CuFe Ltd: a strategic alliance to assess options including single multi-user processing facility for copper, gold and critical minerals
- Tennant Mining investigating 840ktpa copper circuit

Jervois copper project – approaching FID

KGL Resources revised feasibility for ***Jervois Cu-Ag-Au project*** in Feb 2025 – seeking project finance for planned mid-2025 FID

Nov 2024 resource: **27.45 Mt @ 1.87% Cu, 25 g/t Ag, 0.24 g/t Au**

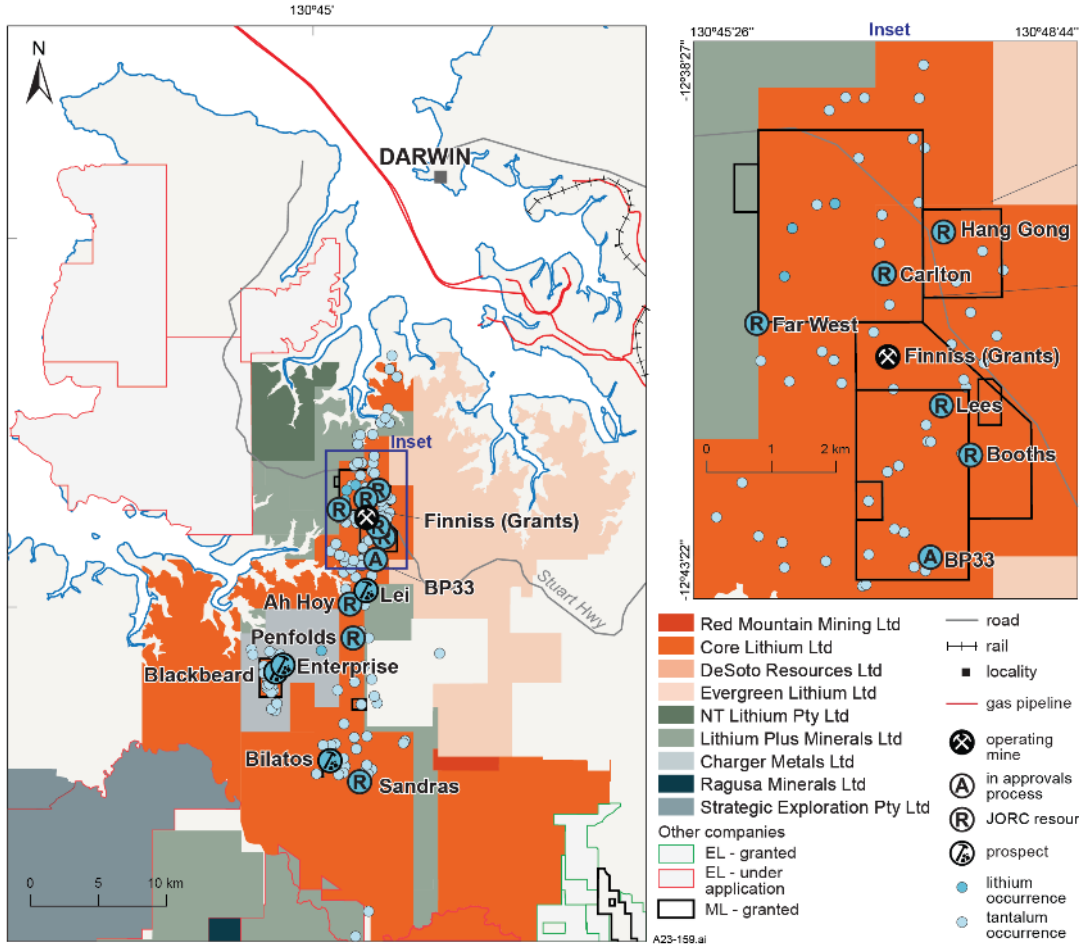


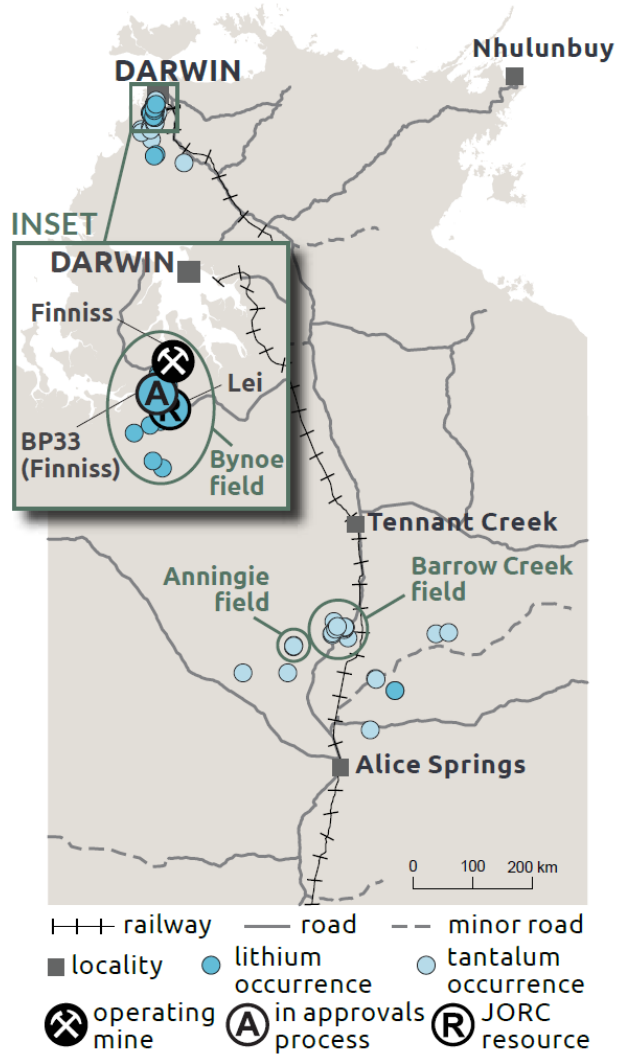
Pipeline of critical minerals projects: lithium

Advanced development

Core Lithium- Finniss

- Mining suspended following 85% fall in spodumene price – entered temporary care and maintenance in June 2024
- 250% increase in contained Li since start of 2023
- Combined Finniss Mineral Resource upgraded to **48.2 Mt @ 1.26% Li_2O**
- BP33 upgraded to 10.5Mt @ 1.53% Li_2O
- Lees-Booths now 14.5Mt @ 1.11% Li_2O





Northern Territory Government support – mineral processing hub

Middle Arm Sustainable Development Precinct

- Strategically located common user infrastructure and services
- Co-located with Santos Darwin LNG and INPEX Ichthys LNG processing facilities
- Focus on low emission hydrocarbons, hydrogen, advanced manufacturing, CCS and minerals processing
- Support the use of renewable energy
- Incorporate CCS from local/international sources; offshore geological storage
- Early stage scoping downstream processing of vanadium, copper, cobalt, phosphate

Northern Territory Government support – advancing resource develop[t]

Resourcing the Territory

- Northern Territory Geological Survey funded to undertake geoscience studies and collaboration to improve the understanding of the critical mineral potential
- Competitive exploration grant scheme available to industry to support and de-risk exploration
- For further information:

  Resourcing the Territory website
  www.resourcingtheterritory.nt.gov.au

  Geoscience data and products
  gemis.nt.gov.au
  or email: geoscience.info@nt.gov.au

  Geoscience and titles web mapping
  strike.nt.gov.au

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REALISE THE OPPORTUNITY

Thank you

Dorothy Close
Director Regional Geoscience
Northern Territory Geological Survey

AUSTRALIA'S NORTHERN TERRITORY