AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Unlocking knowledge: WA Array

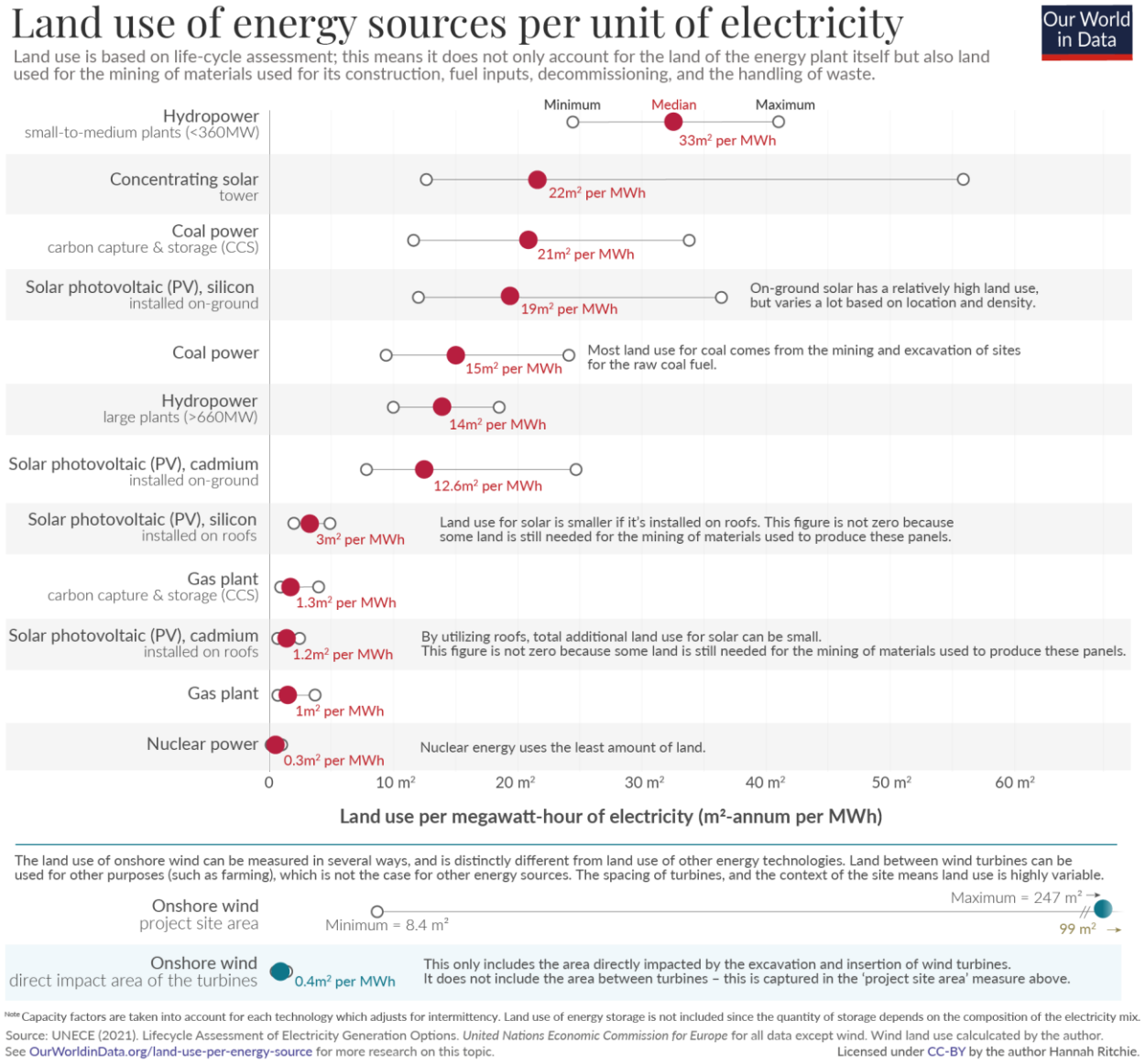
Western Australia's passive seismic network

Richard Chopping
Strategic Science Advisor
Geological Survey of Western Australia

GOVERNMENT OF WESTERN AUSTRALIA

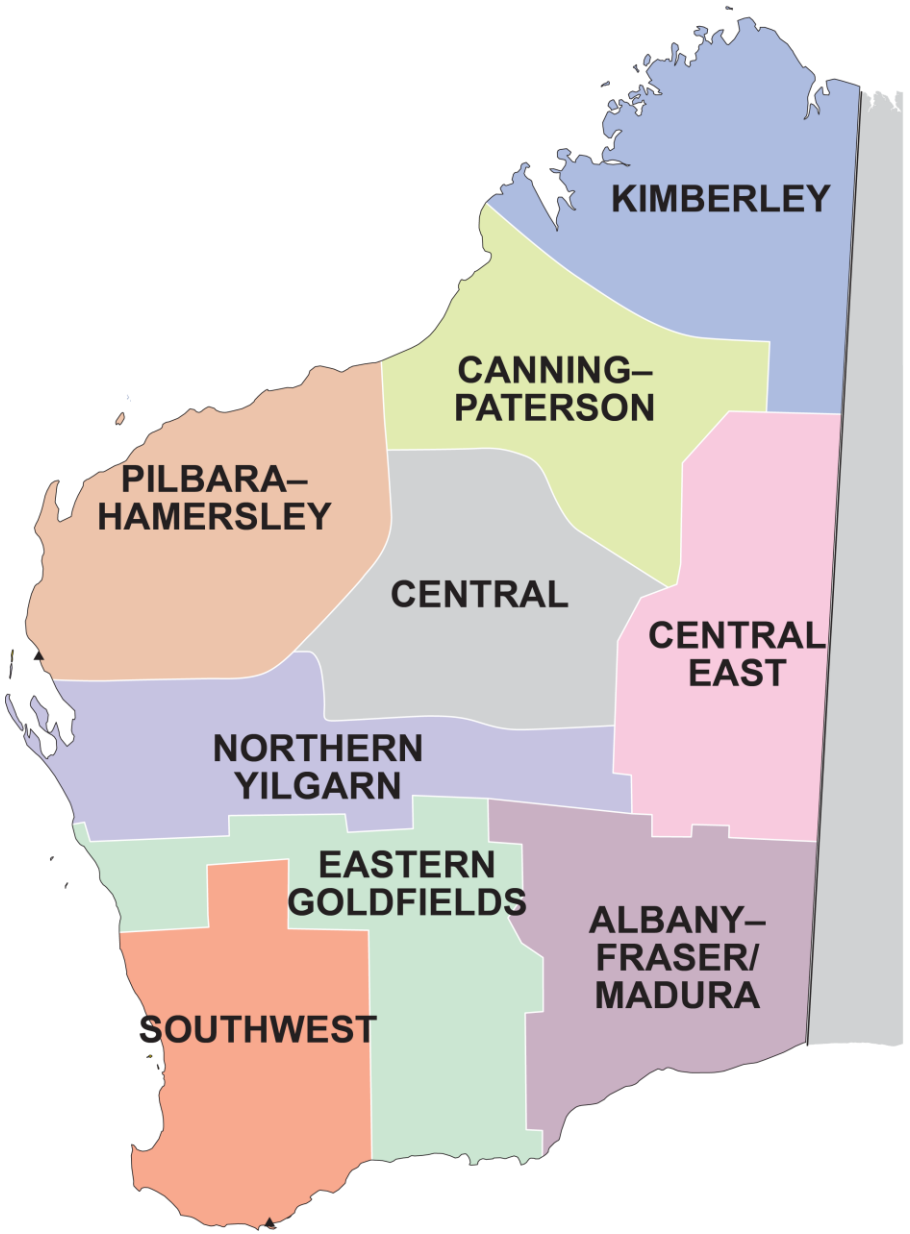
Department of **Energy, Mines, Industry Regulation and Safety**
Geological Survey of Western Australia

Space: the final frontier

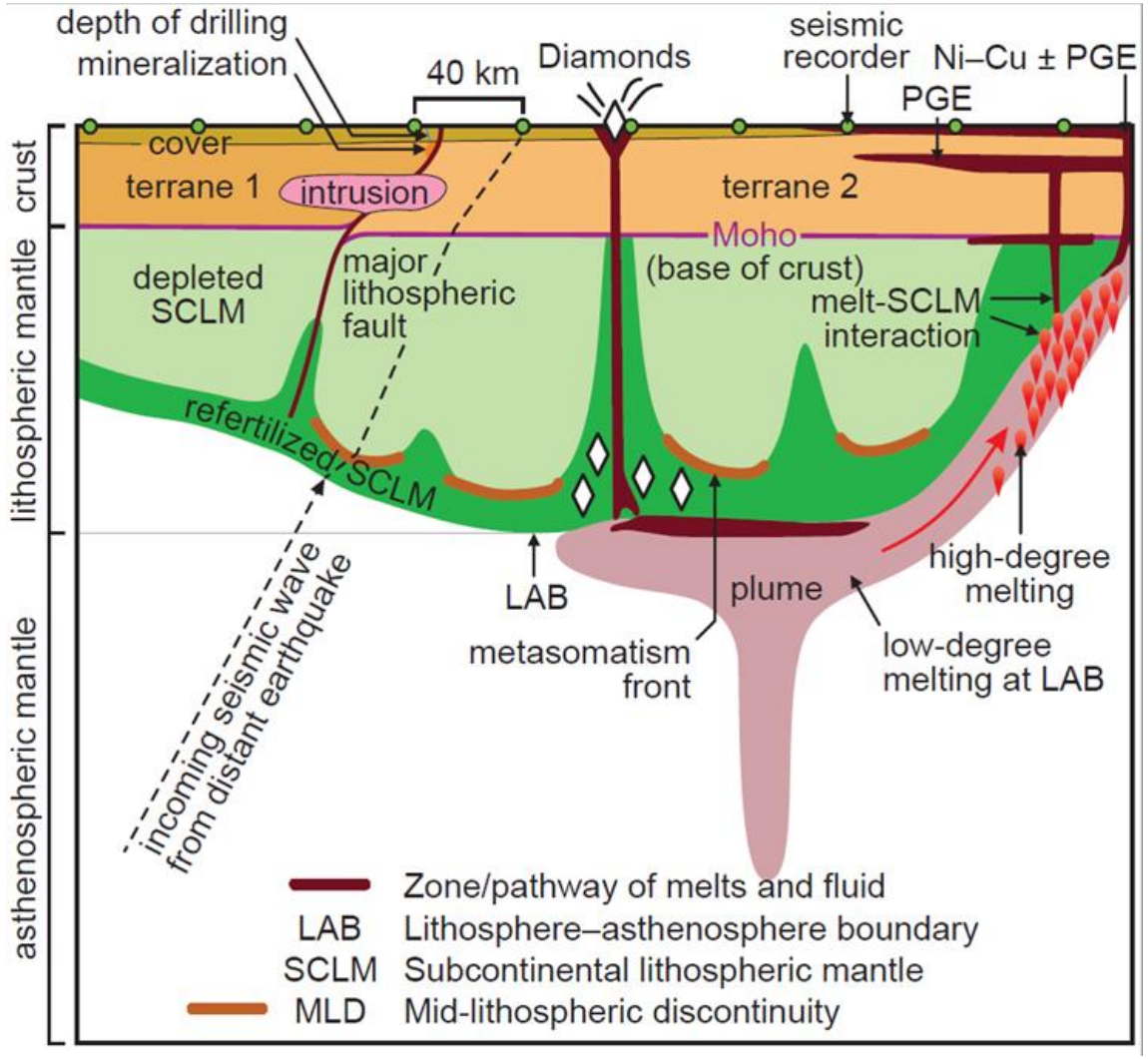


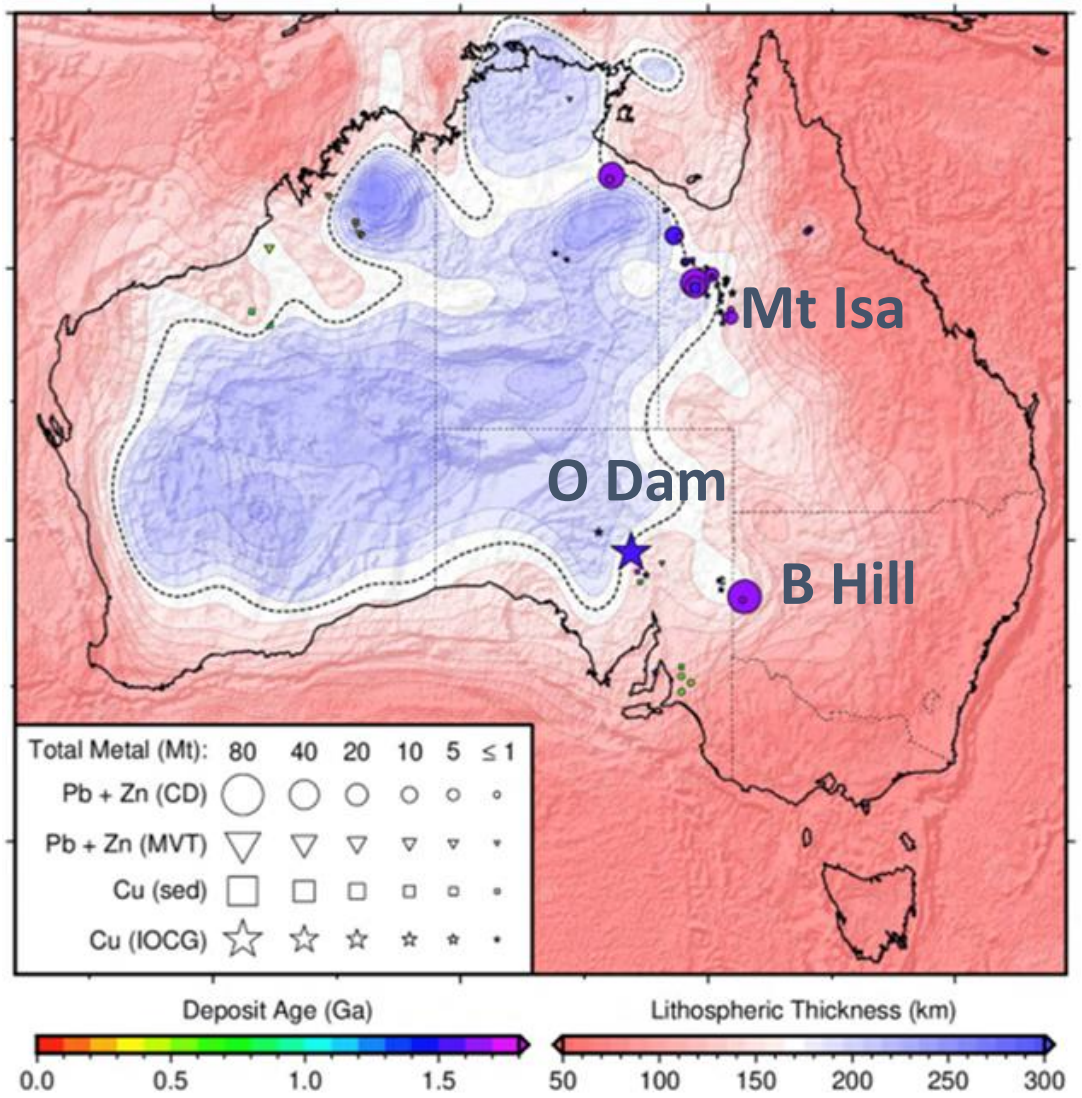
What is WA Array?

- Largest passive seismic project in the world
- 10-year project 2022-2032
- 40 km spacing
- 1 500 locations across the State
- AU$40 million funding
- Highly collaborative project
- Land use planning at the largest scale, and de-risking exploration corridors and mineral system camps

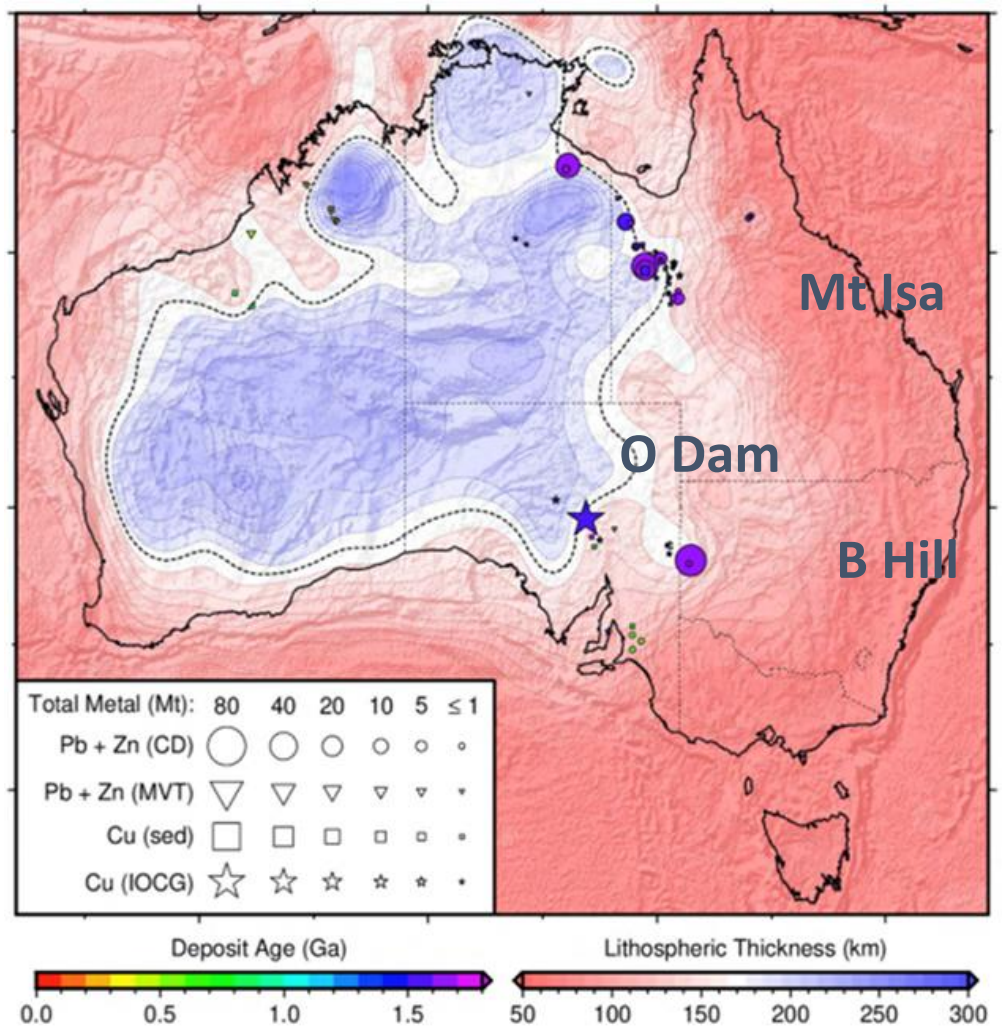


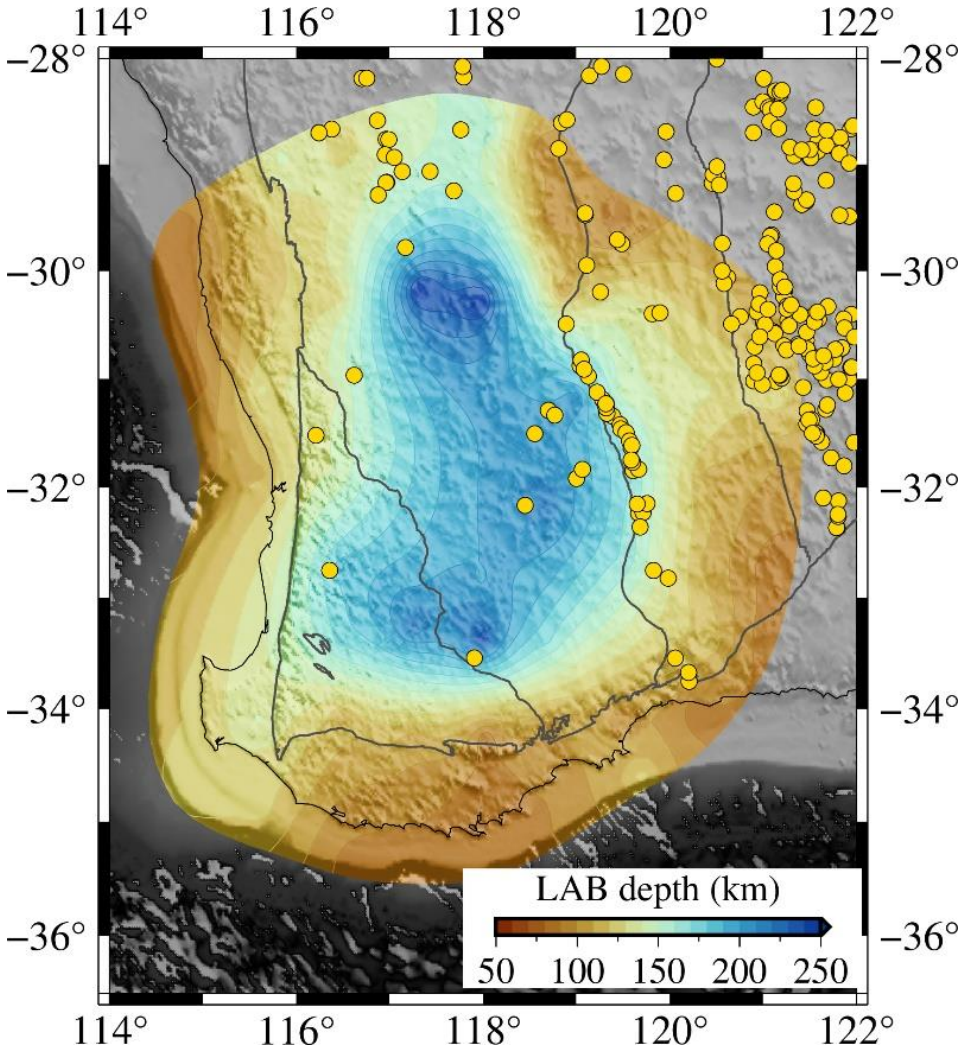
170 km boundary



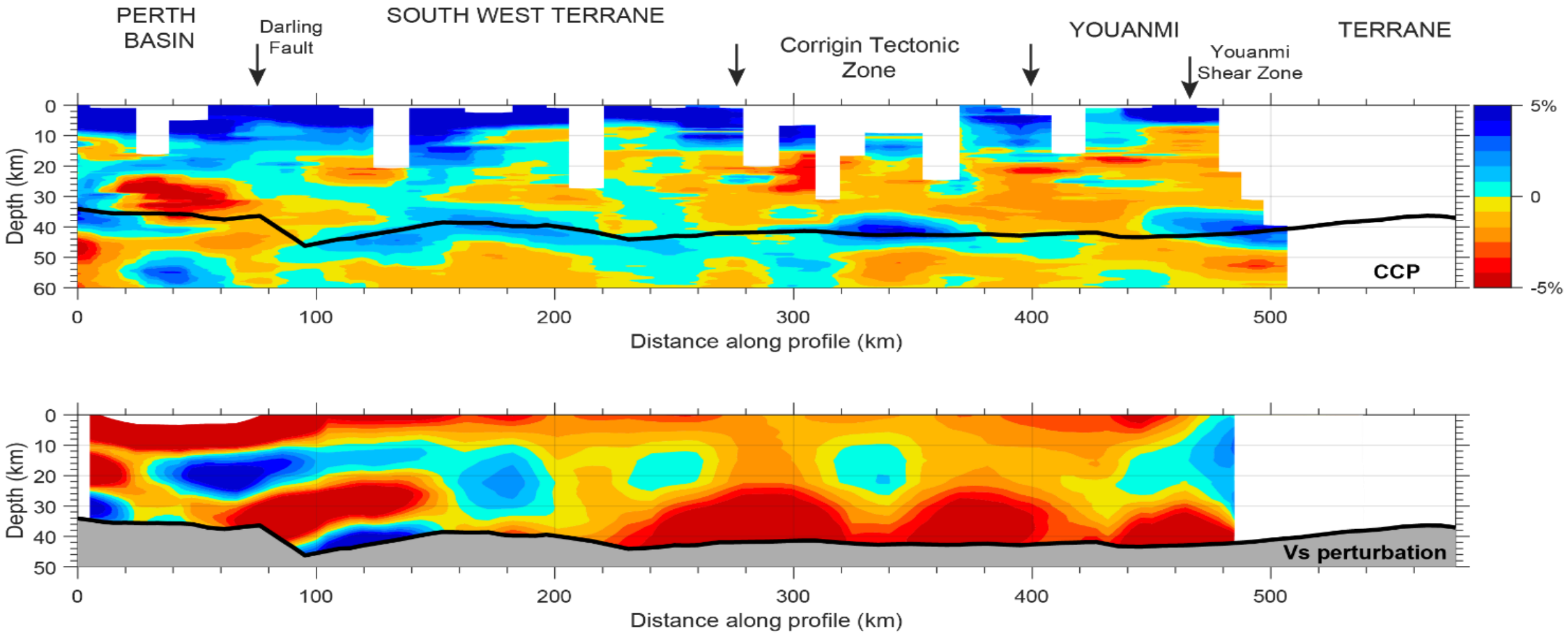


Lithosphere-asthenosphere boundary (LAB)

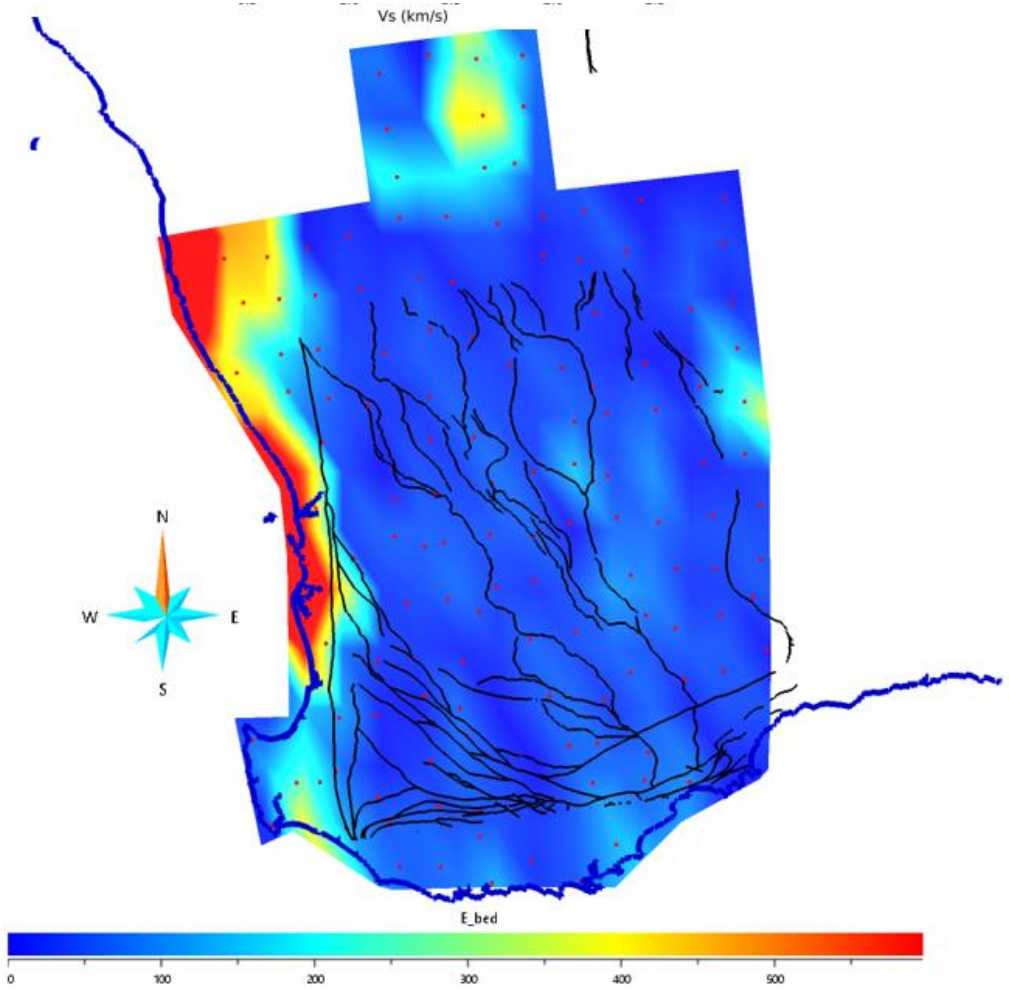




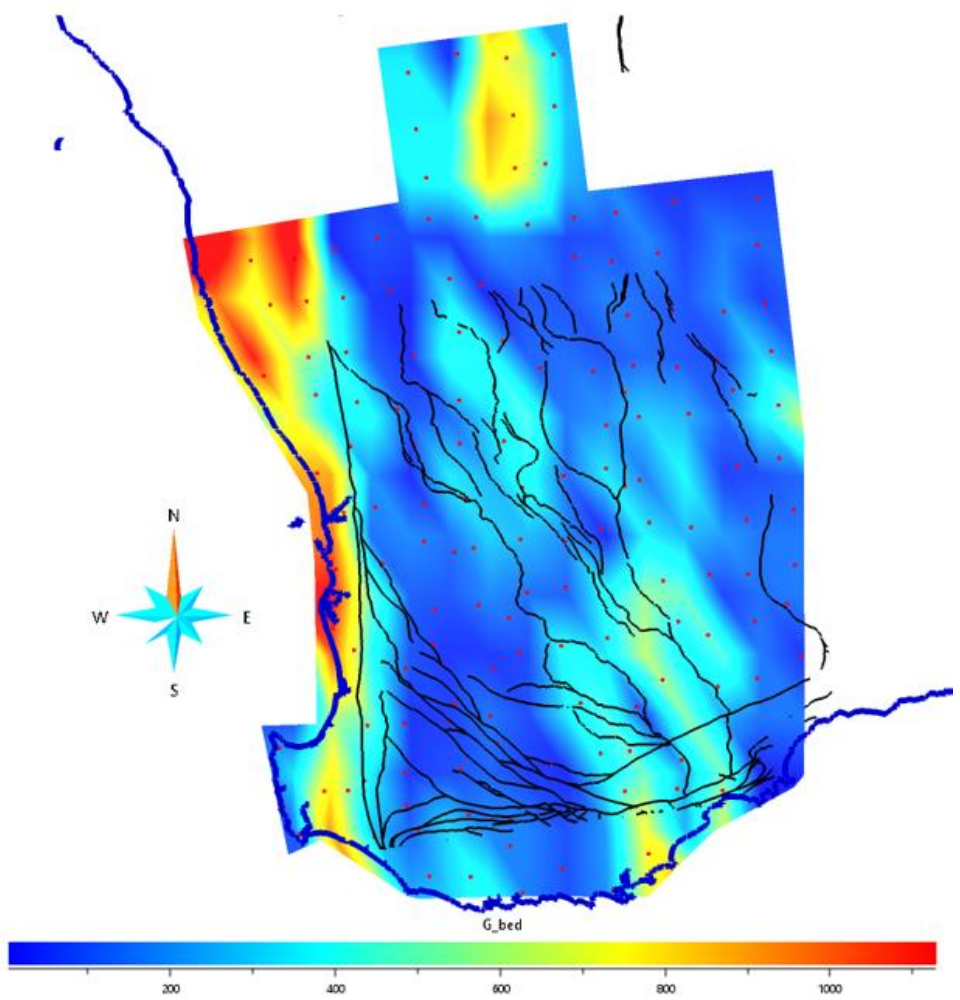
Lower cost, better resolution, further depths



Attenuation: engineering parameters



Engineering bedrock depth(m)

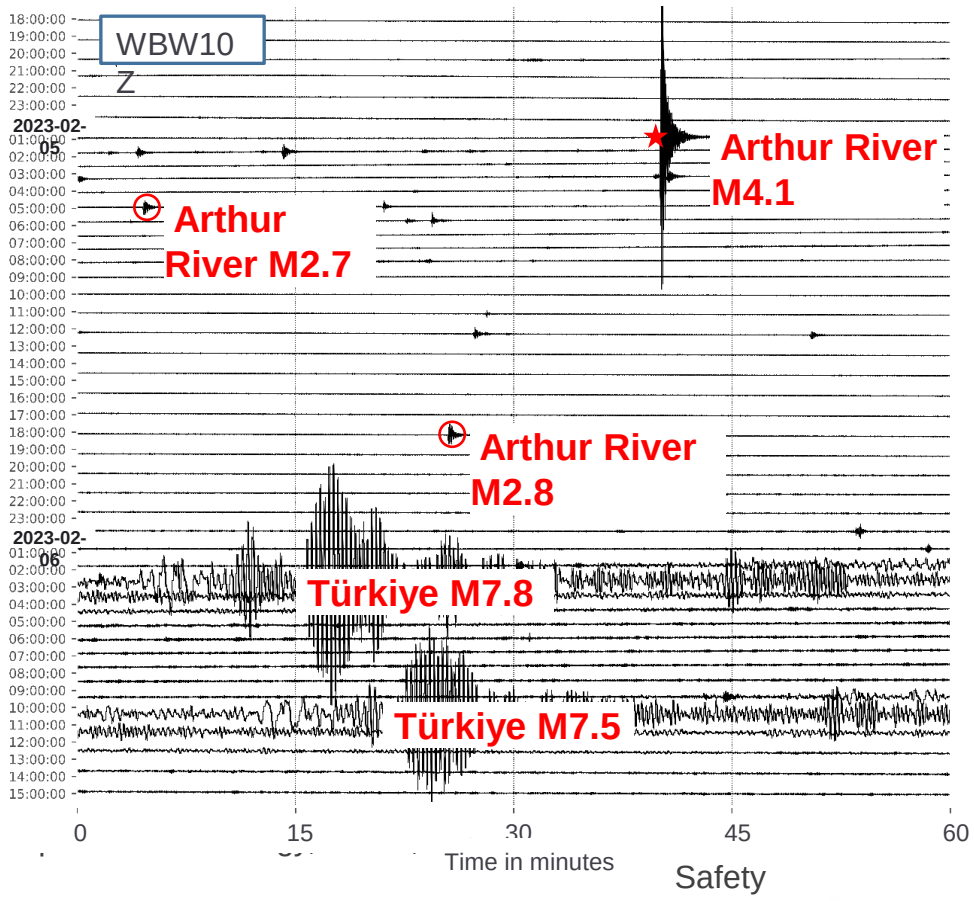


Geological bedrock depth (m)

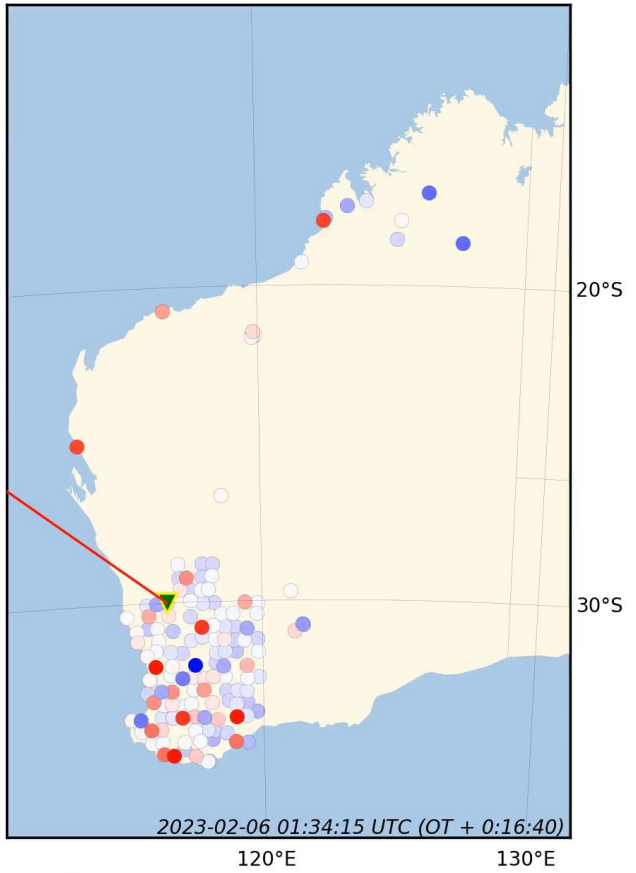
WA Array: passive seismic, active engagement

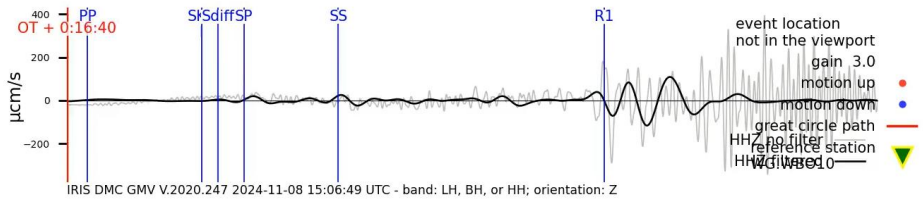
*"**Opportunities to travel/go to unexplored locations**" and the inclusion of "**issues around sustainability**" are the most appealing aspects of geoscience, with **mining being the least.**"*

- Australian Geoscience Council report 2025 into student drivers for studying geoscience.



Feb 6 2023 M7.8 Türkiye





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Critical minerals and high-tech metals in NSW

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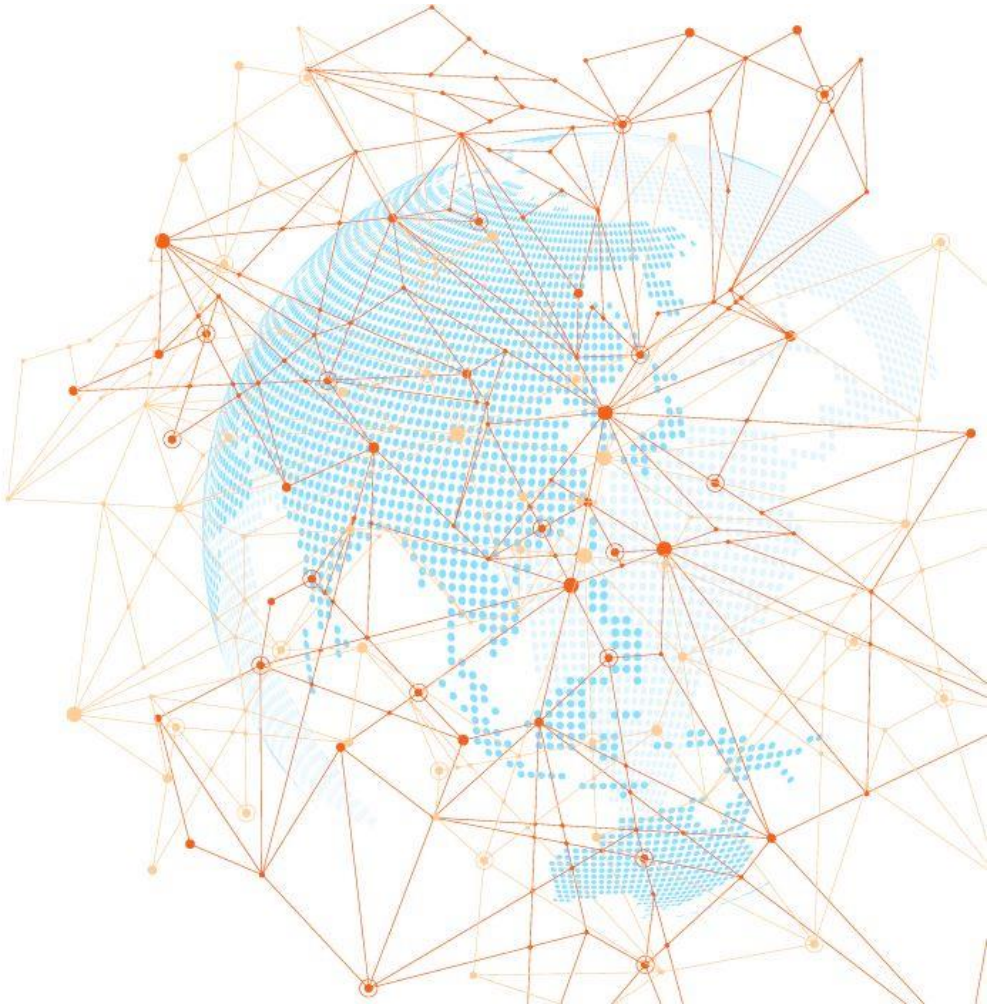
NSW GOVERNMENT

Global metal demand for the energy transition



29
Cu
Copper

x2 today's production

REE
Rare earth elements

27
Co
Cobalt

x2 today's production

28
Ni
Nickel

x30 more nickel

Strength of New South Wales mineral resources

An abundance of copper, cobalt, silver, gold, scandium, rare earth elements and other minerals

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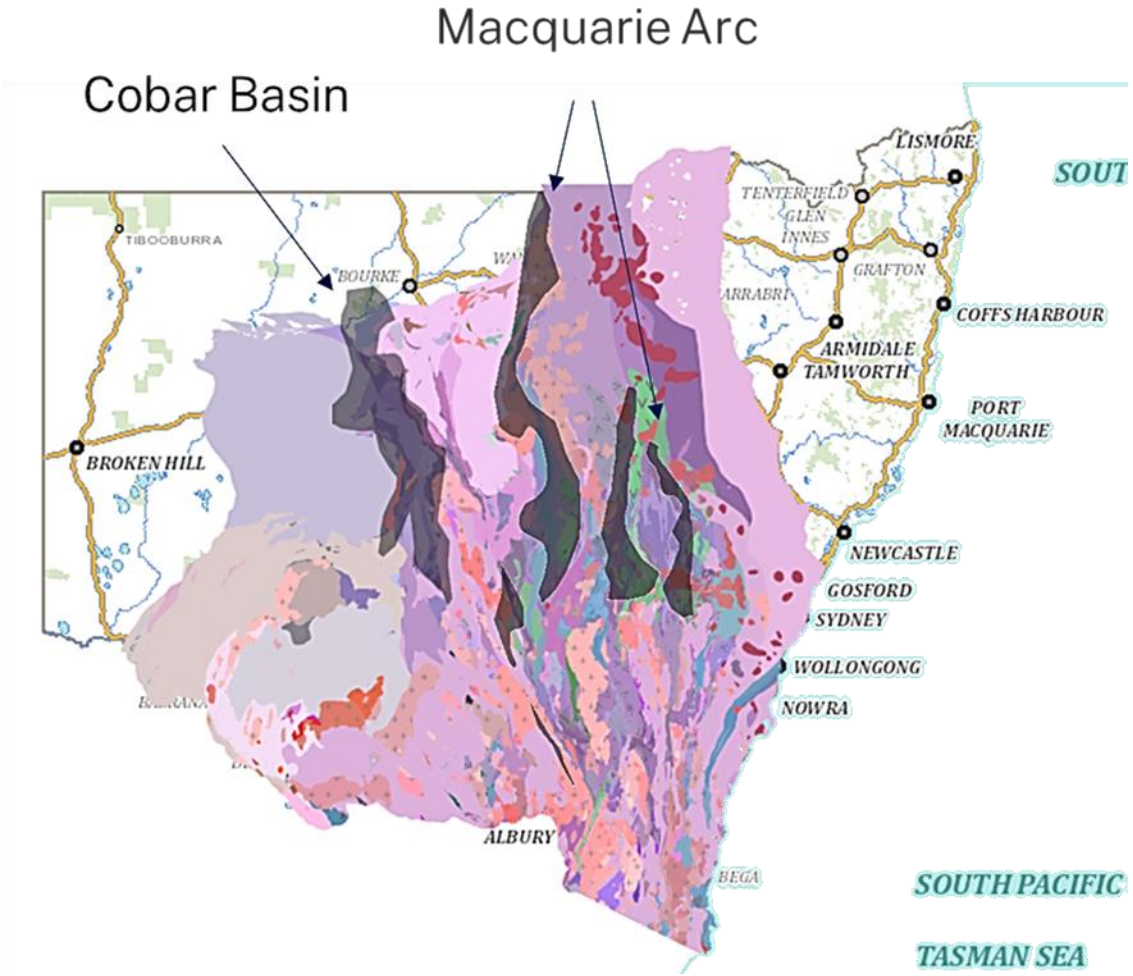
Curnamona Province

- Ancient (>500 Ma) crystalline rocks
- Different to the rest of NSW
- Geologically equivalent to provinces in South Australia
- Hosts the Broken Hill deposit
- Potential for Co, Fe, REE and iron-oxide copper gold (IOCG) deposits like Olympic Dam
- Pegmatites – Be, Li, REE, Nb, Sn

Lachlan Orogen



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  - Pb, Ag, Zn
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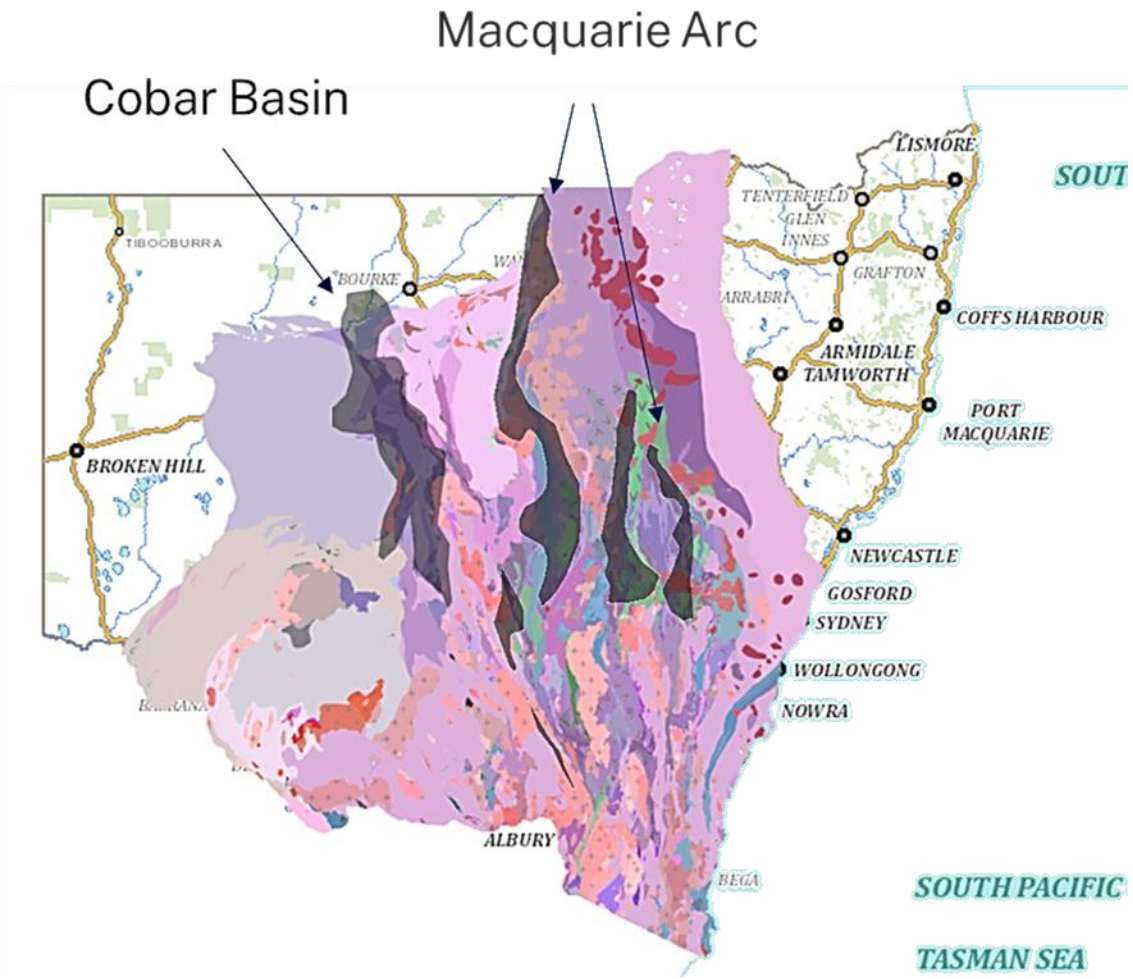

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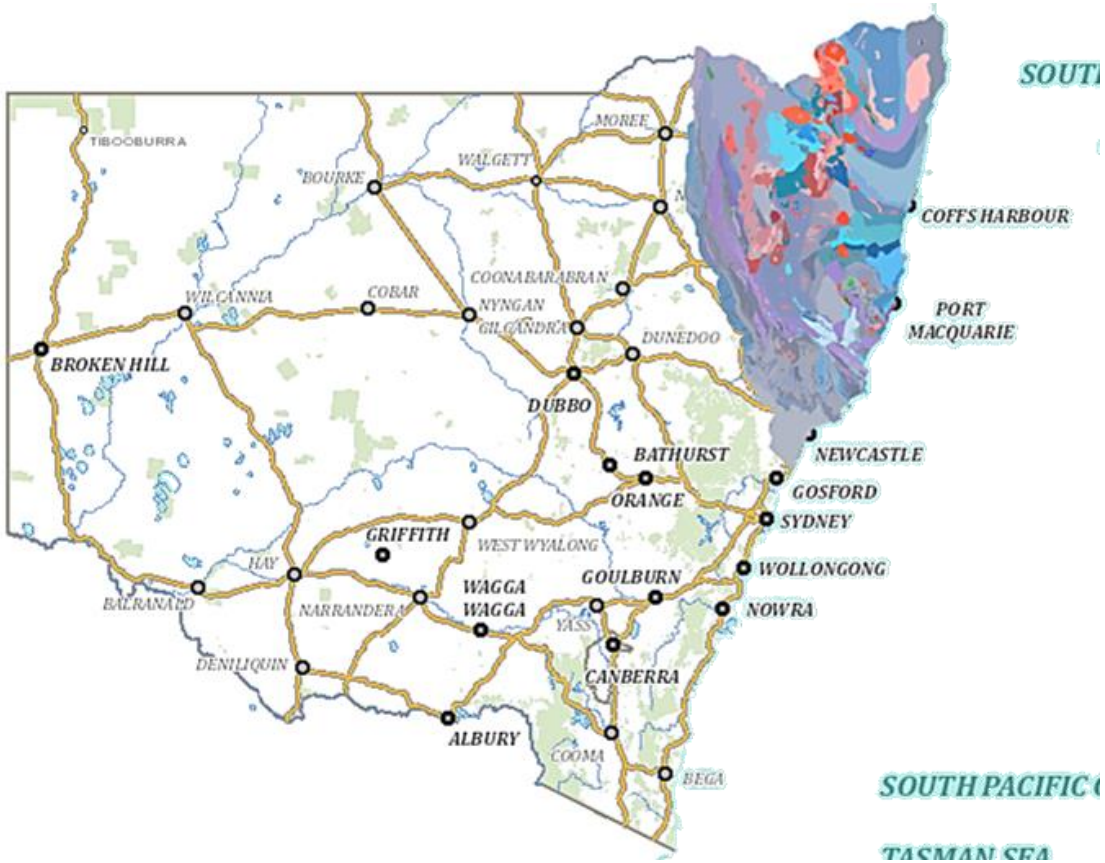

- Youngest major belt in NSW
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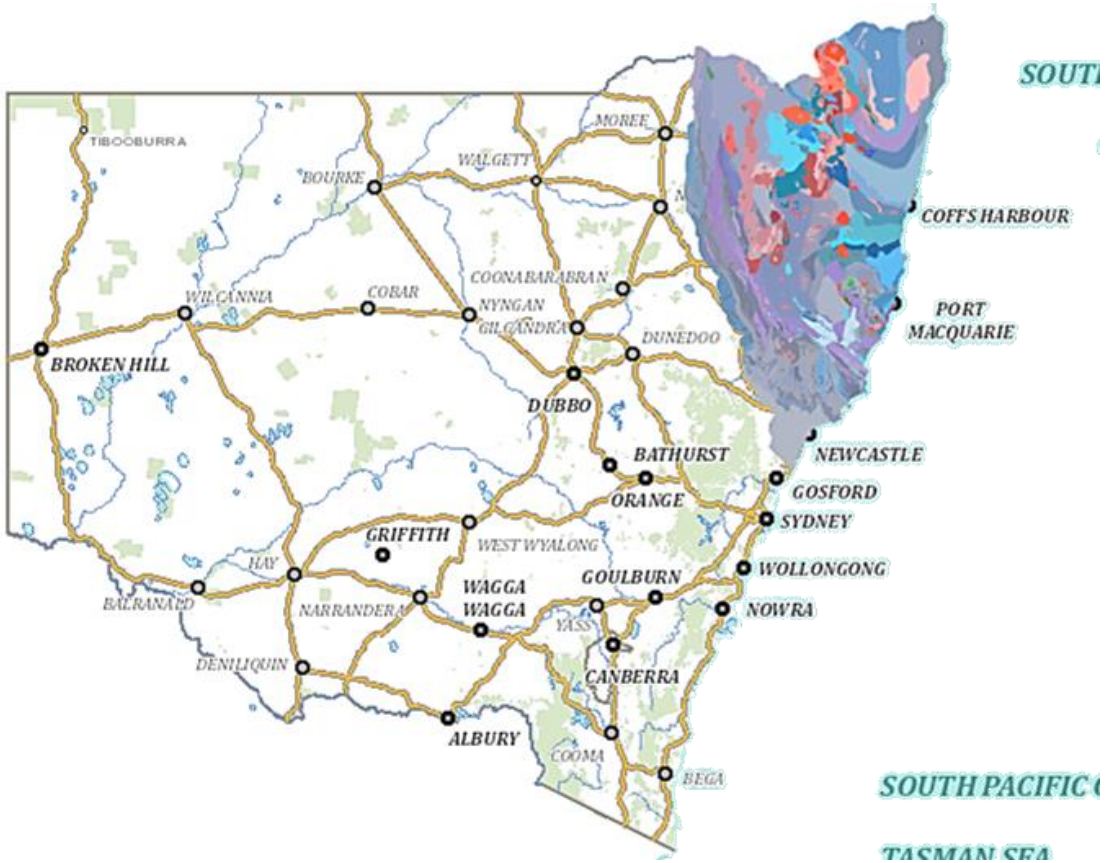
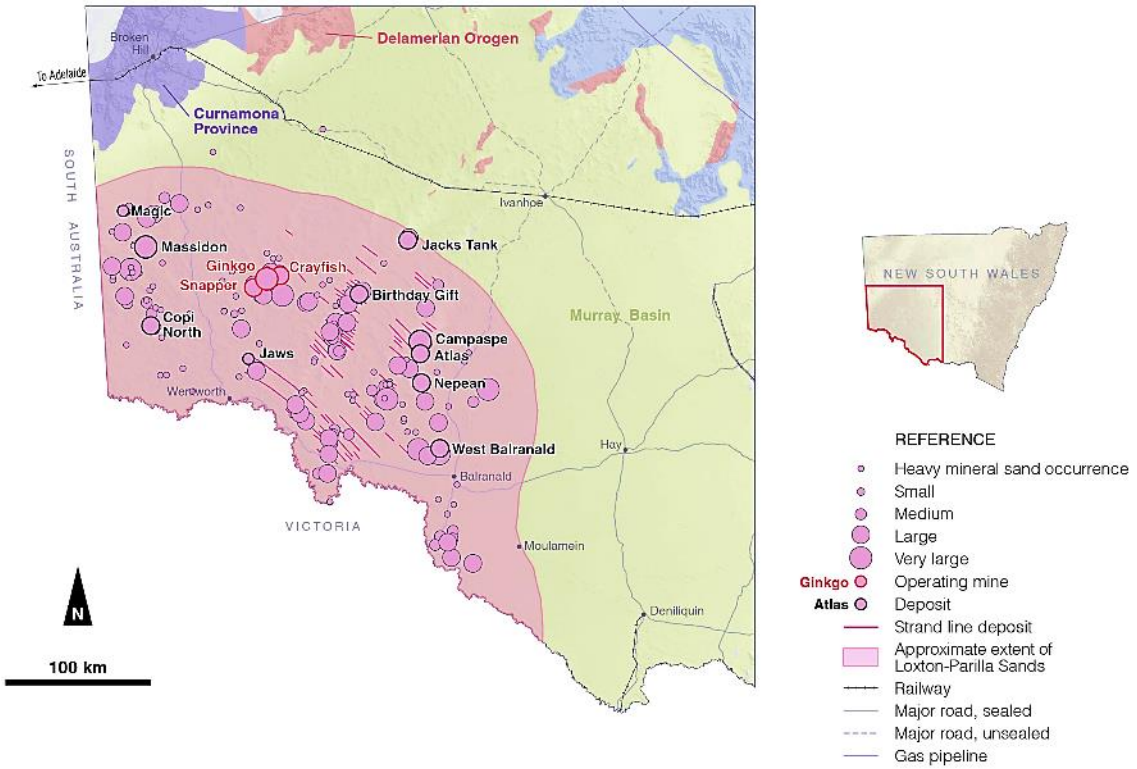


Murray Basin



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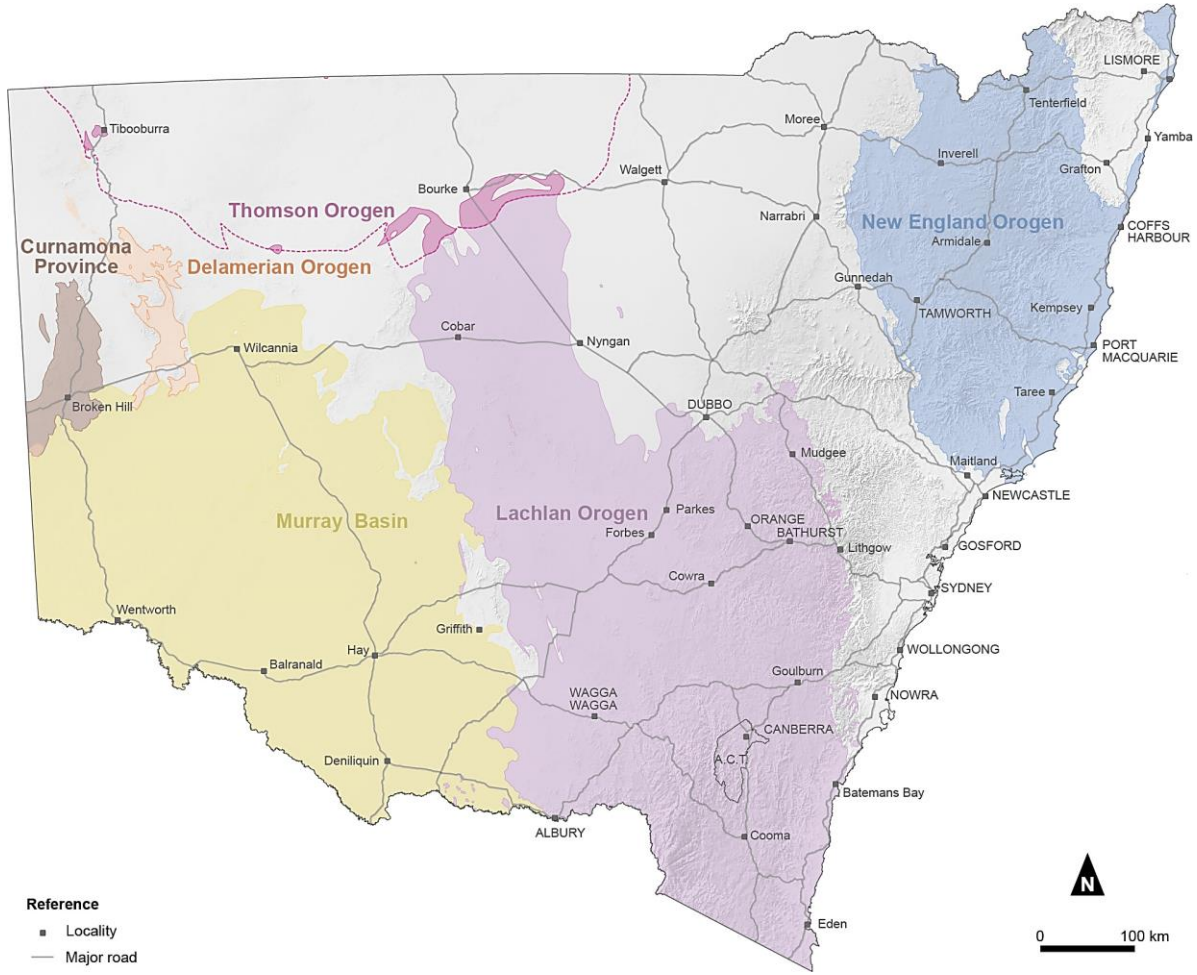
NSW critical minerals

21 of the 31 critical minerals on the Australian Government's critical minerals list



Broken Hill	Murray Basin	Lachlan Orogen	New England
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Known/potential NSW occurrence

New South Wales hosts aluminium, copper, tin and zinc which are on Australia's strategic materials list,
while silver is a priority metal in New South Wales

NSW Critical Minerals and High-Tech Metals Strategy

Vision

NSW is a leader in critical minerals and high-tech metals, generating economic prosperity through exploration, mining, processing, recycling and advanced manufacturing.

Mission

NSW will utilise its strengths in human capital, innovation and resources to drive sovereign capability, and create jobs and export revenue across the critical minerals supply chain.

Encourage exploration

- Co-invest in exploration to attract investment in underexplored areas
- Deliver a targeted pre-competitive data program
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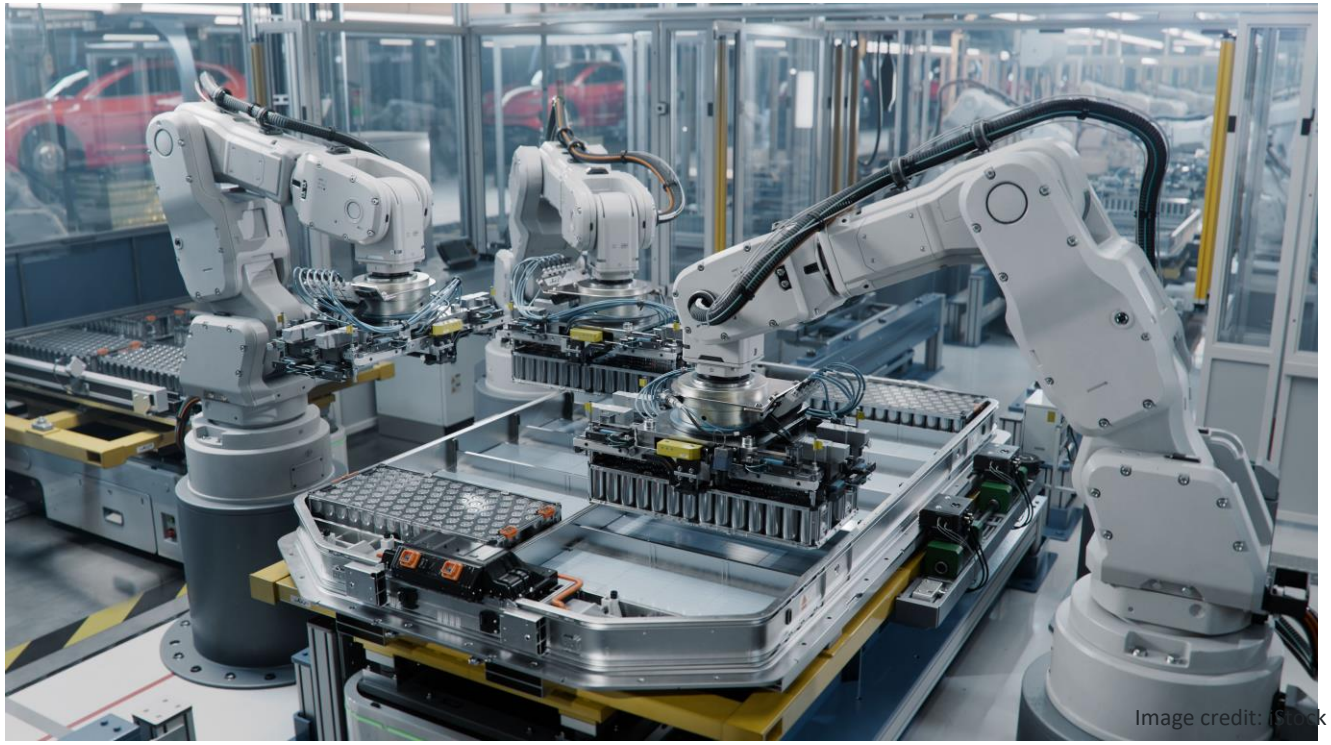

Image credit: iStock

Develop future-ready skills

- Develop a skills plan tailored for the critical minerals sector in NSW
- Ensure training courses align with future sector needs
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Image credit: ANSTO

Engage communities

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Rare Earth Elements — REE

Essential for renewable energy and advanced technologies.

Scandium — Sc

NSW leads in scandium, vital for aerospace and energy alloys.

Cobalt — Co

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Project	Company	Stage	Minerals
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Dubbo Project	Australian Strategic Materials	Approved	REE (+ Zr, Nb, Hf, Ta)
Sunrise	Sunrise Energy Metals	Approved	Co, Ni, Sc
Federation	Aurelia Metals	Approved	Zn, Pb, Cu, Au, Ag
Bowdens Silver	Silver Mines	Feasibility	Ag
Broken Hill Cobalt	Cobalt Blue	Feasibility	Co
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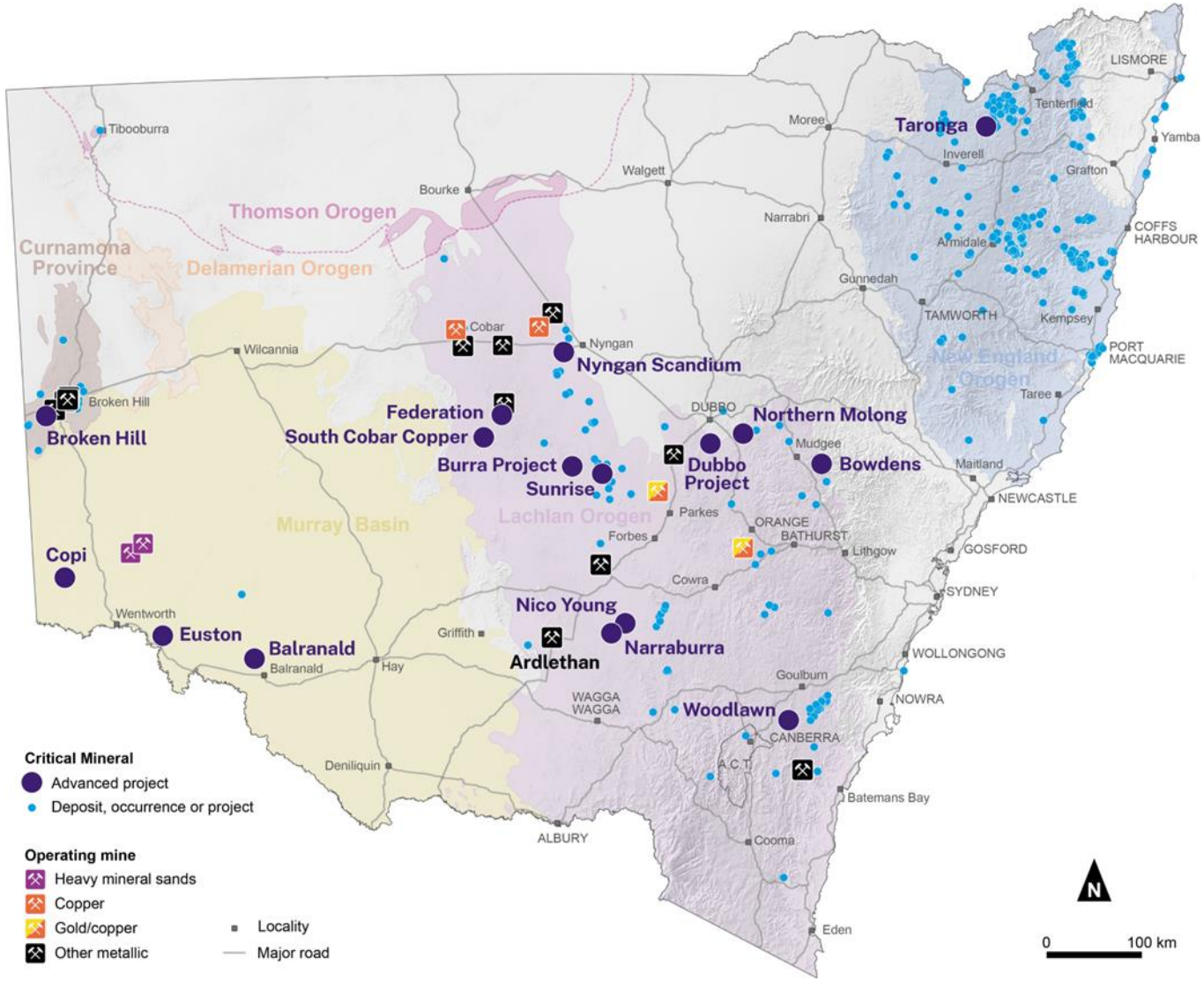

New South Wales

Snapshot of New South Wales mining industry

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59%
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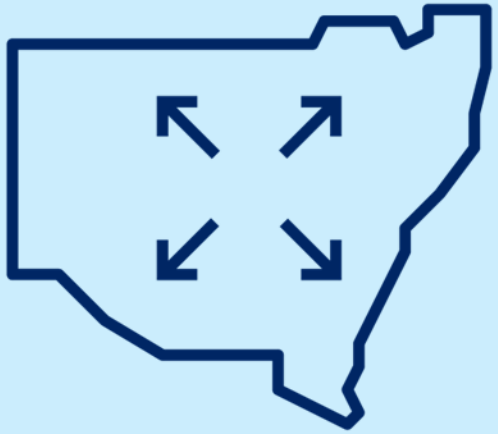

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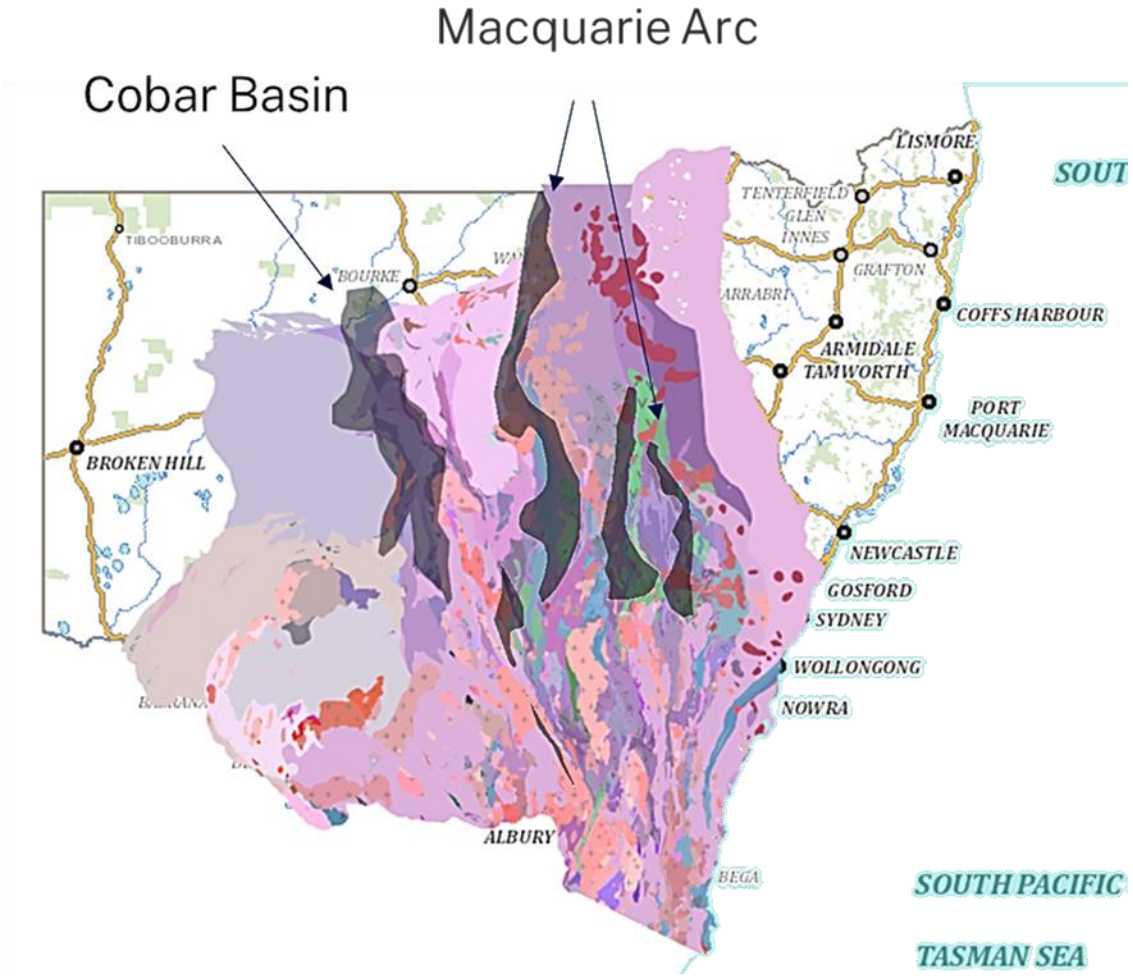

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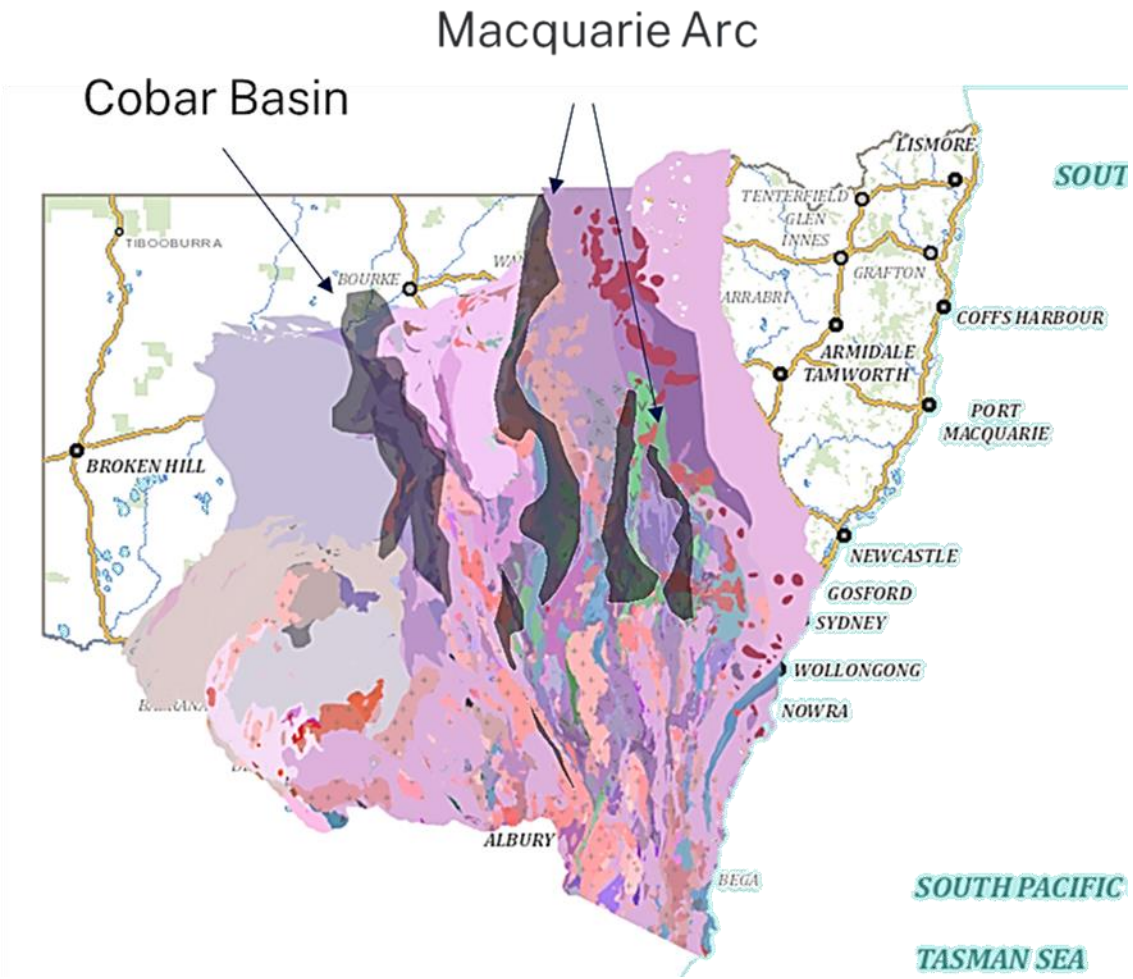

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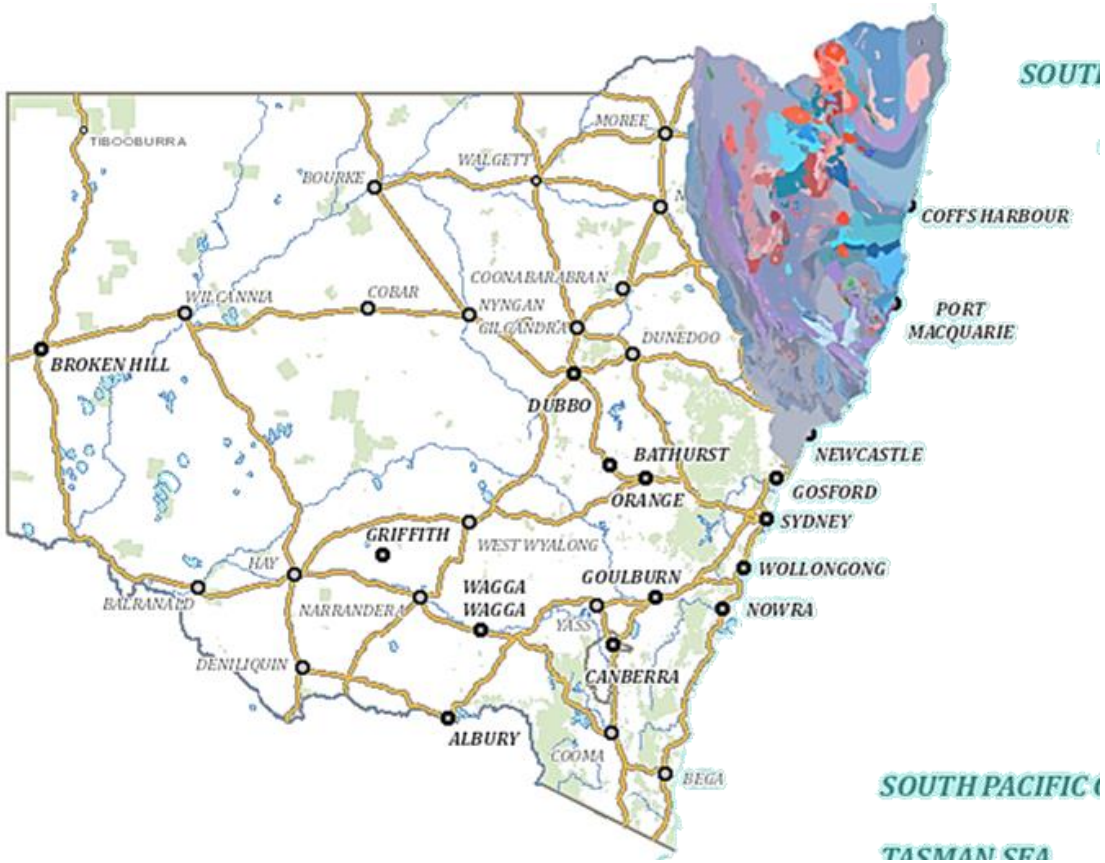

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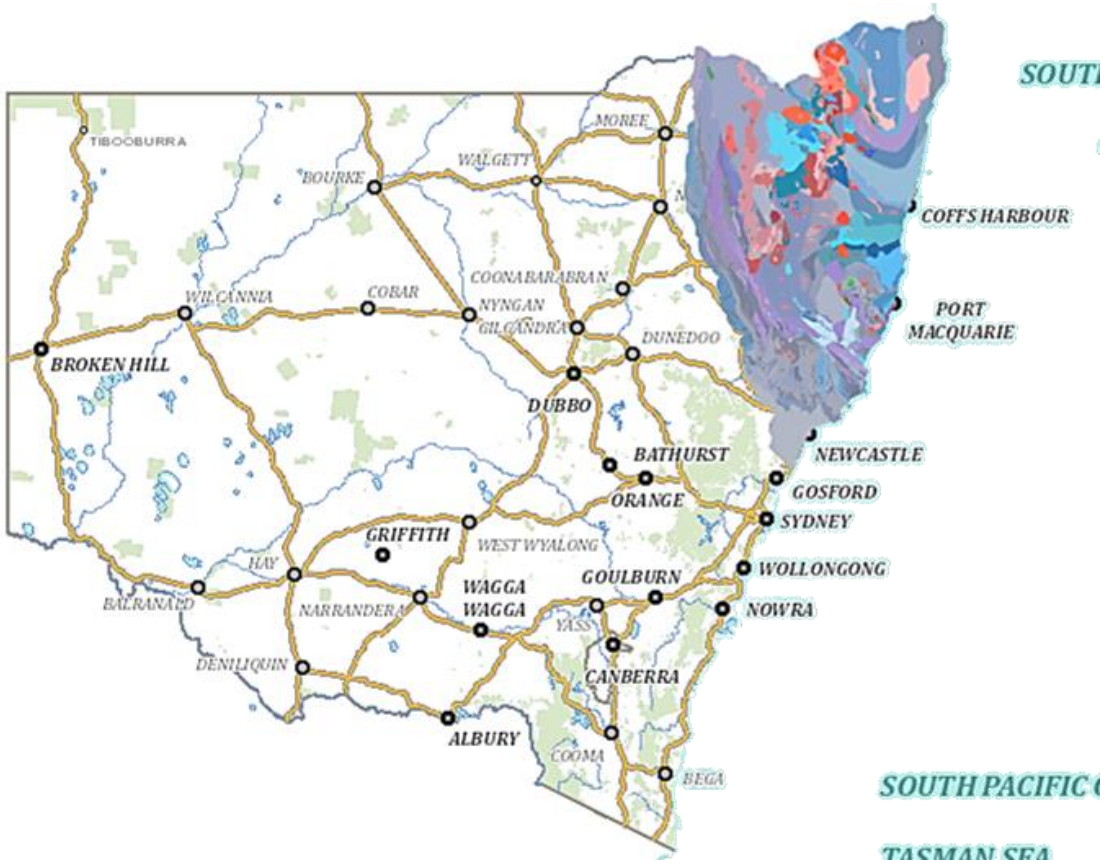

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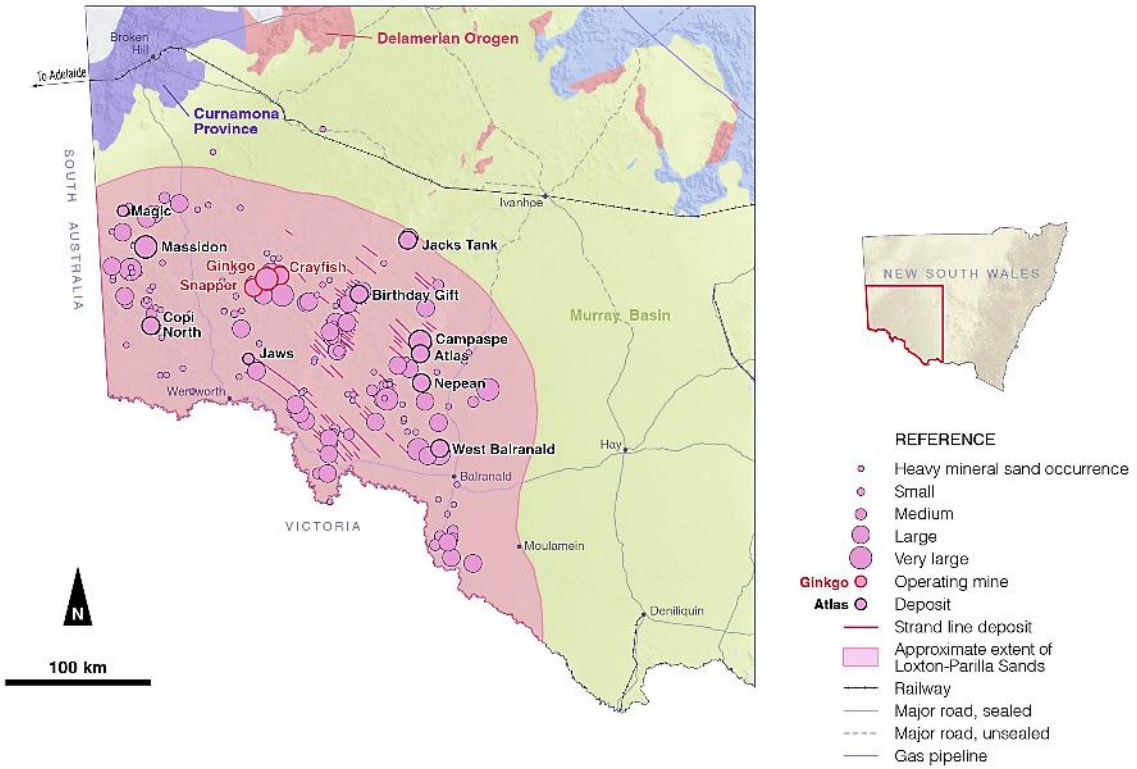

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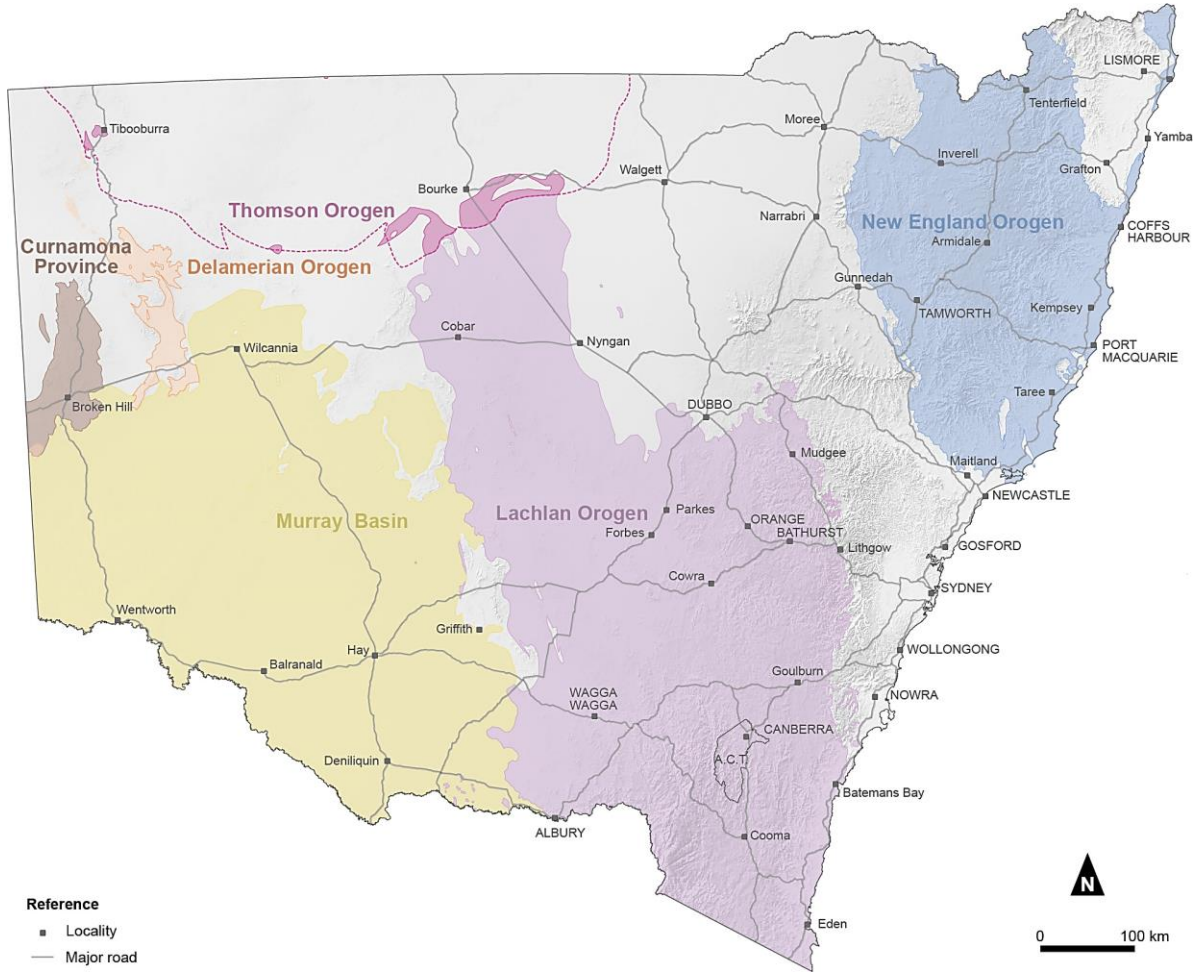

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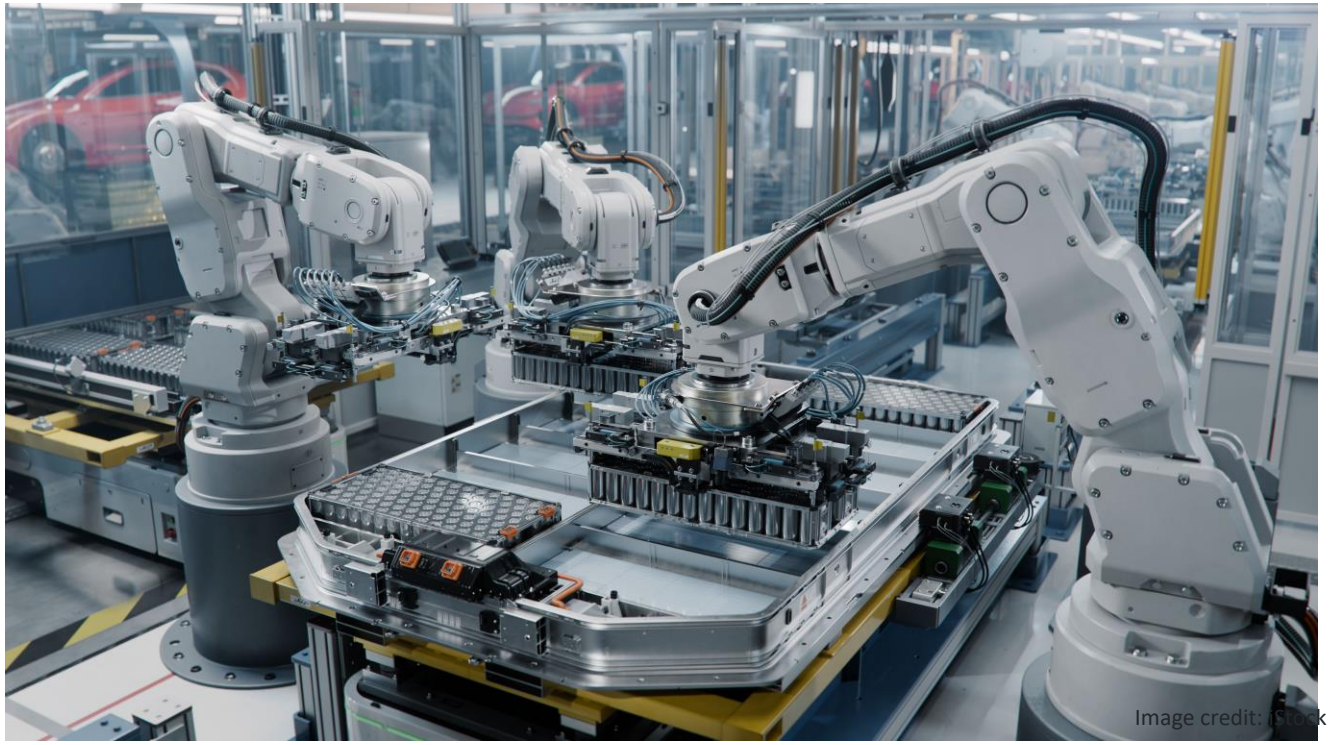

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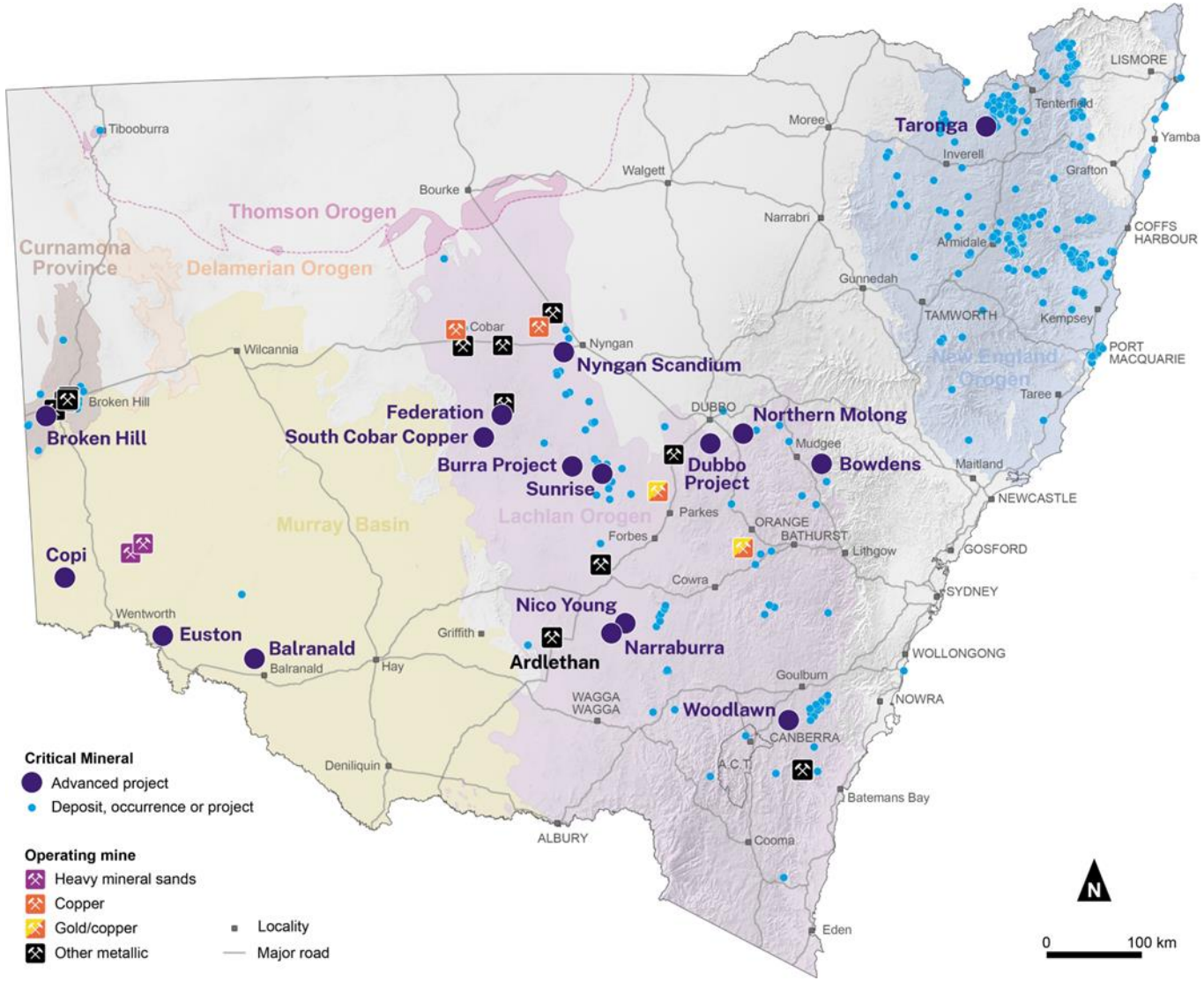

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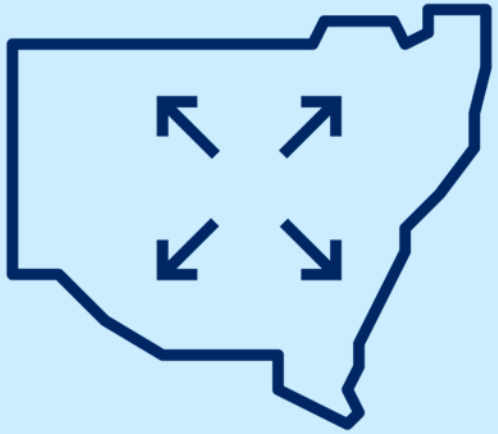

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Resourcing Australia's Prosperity initiative – $3.4b over 35 years

What will it do?

Karol Czarnota
Principal Science Advisor
Minerals, Energy and Groundwater

Australian Government
Geoscience Australia

Drivers for the initiative

Australian economy

Net zero transition

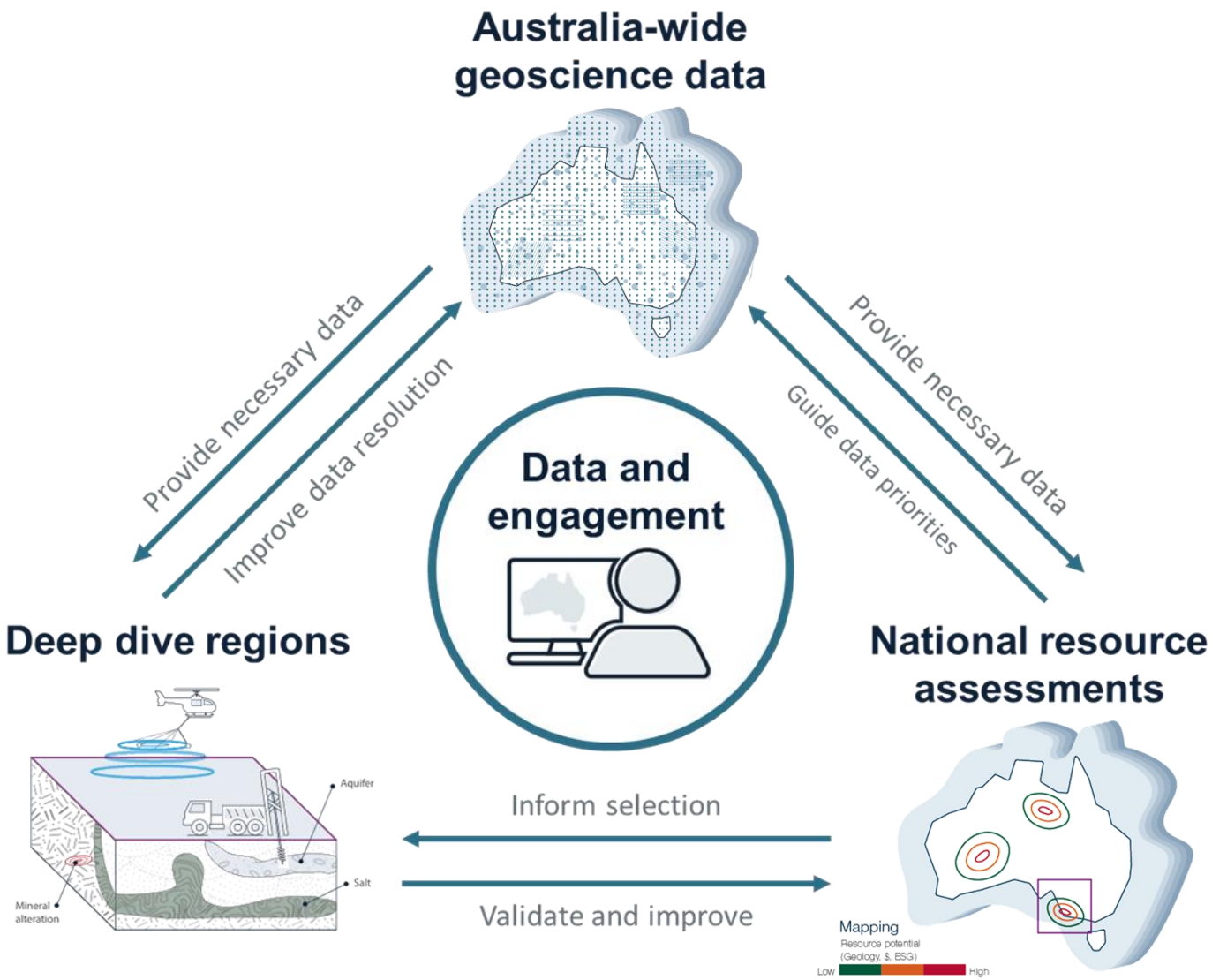
Concentrated markets

Geopolitics

Information

First Nations

4 integrated components



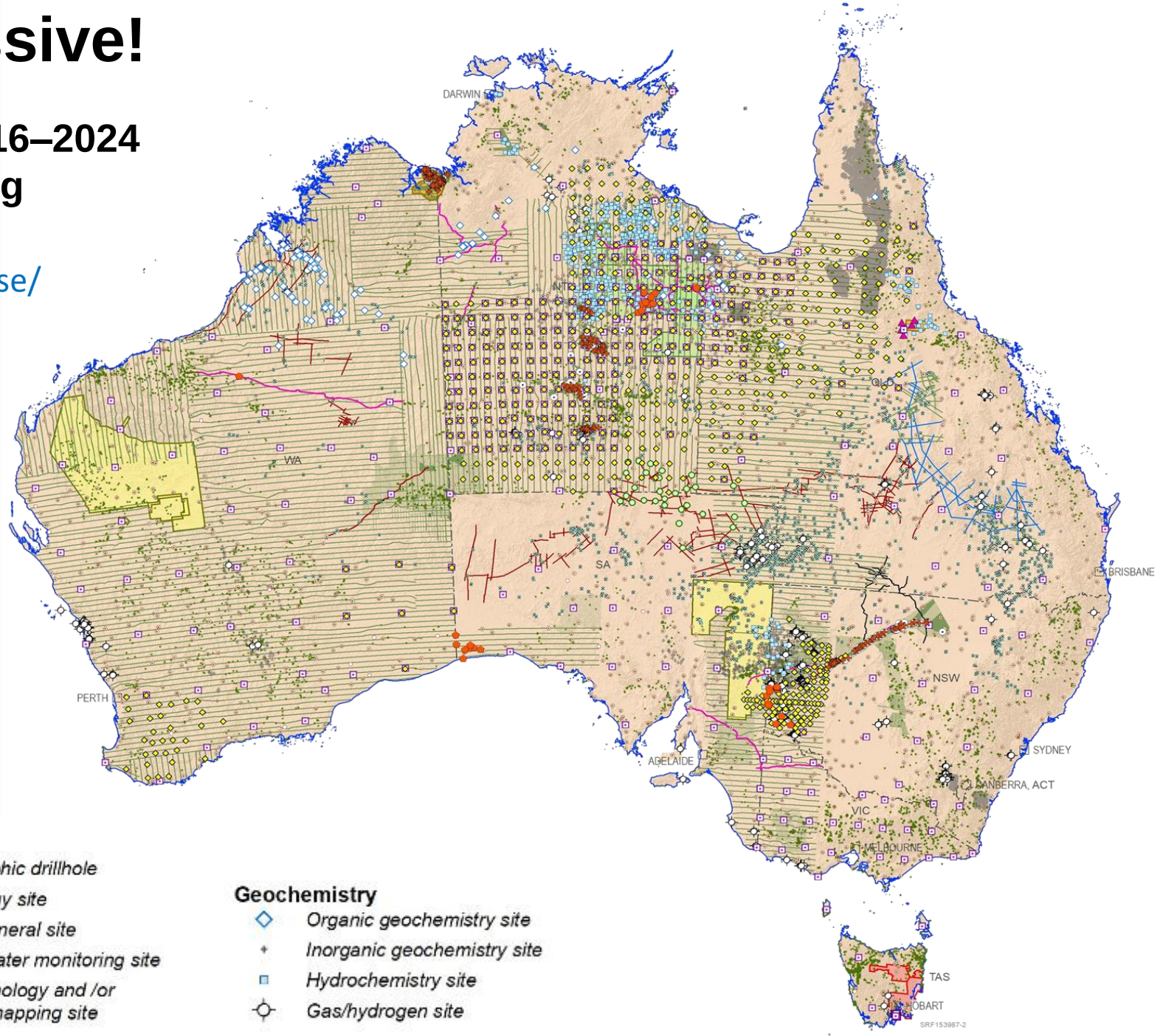
4 key objectives

1. Assess national resource potential, mapping all of Australia's critical minerals and strategic materials, and other resources needed to support the net zero transition
2. Assess all of Australia's groundwater systems
3. Investigate 12 deep dive regions onshore, with unrealised potential for the resources needed to support Australia's transition to net zero
4. 'Complete' Australia-wide geoscience datasets

Scale will be impressive!

e.g. Exploring for the Future 2016–2024 Data collection and reprocessing

Showcase 2024:
https://www.eftf.ga.gov.au/2024-showcase/
Exploring for the Future Summary:
https://dx.doi.org/10.26186/149743



Geophysics

- *Airborne Electromagnetic survey (reprocessed)*
- *Gravity survey*
- *LiDAR survey*
- *Magnetotelluric survey*
- *Magnetics and radiometrics survey*
- *Airborne Electromagnetic survey*
- *Airborne Electromagnetic survey (reprocessed)*
- *Seismic reflection survey*
- *Seismic reflection survey (reprocessed)*
- *Gravity survey*
- *Borehole Geophysics*
- *Magnetotelluric site*
- *Petrophysics site*
- *Passive seismic station site*
- *Surface Magnetic Resonance site*

Geology

- *Stratigraphic drillhole*
- *Palynology site*
- *Heavy mineral site*
- *Groundwater monitoring site*
- *Geochronology and /or isotopic mapping site*

Geochemistry

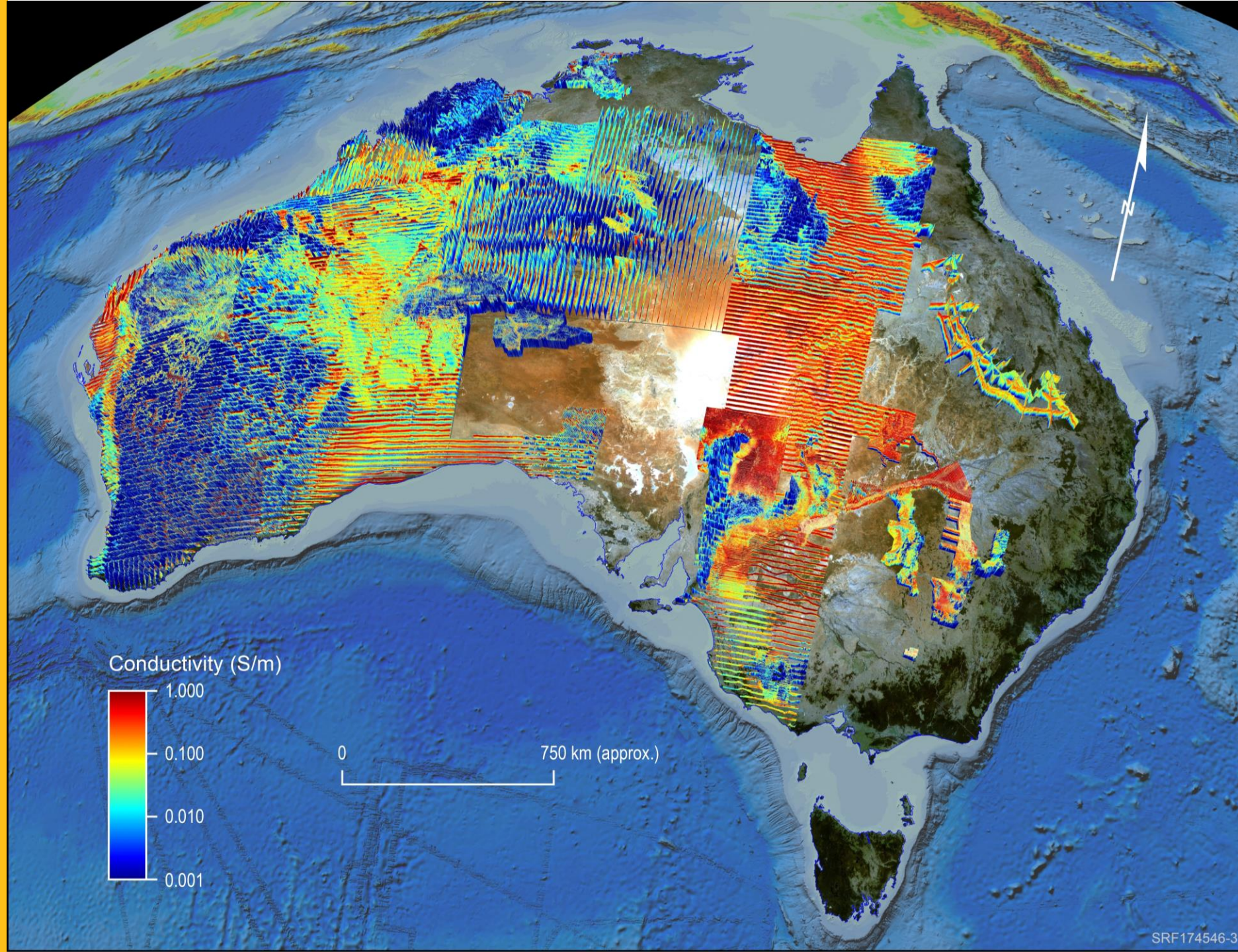
- *Organic geochemistry site*
- *Inorganic geochemistry site*
- *Hydrochemistry site*
- *Gas/hydrogen site*

Australia-wide geoscience data

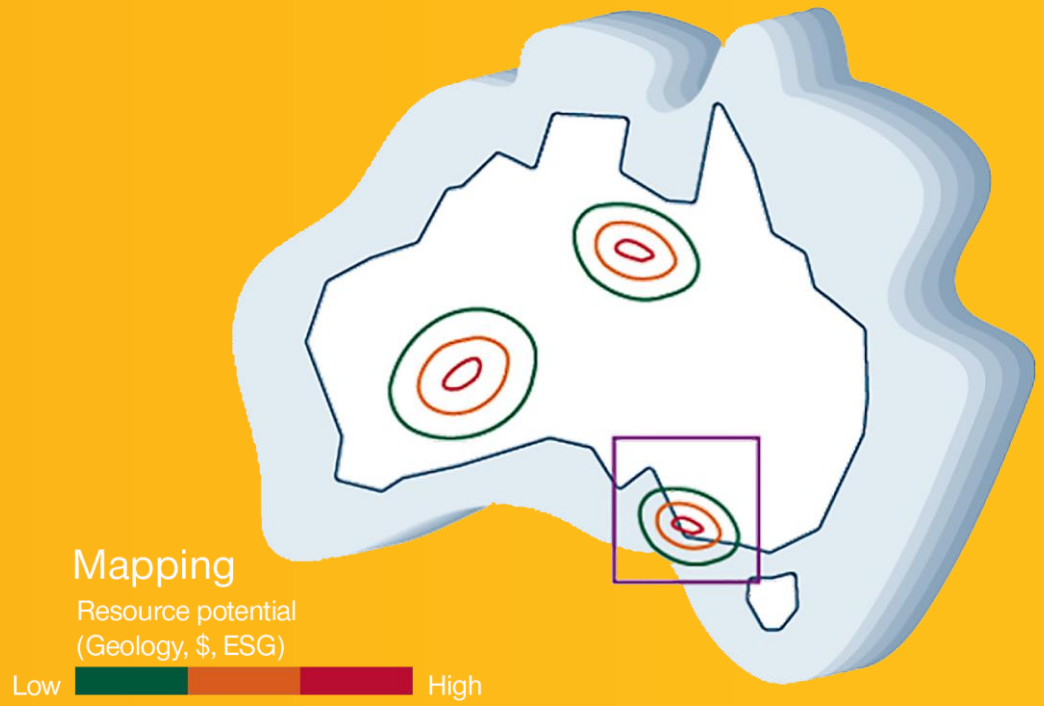
Australia-wide geoscience data

Geophysics, geochemistry & geology

Compilation, collection, interpretation & innovation



National resource assessments



National resource assessments

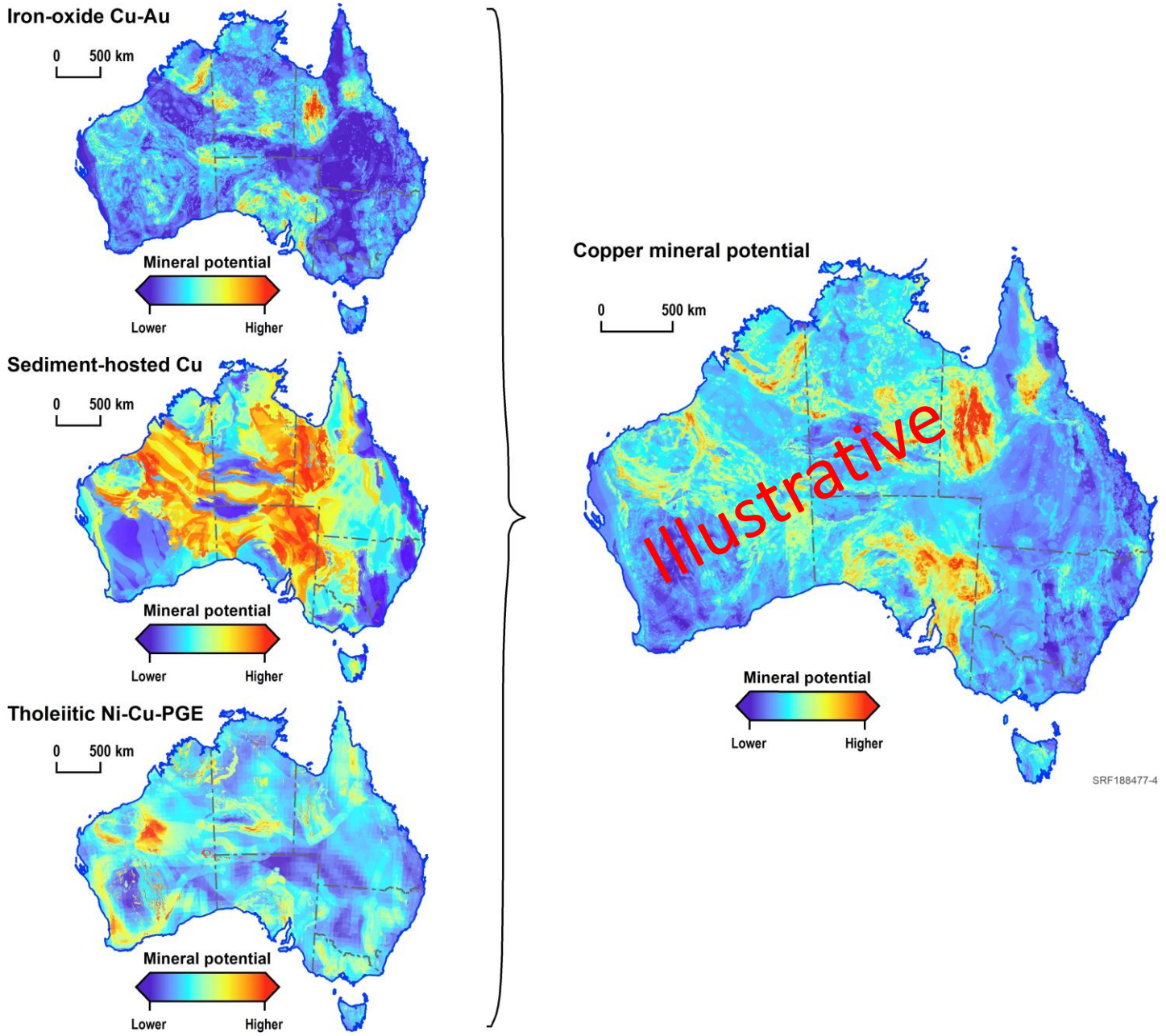
Minerals inc. re-mining

Groundwater

Geological storage (hydrogen, carbon)

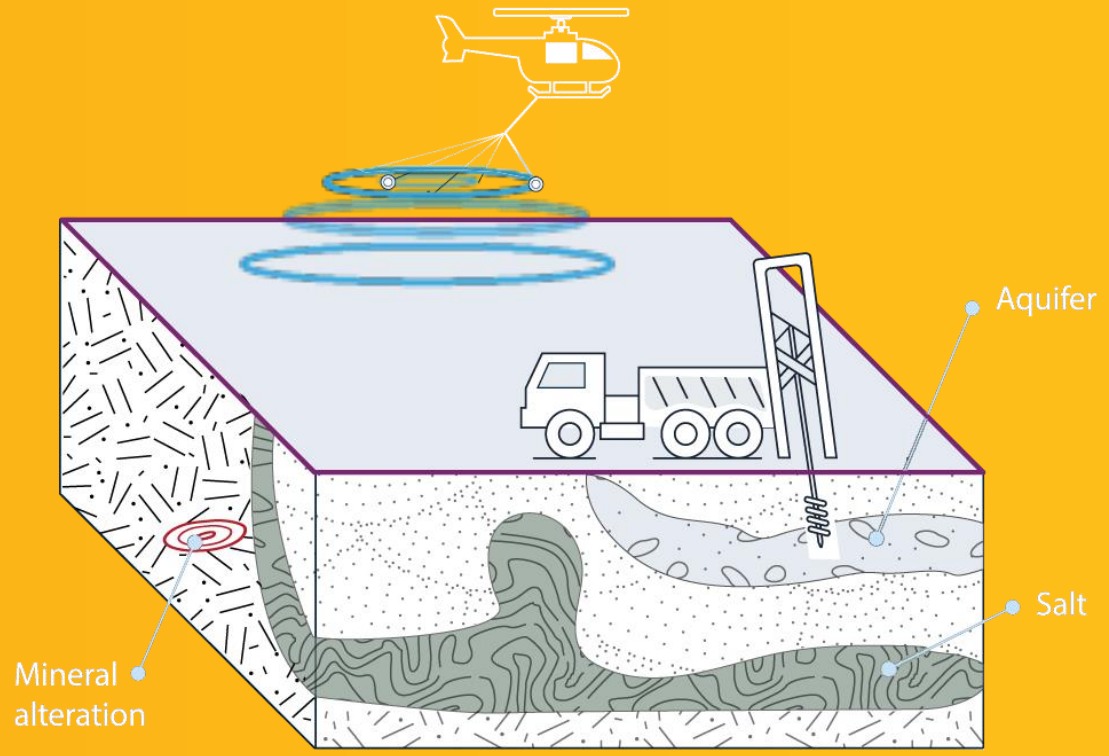
Suitability for offshore renewable energy infrastructure

Techno-economics



IOCG: https://dx.doi.org/10.26186/149357 Sed Cu: https://dx.doi.org/10.26186/147539 Ni-Cu-GE: http://dx.doi.org/10.11636/Record.2016.001

Deep dive regional projects



Deep dive regional projects

Areas selected for detailed geoscience data collection to answer specific questions

Often focused on testing resource potential under cover

Data collected at multiple scales

Geoscience hypotheses tested by drilling

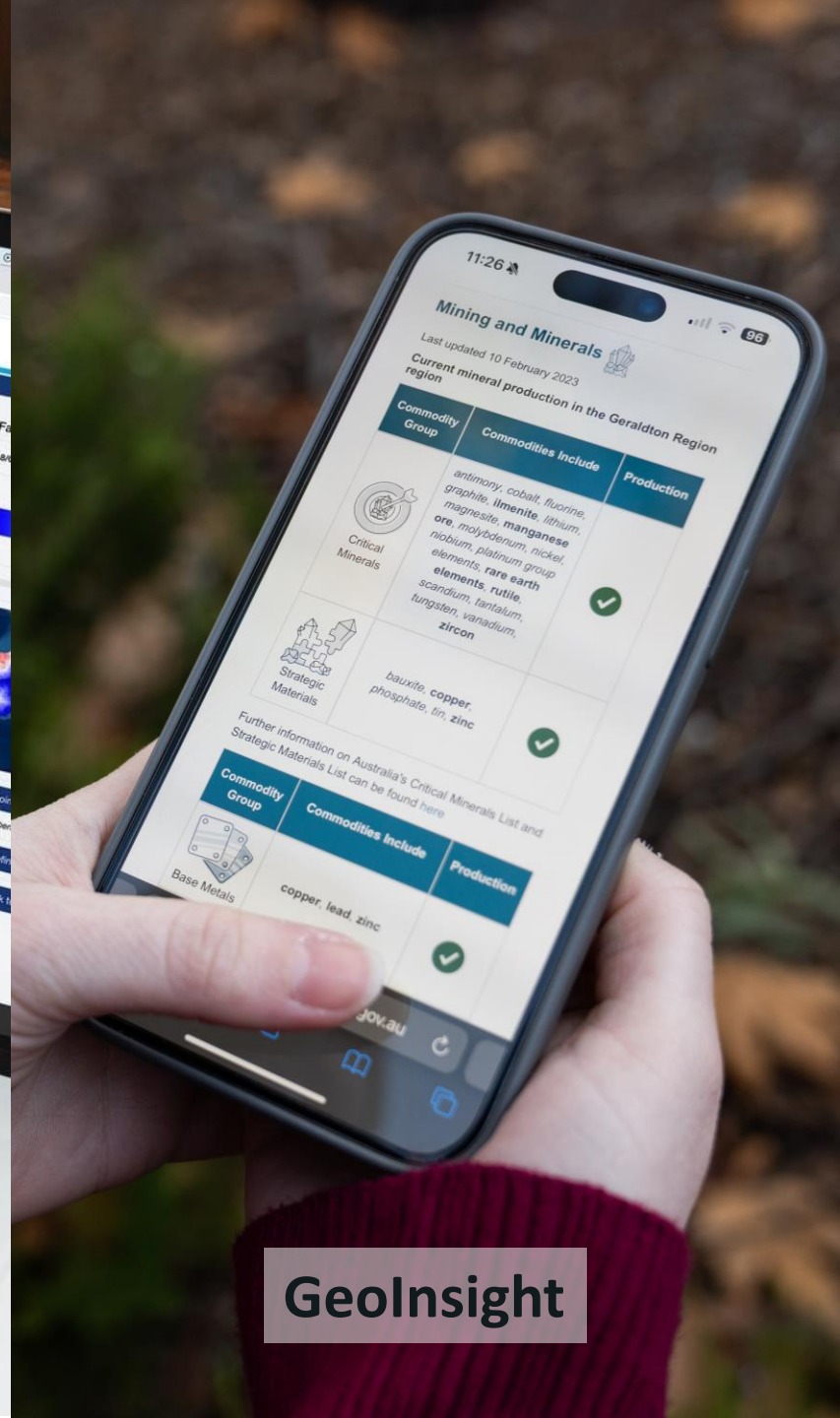
Delivery, awareness raising and engagement

Delivery, awareness raising and engagement

Data Discovery Portal – 2D and 3D, geospatial data delivery and decision support tools

GeoInsight – a new platform for delivery of insights to non-technical audiences and beyond

Visit GeoInsight



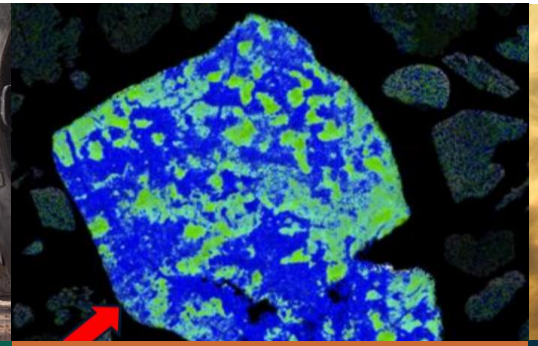
Question?

Some example of the things we are doings as doing

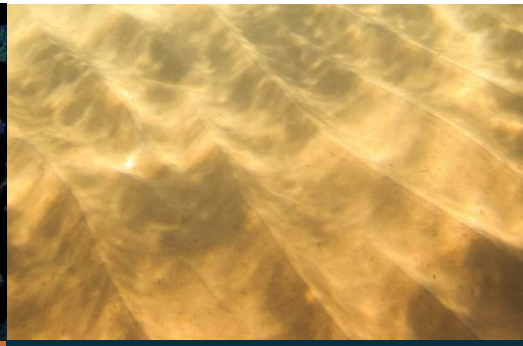
Airborne electromagnetics

Seismometer installation

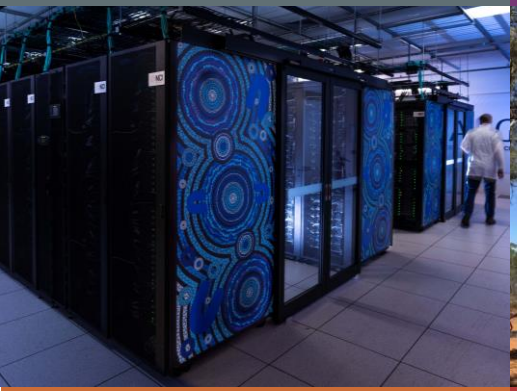
Reflection seismic trucks



Geochemical characterization



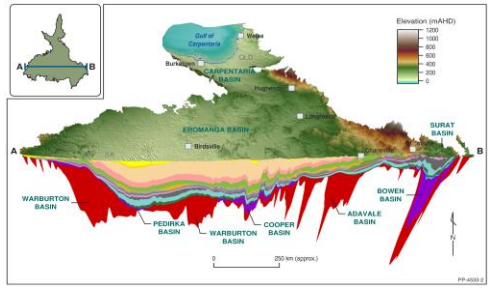
Seabed mapping



High performance computing

Coil tube drilling rig

Mineral dating



3D Geological mapping

Techno-economic modelling

AUSTRALIA MINERALS

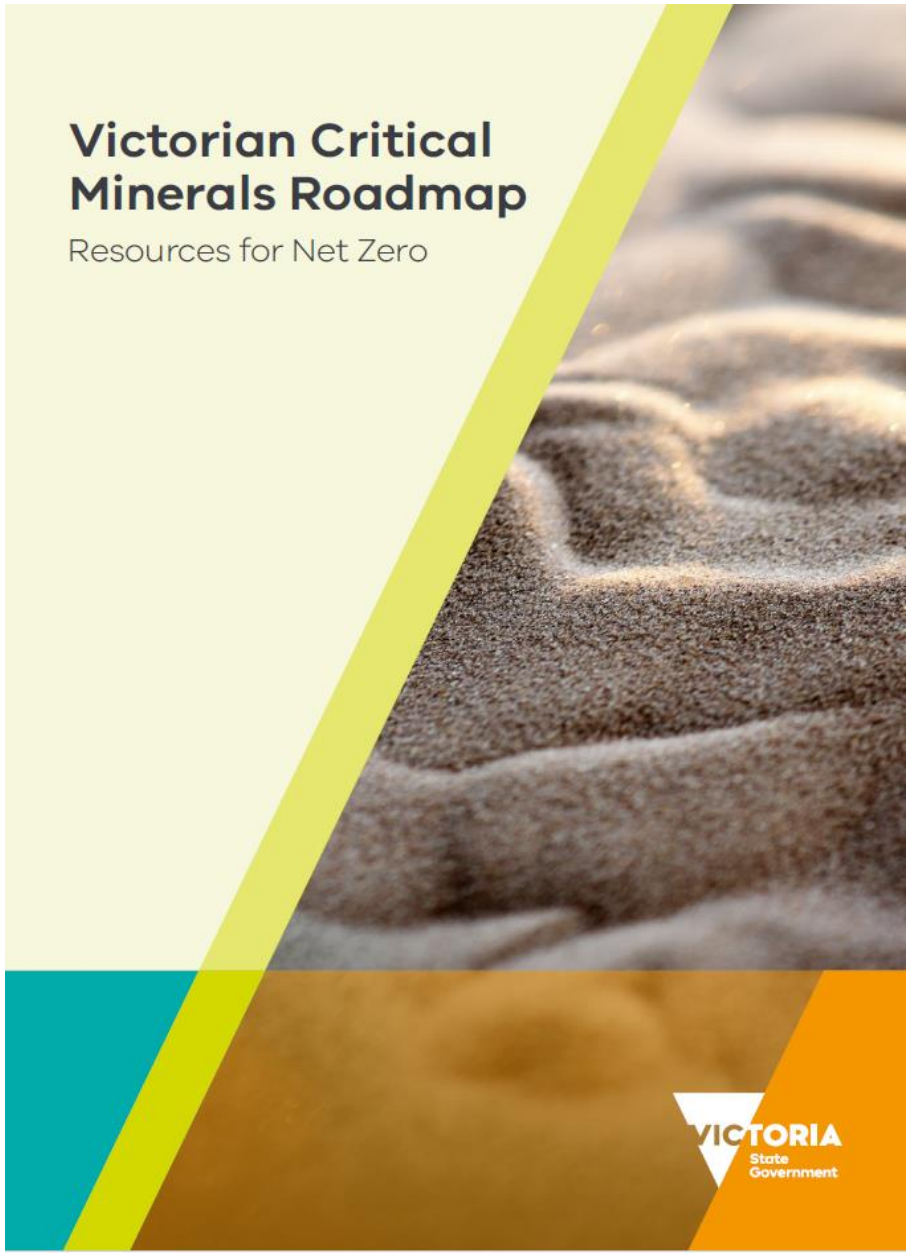
REALISE THE OPPORTUNITY

VICTORIA:

AUSTRALIA'S GOLD-ANTIMONY DESTINATION

Simon Travers
Geologist Development
Resources Victoria

VICTORIA State Government Australia



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]

VICTORIA, AUSTRALIA: WHERE IN THE WORLD?

FAVOURABLE COMMODITY PRICES

Gold

Source: goldprice.org

Antimony

Source: Minex Consulting

ANTIMONY

Antimony from Greek “anti,” meaning not, and “monos,” meaning alone

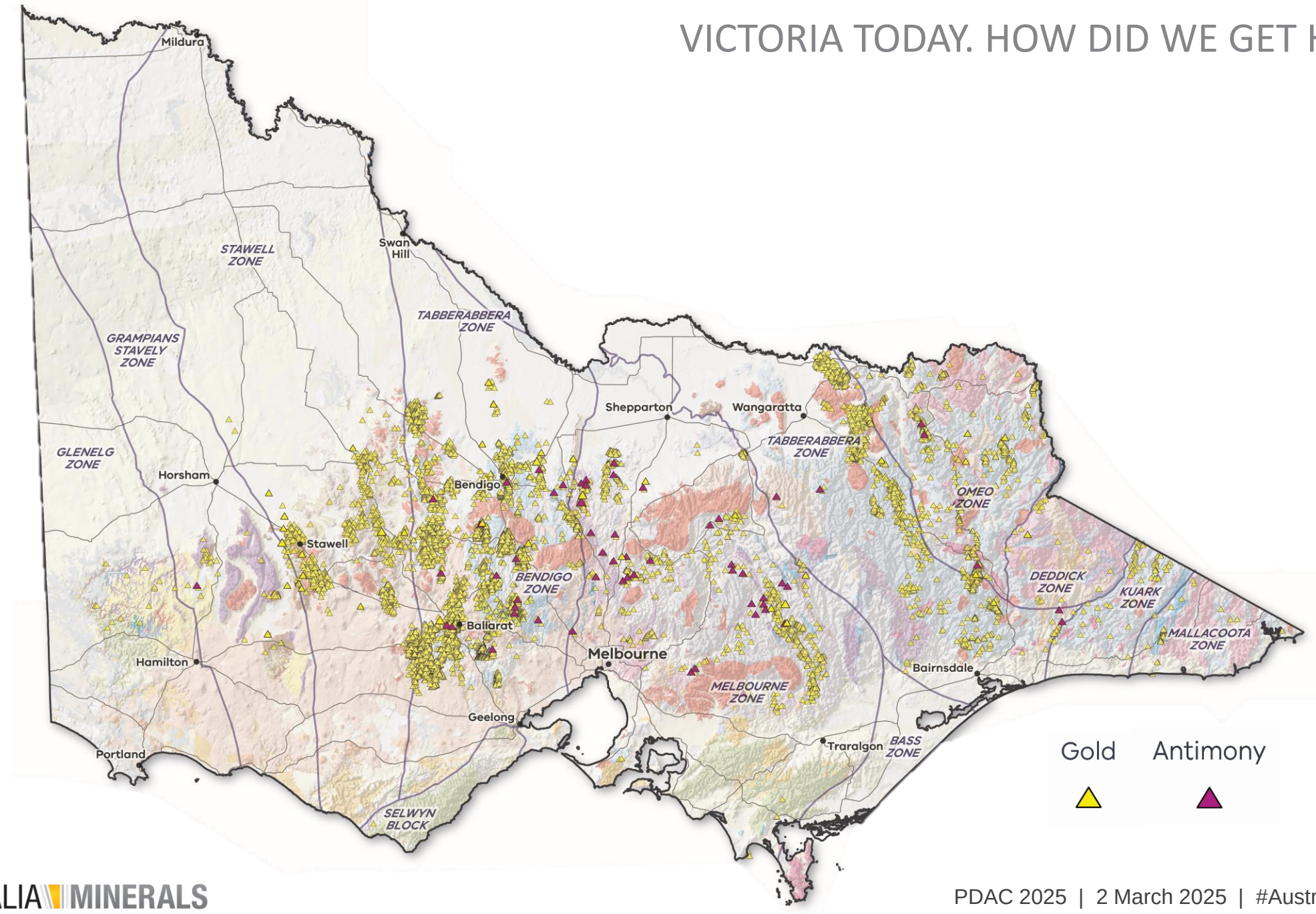
Stibnite is the only ore-bearing mineral of antimony

Applications:

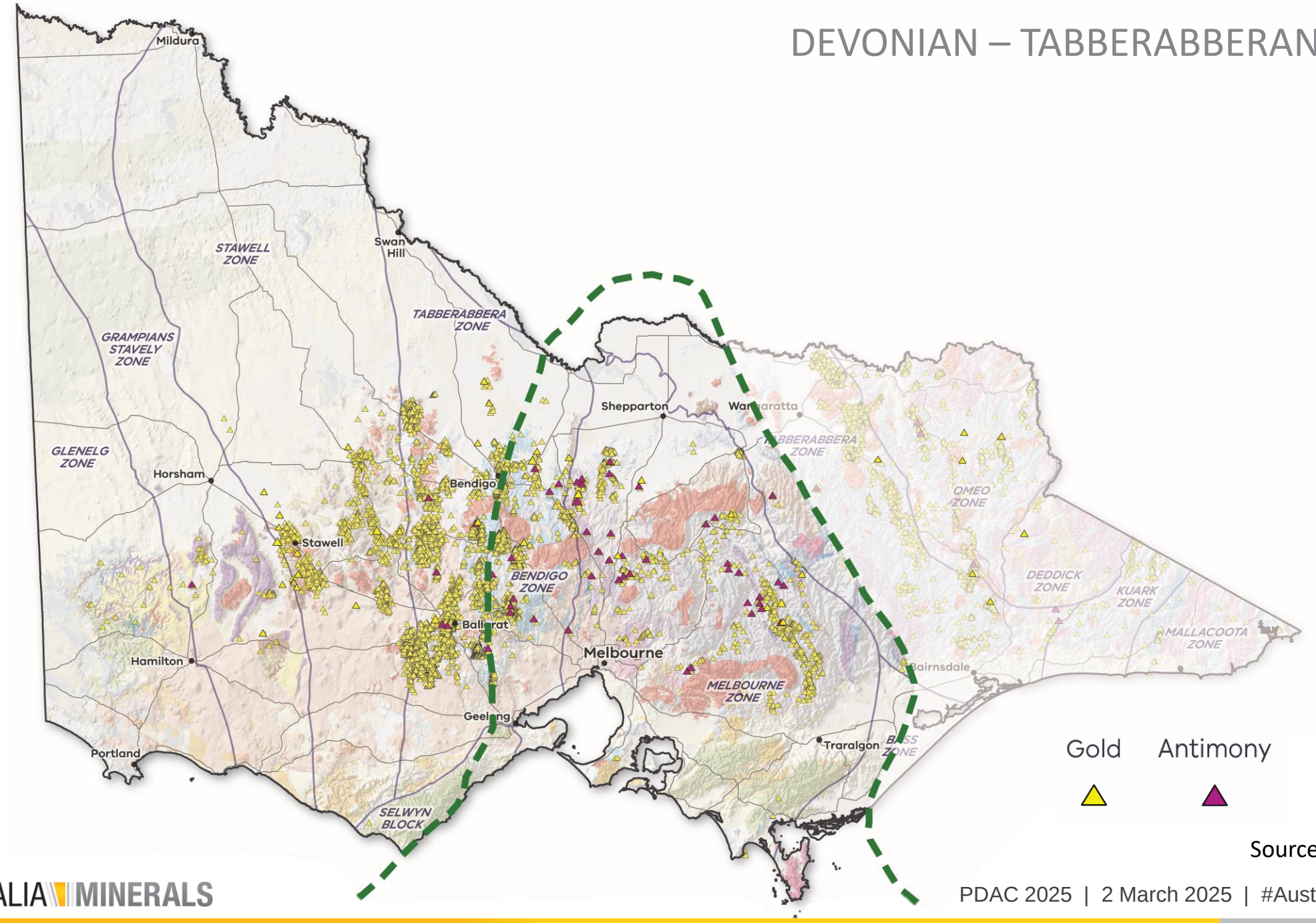
- Semiconductors
- Solar panels
- Batteries (liquid metal (Sb-Ca) and Na-ion anode)
- Flame retardants
- Defence

Stibnite, Sunday Creek. Courtesy Southern Cross Gold

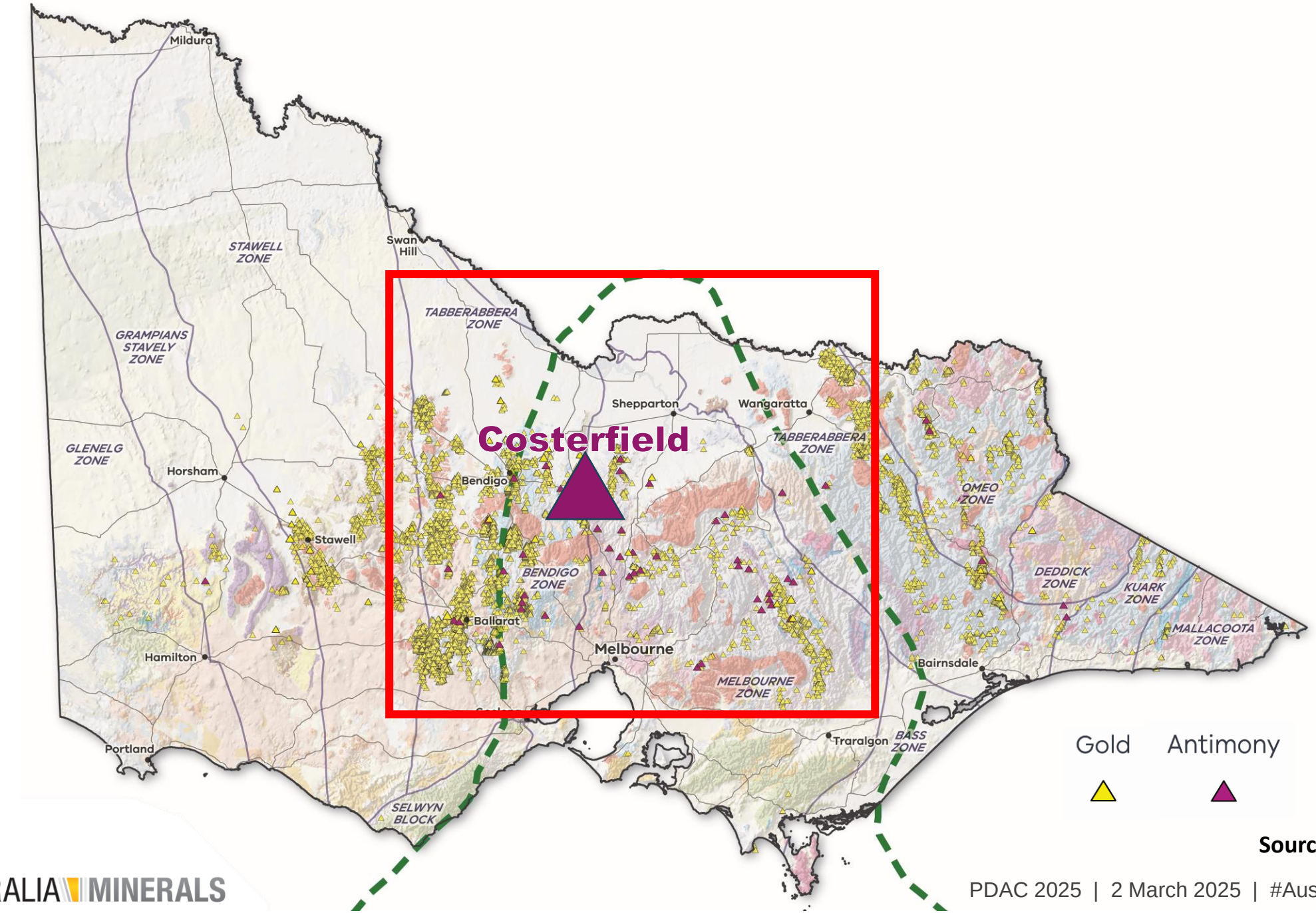
VICTORIA TODAY. HOW DID WE GET HERE?



DEVONIAN – TABBERABBERAN OROGENY



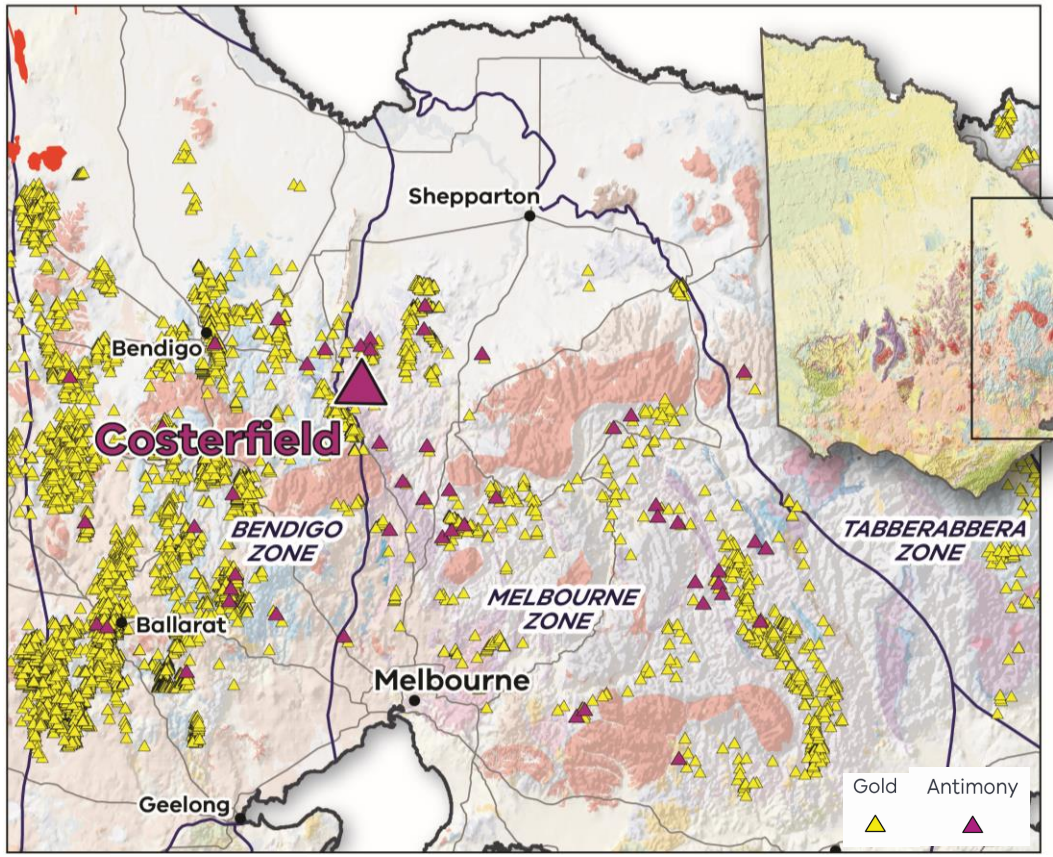
Source: Cayley et al. 2002



Source: Cayley et al. 2002

COSTERFIELD - AUSTRALIA'S ONLY PRODUCING ANTIMONY MINE

The Costerfield gold-antimony operation is the largest producer of antimony outside of Russia, China and Tajikistan.



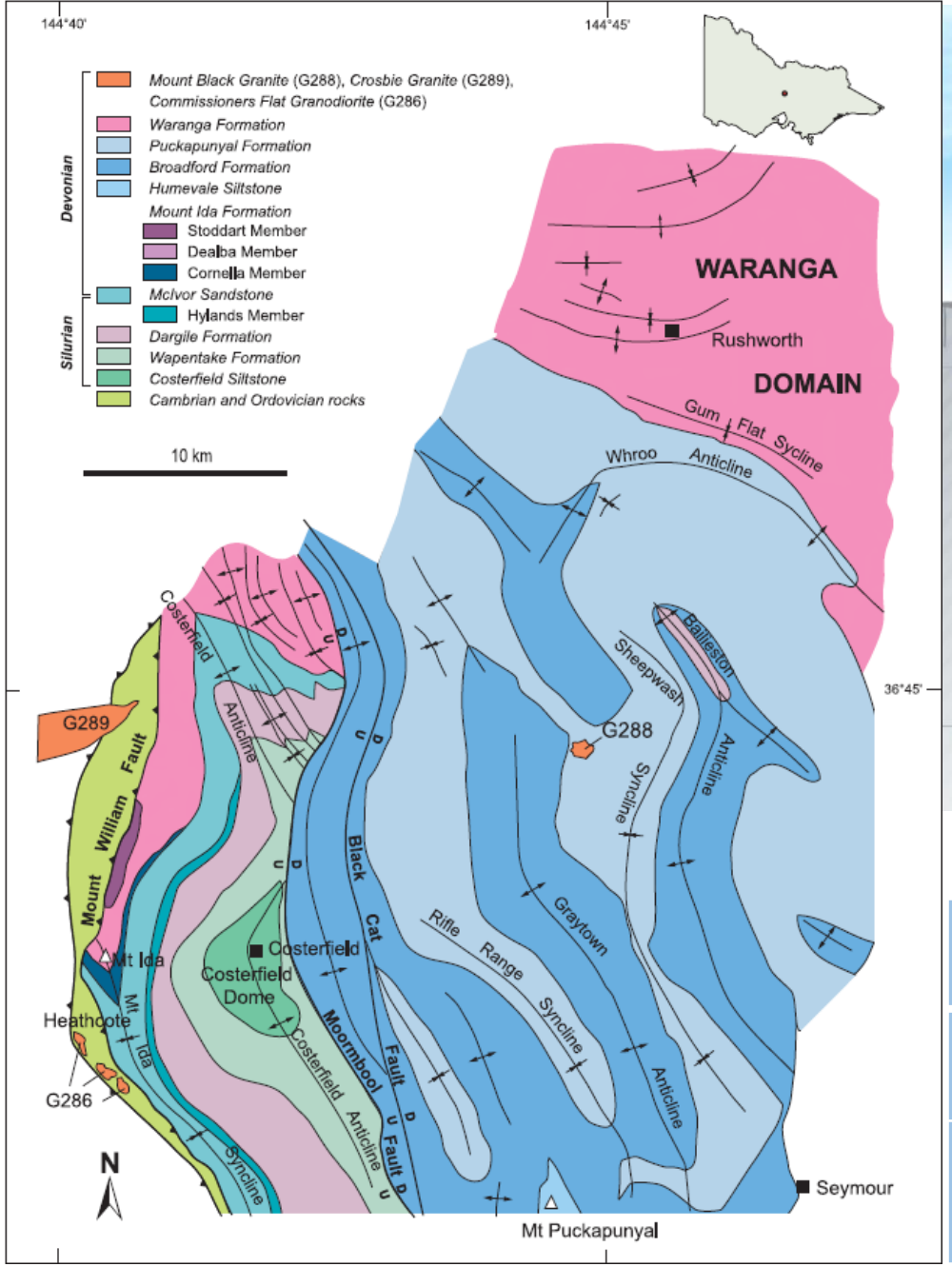
Gold Antimony

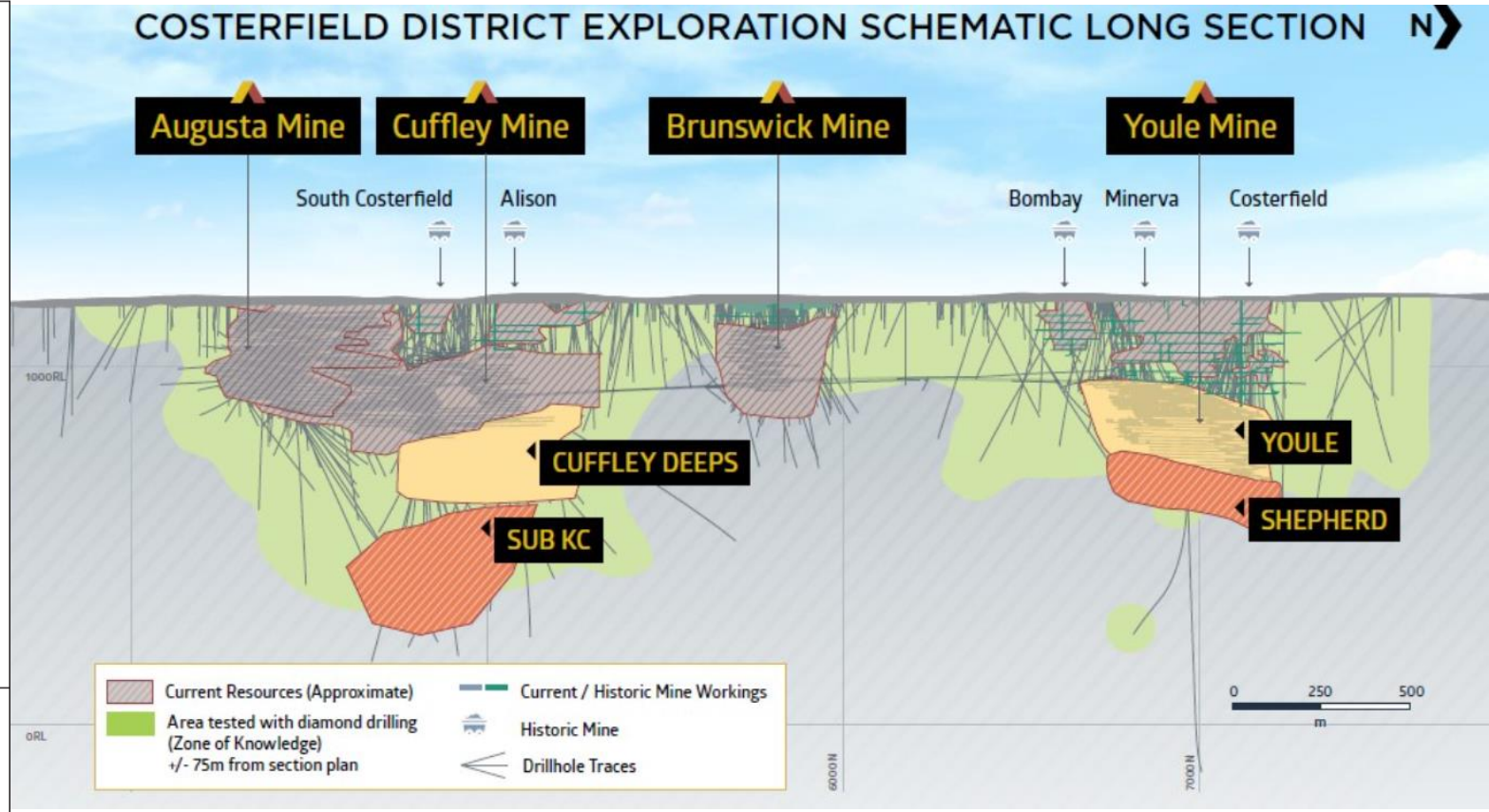
2024 production

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

Mineral Resources and Reserves 2025

	Category	Inventory (kt)	Au grade (g/t)	Contained Au (koz)	Sb grade (%)	Contained Sb (kt)
Resources	Measured	455	12.9	188	3.3	20.7
	Indicated	741	5.5	132	2.0	10.3
	Total			**320**		**31.0**
	Inferred	538	7.5	130	1.8	9.7
Reserves	Proven	350	10.8	121	1.9	6.8
	Probable	253	5.9	48	1.7	4.3
	Total	**604**	**8.7**	**168**	**1.8**	**11.1**



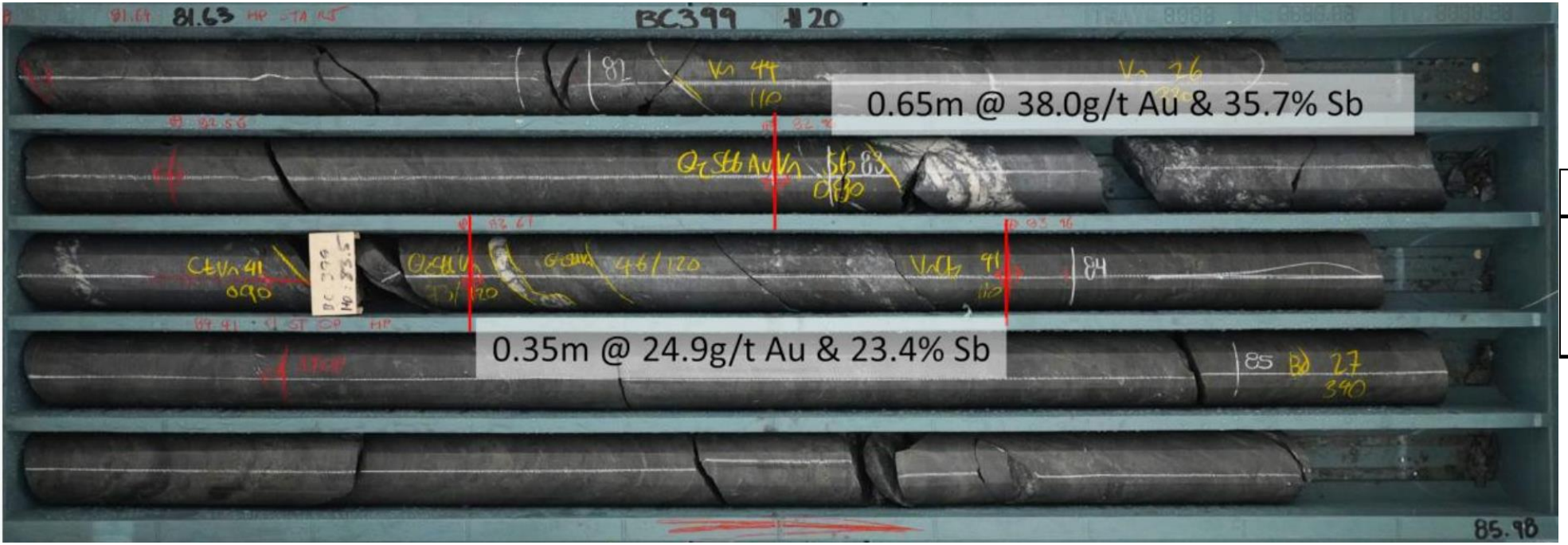


Source: [Mandalay Costerfield Operations]

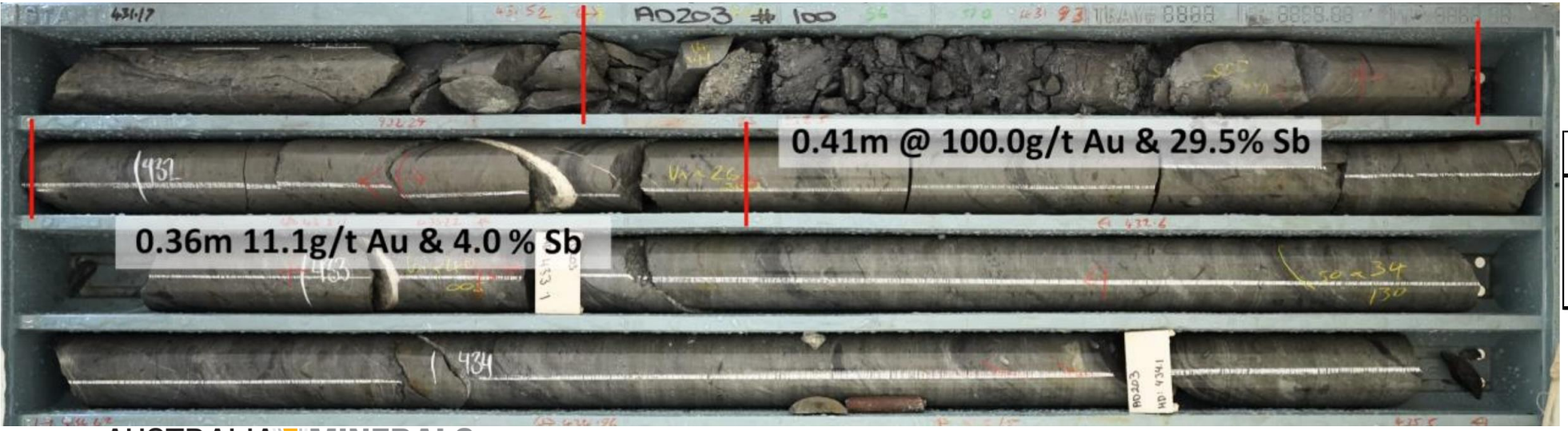
Shepard & Kendall	751.7 g/t Au, 1.8% Sb over 0.22 m (ETW 0.21 m)	291.3 g/t Au over 1.26 m (ETW 0.53 m)	547.3 g/t Au over 0.86 m (ETW 0.75 m)
Cuffley	550.0 g/t Au over 0.15 m (ETW 0.12 m)	58.4 g/t Au, 17.6% Sb over 0.77 m (ETW 0.55 m)	
North of Cuffley	17.1 g/t Au, 0.3% Sb over 1.20 m (ETW 1.12 m)	4.0 g/t Au , 20.2% Sb over 0.45 m (ETW 0.34 m)	

Source: [Vandenberg et al. 2000]

OPERATING MINE PLUS EXPLORATION UPSIDE

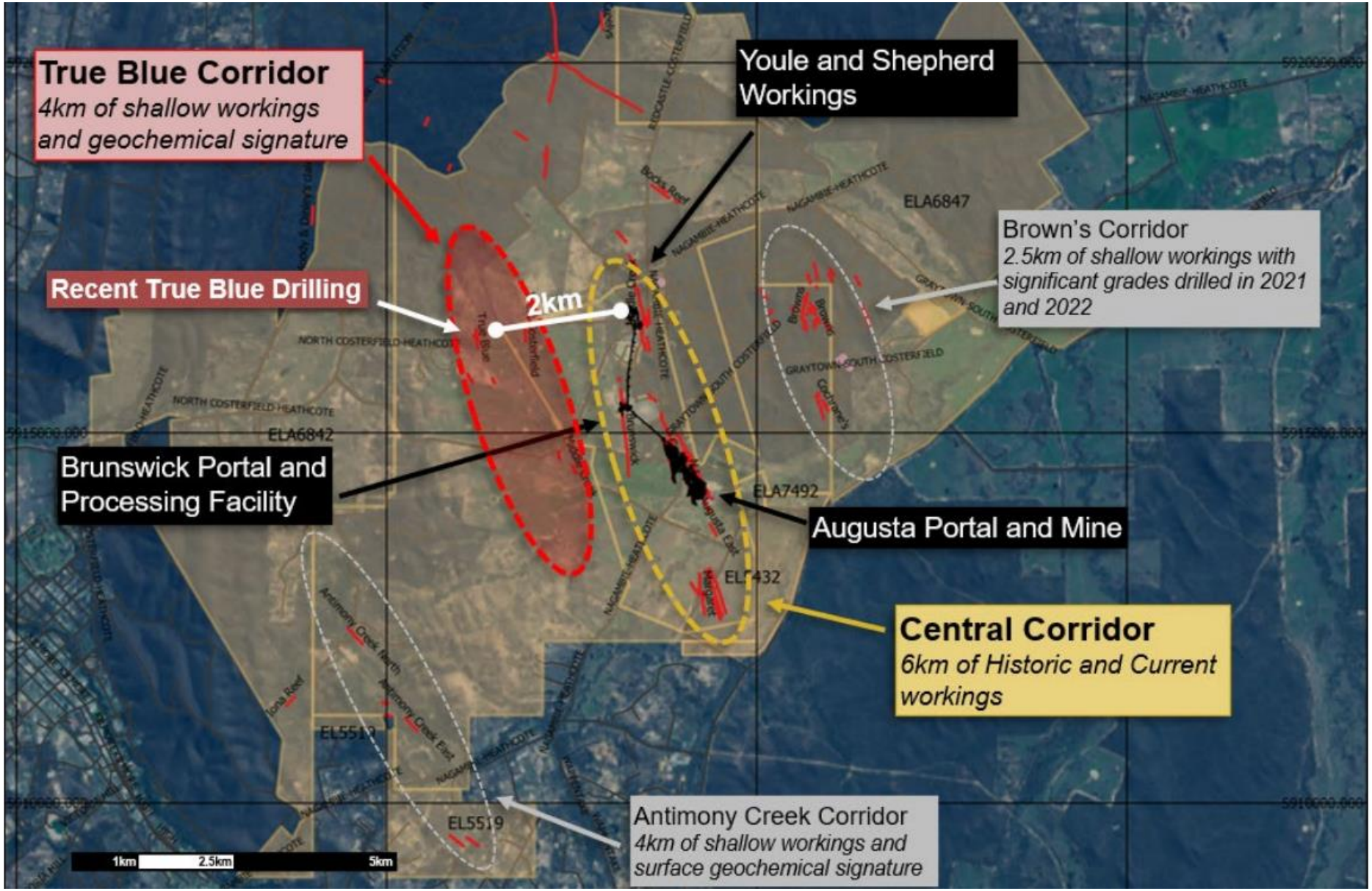


Shepherd & Kendall	
Grade	33.4 g/t Au, 31.4% Sb
Drill int.	1.00 m
ETW	0.67 m



Cuffley	
Grade	58.4 g/t Au, 17.6% Sb
Drill int.	0.77 m
ETW	0.55 m

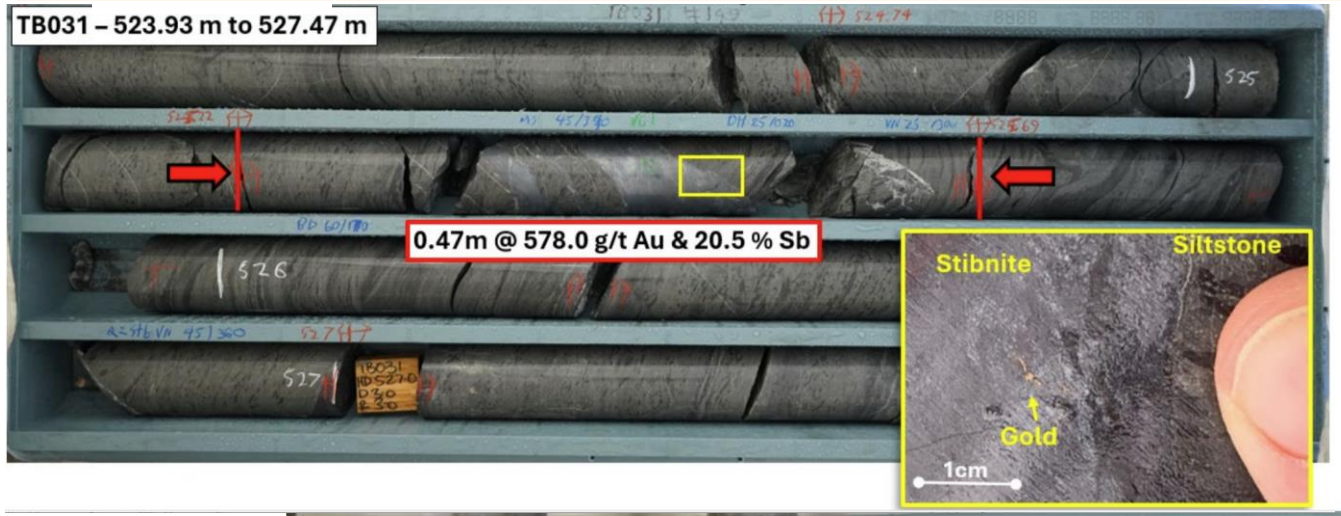
OPERATING MINE PLUS EXPLORATION UPSIDE – TRUE BLUE

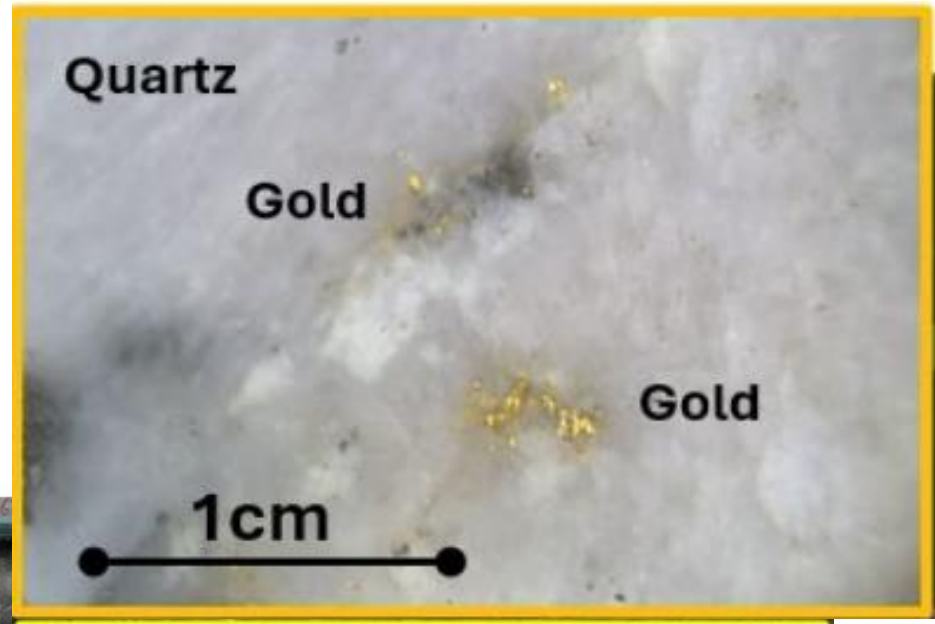


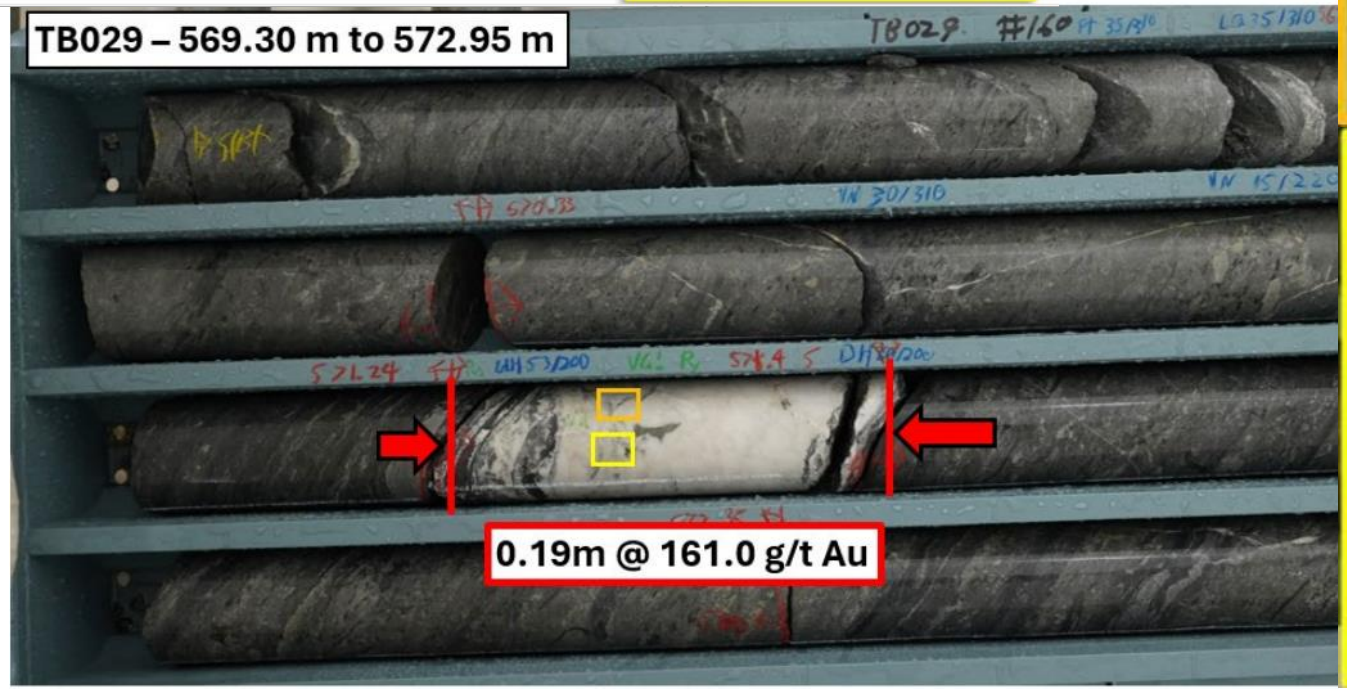
True Blue

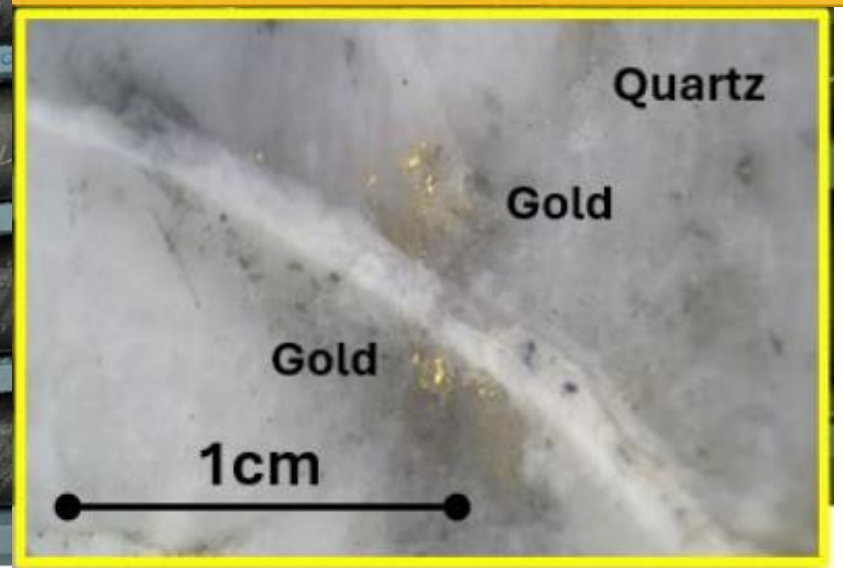
	Category	Inventory (kt)	Au grade (g/t)	Contained Au (koz)	Sb grade (%)	Contained Sb (kt)
Resources	Inferred	145	13.1	61	3.1	4.5

True Blue



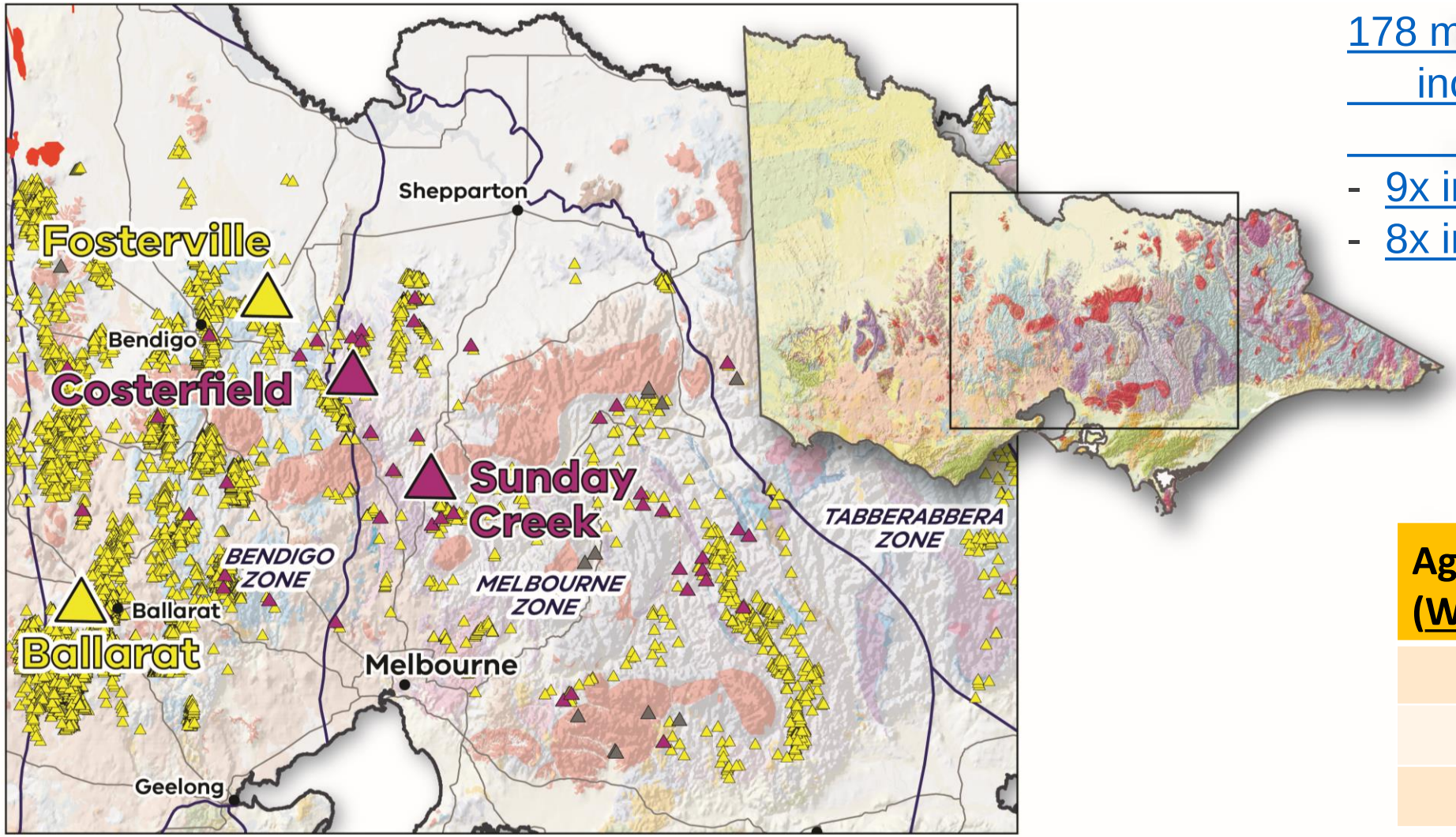






SUNDAY CREEK: A REMARKABLE (RE)DISCOVERY

Maiden Mineral Exploration Target 4.4 – 5.1 Mt for **0.74 – 1.28 Moz. Au**, **53.5 – 62.8 kt Sb**



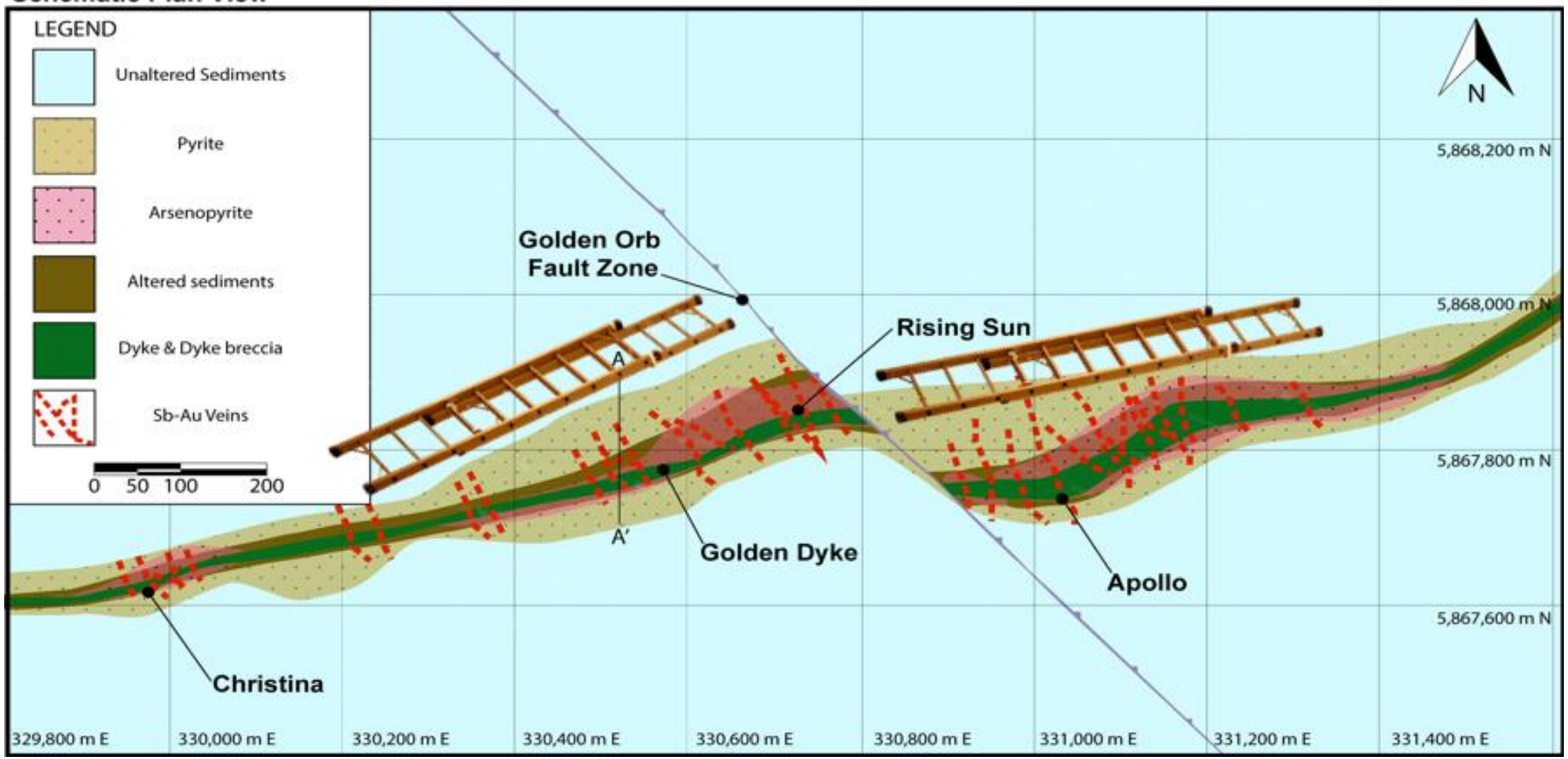
178 m @ 8.8 g/t Au, 0.4% Sb
incl. 0.5 m @ 2,541.9 g/t Au
incl. 0.3 m @ 4,880.0 g/t Au

- 9x intercepts of >50 g/t Au
- 8x intercepts of >5% Sb

Age of mineralisation – 379 Ma (Waugh et al. 2024)

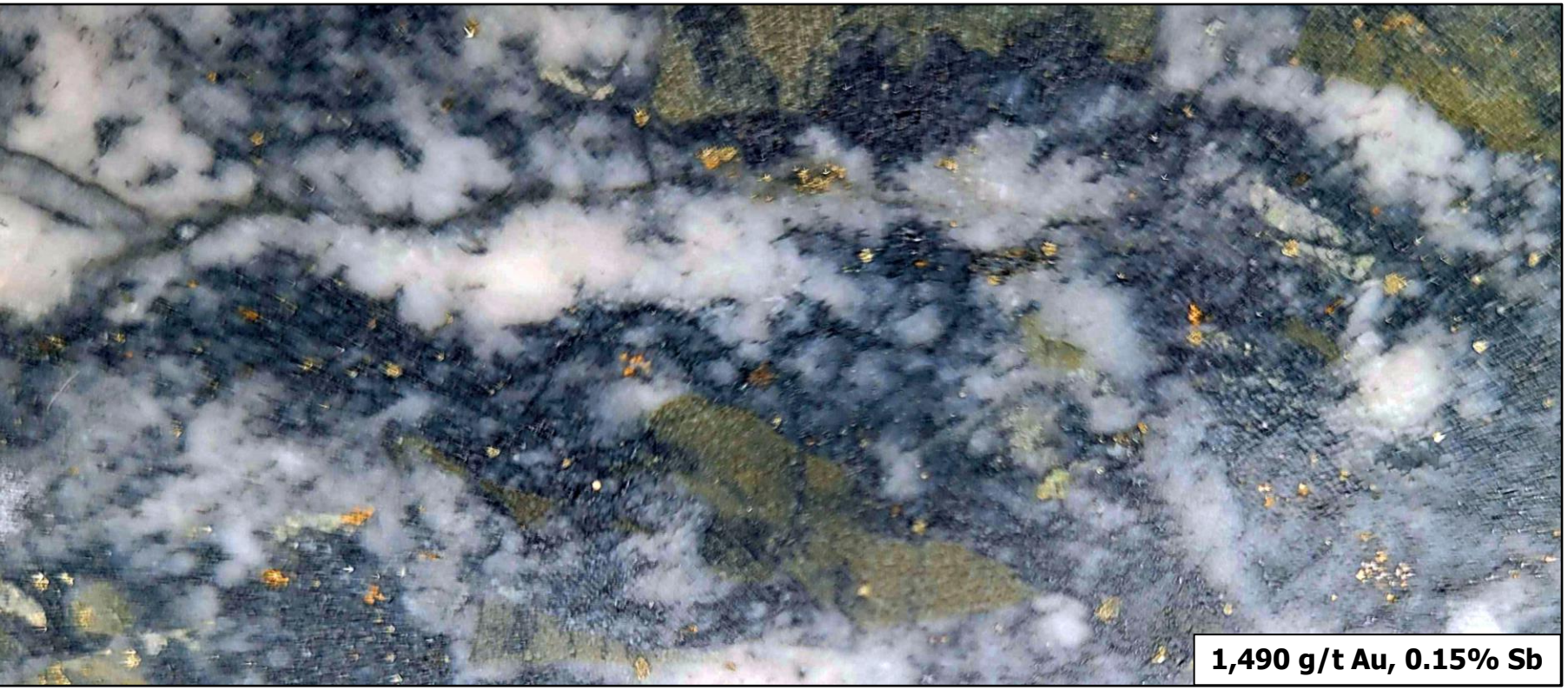
Pyrite – 379 ± 2
Arsenopyrite – 379 ± 2
Arsenopyrite – 380 ± 2

Schematic Plan View

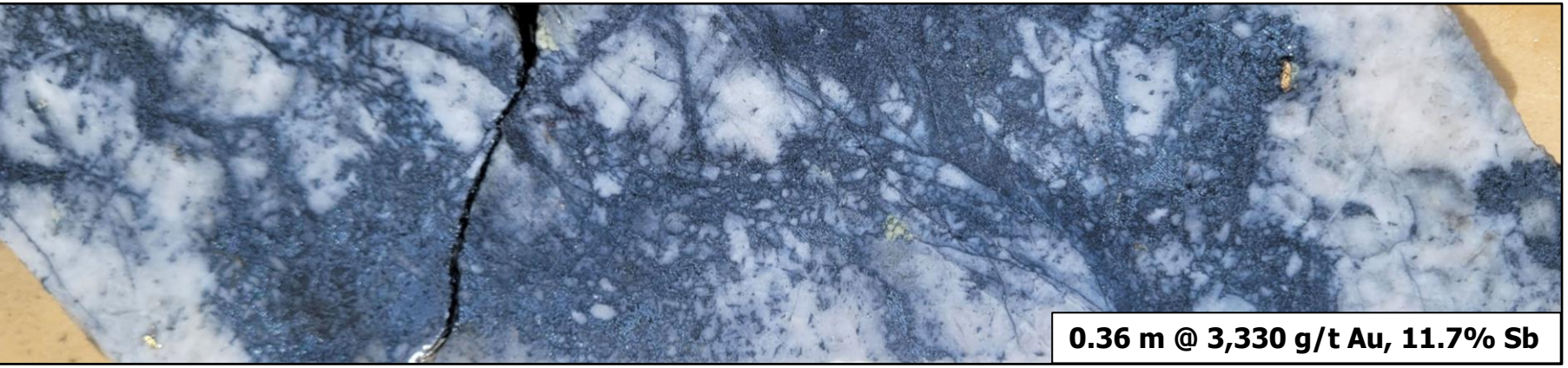


[Sunday Creek Project | Southern Cross Gold]

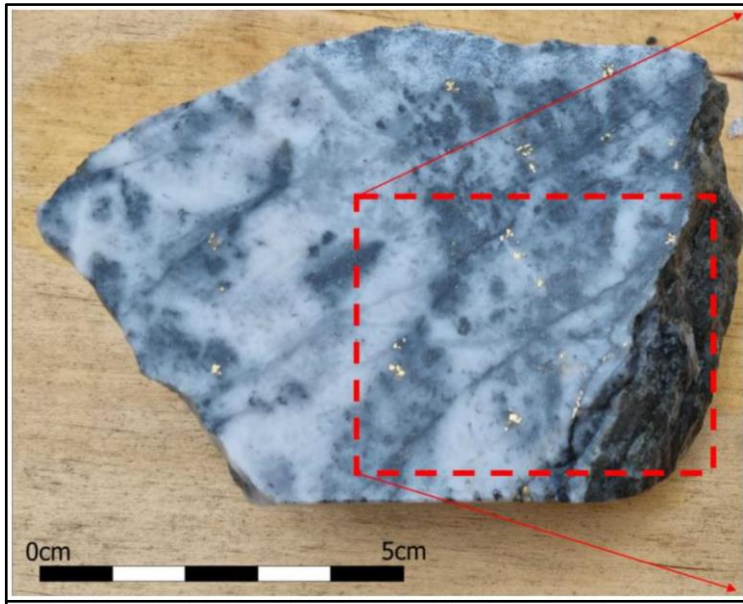
SUNDAY CREEK: A REMARKABLE (RE)DISCOVERY



1,490 g/t Au, 0.15% Sb



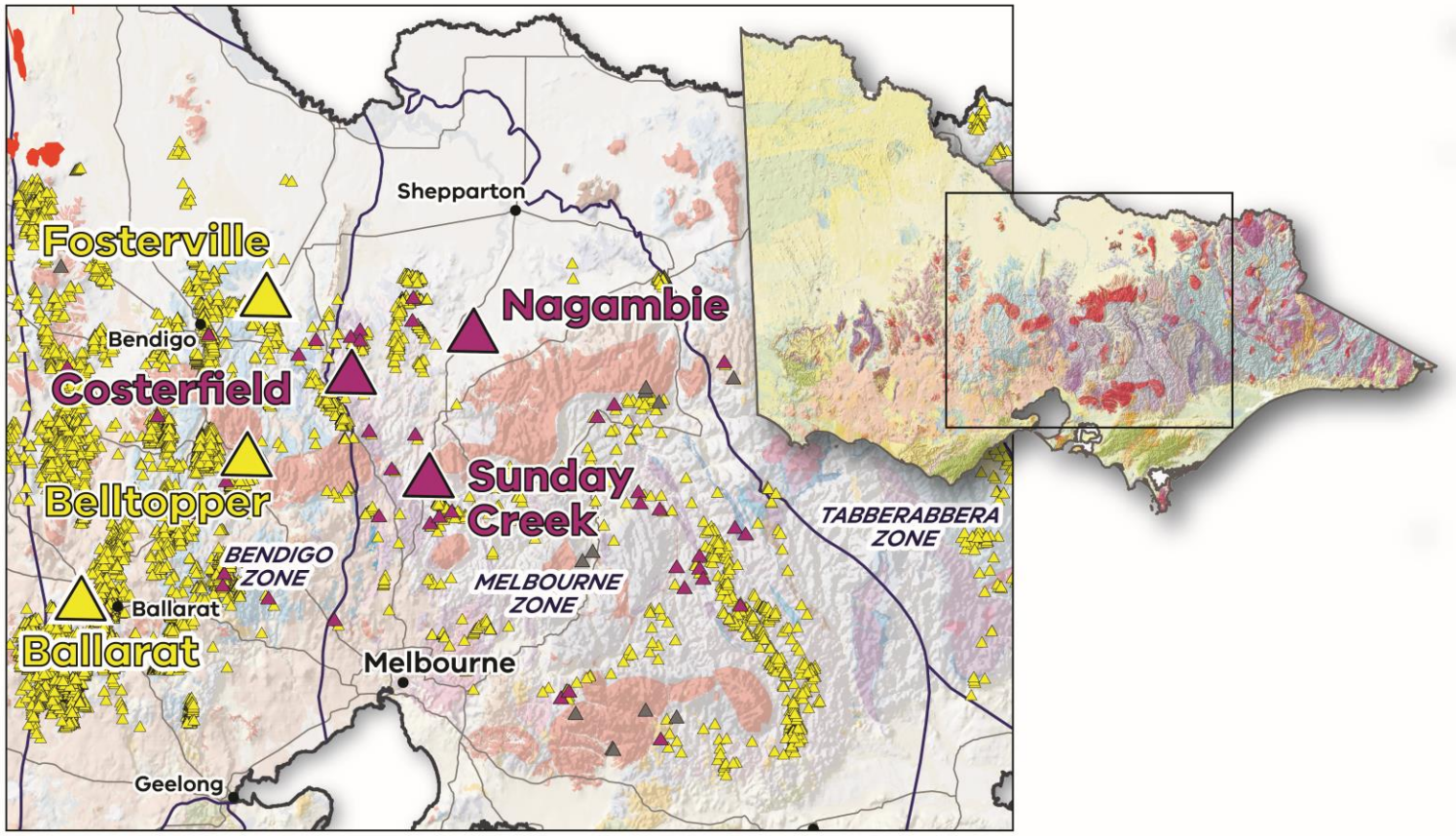
0.36 m @ 3,330 g/t Au, 11.7% Sb



1.0 m @ 2,318 g/t Au, incl. 0.3 m @ 7,331 g/t Au

MORE ANTIMONY TO COME

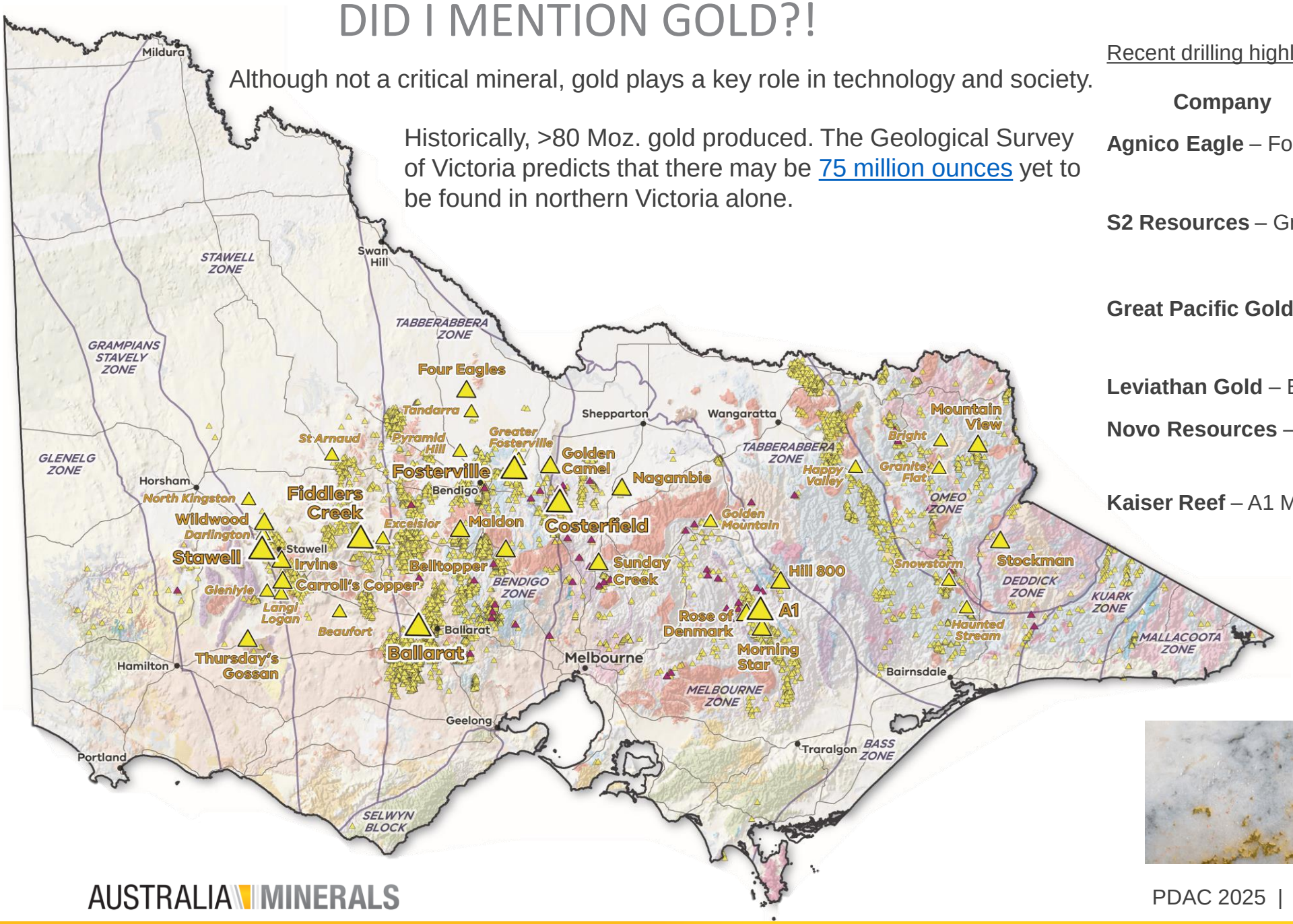
- Nagambie's JORC Inferred Resource of 539 kT for 58 koz Au, 20.8 kt Sb.
- Antimony associated with other gold prospects (e.g. Novo Resources' Belltopper Leven Star Reef)



DID I MENTION GOLD?!

Although not a critical mineral, gold plays a key role in technology and society.

Historically, >80 Moz. gold produced. The Geological Survey of Victoria predicts that there may be 75 million ounces yet to be found in northern Victoria alone.



Recent drilling highlights include:

Company – Project – Intersection

Agnico Eagle – Fosterville – 5.7 m @ 72.8 g/t Au
incl 0.28 m @ 1,383.2 g/t Au

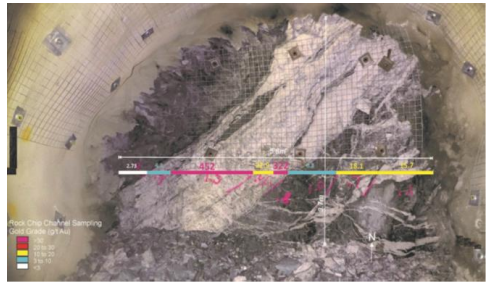
S2 Resources – Greater Fosterville – 5.2 m @ 7.2 g/t Au
incl 0.7 m @ 37.9 g/t Au

Great Pacific Gold – Comet – 8 m @ 106 g/t Au
incl 5 m @ 166 g/t Au

Leviathan Gold – Excelsior – 3.13 m @ 56.91 g/t Au

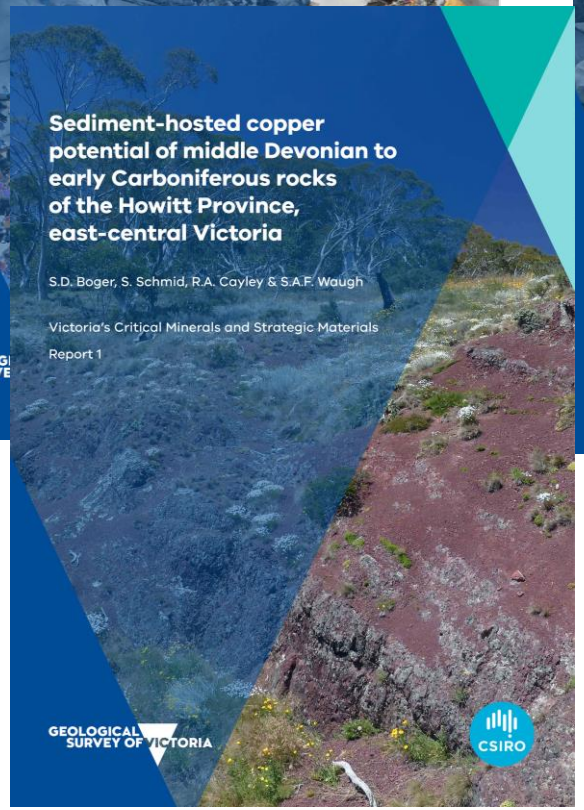
Novo Resources – Belltopper – 2.0 m @ 7.19 g/t Au
incl 1.15 m @ 12.01 g/t Au

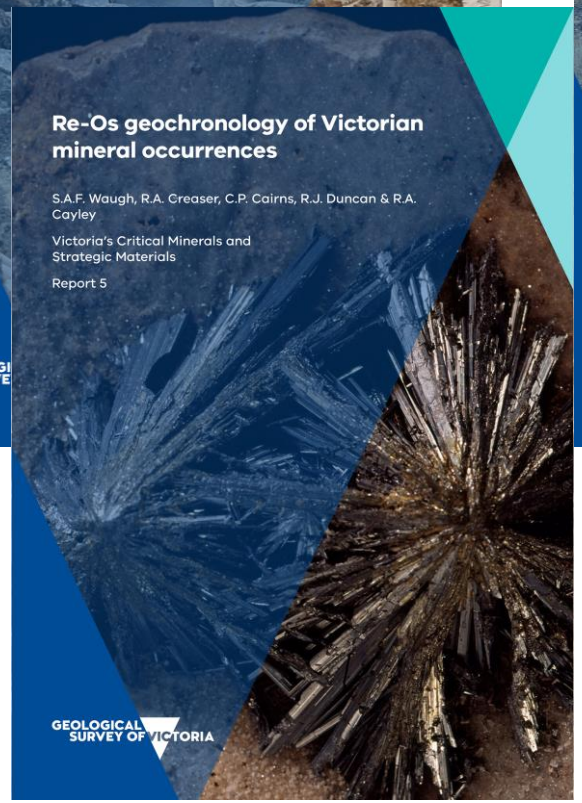
Kaiser Reef – A1 Mine Nova Zone – 0.8 m @ 118.4 g/t Au

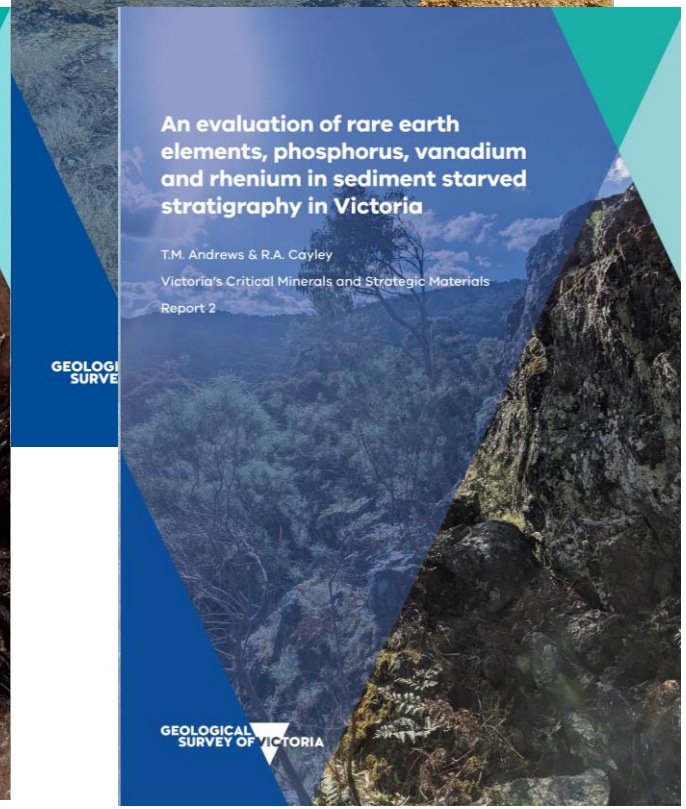


Swan Zone Fosterville Gold

VICTORIA'S OTHER CRITICAL MINERAL OFFERINGS







FURTHER STUDIES UNDERWAY:

- Antimony
- Platinum group elements
- Alkaline-silicate REE
- Lithium (pegmatite)

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

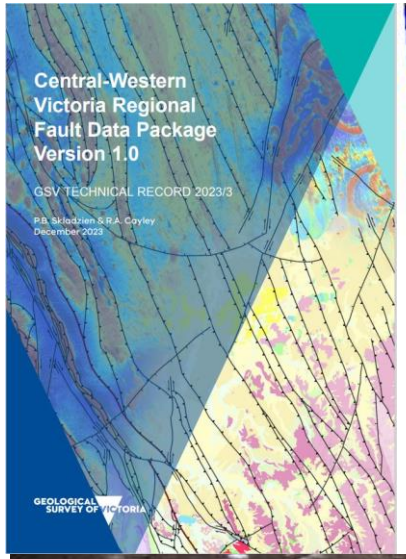
- Seamless – 1:250k and 1:50k
- 3D geological full crust model

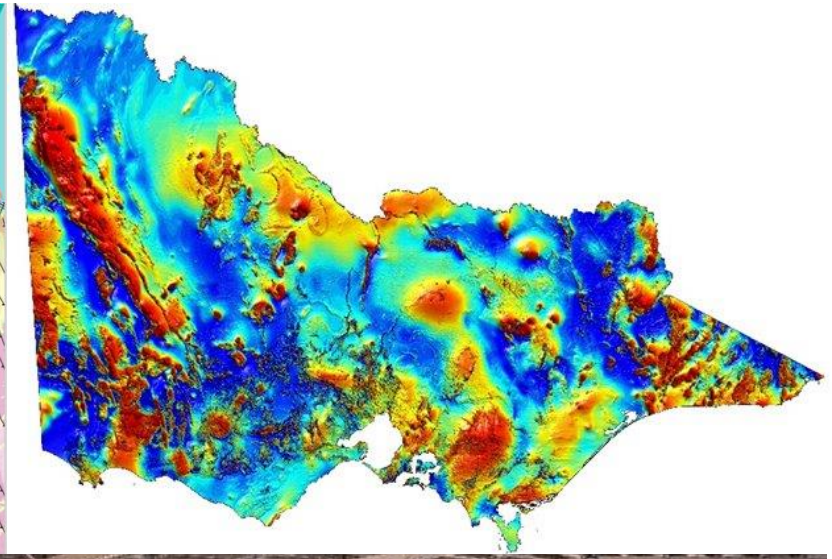
Geophysics

- Modern, state-wide

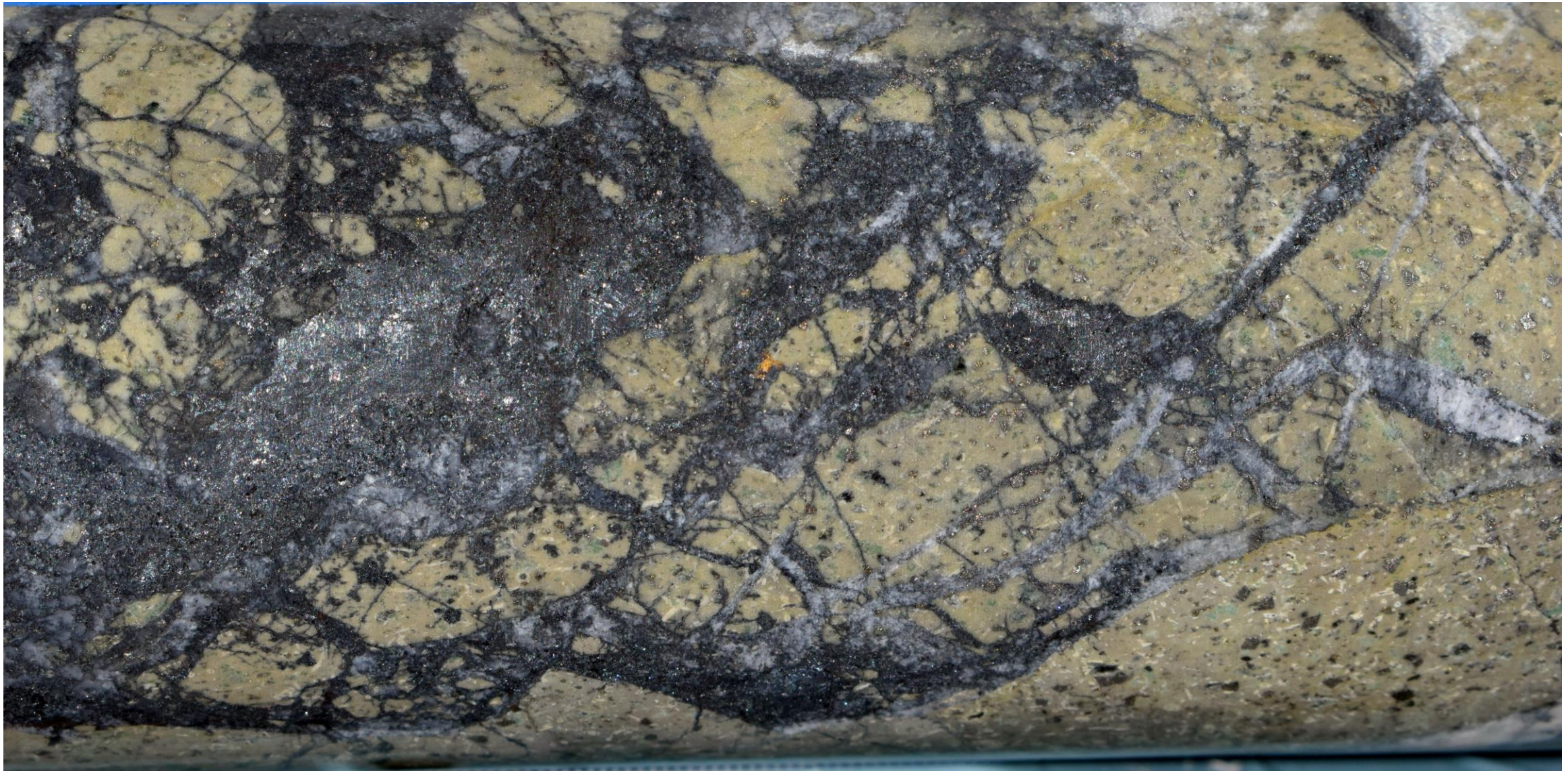
Drill Core Library

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





VICTORIA'S CRITICAL MINERALS: THE POTENTIAL IS OUT THERE!



AUSTRALIA MINERALS
REALISE THE OPPORTUNITY

VICTORIA: AUSTRALIA'S GOLD-ANTIMONY DESTINATION

Simon.Travers@deeca.vic.gov.au
Geologist Development
Resources Victoria

VICTORIA State Government Australia

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

New South Wales mining project opportunities

Dr Phillip Blevin,
Chief Geoscientist & Head,
Geological Survey of New South Wales

NSW GOVERNMENT

Disclaimer

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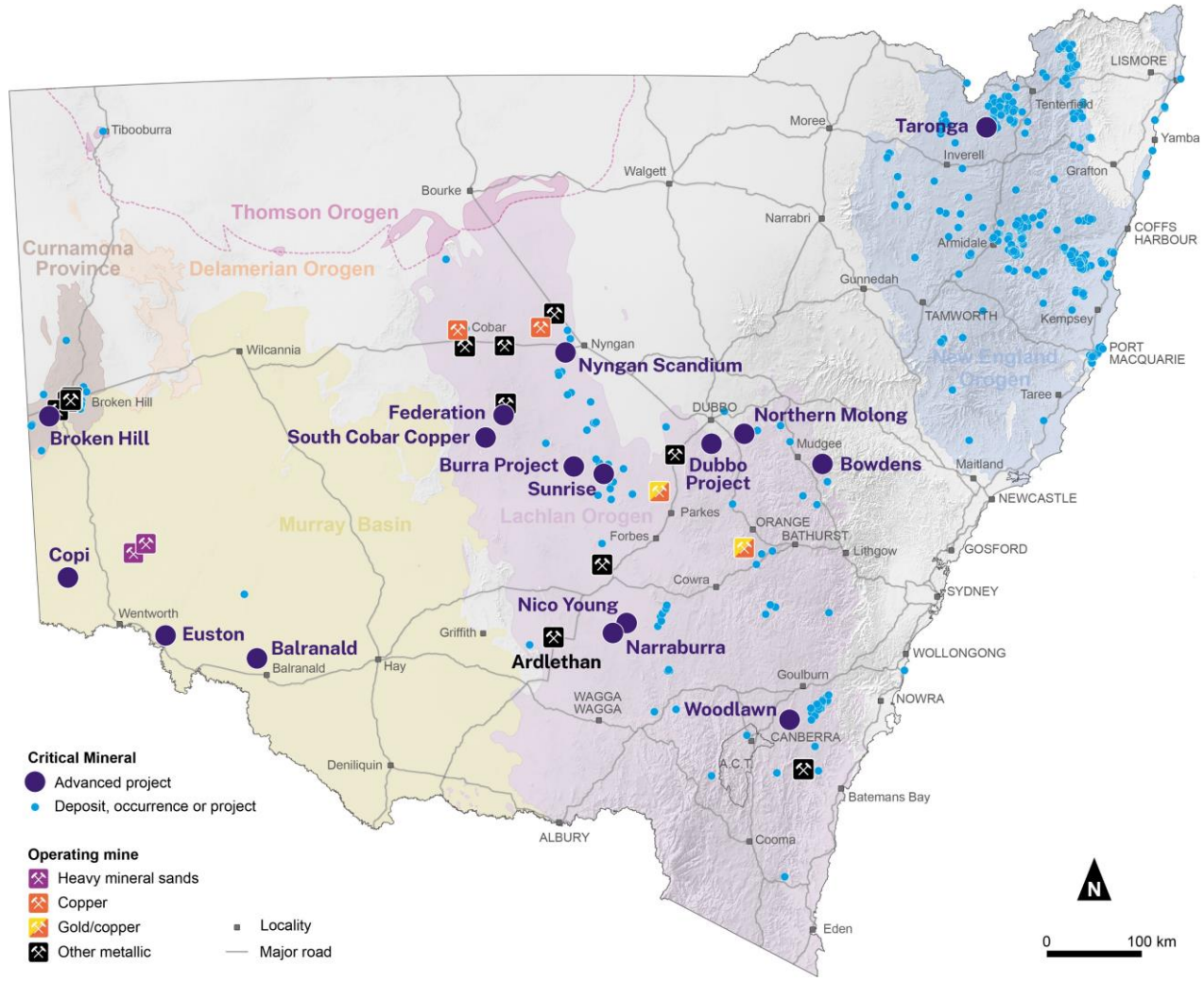
The NSW Government does not specifically endorse any project, rather these are a range of projects located in the State of New South Wales.

Advancing new critical minerals and high-tech metals projects

Project	Company	Stage	Minerals
Ardlethan	Australian Tin resources	Approved	Sn
Nyngan Scandium	Scandium International Mining	Approved	Sc (LREE)
Balranald	Iluka Resources	Approved	Ti, Zr, REE
Dubbo Project	Australian Strategic Materials	Approved	REE (+ Zr, Nb, Hf, Ta)
Sunrise	Sunrise Energy Metals	Approved	Co, Ni, Sc
Federation	Aurelia Metals	Approved	Zn, Pb, Cu, Au, Ag
Bowdens Silver	Silver Mines	Feasibility	Ag
Broken Hill Cobalt	Cobalt Blue	Feasibility	Co
Copi	RZ Resources	Feasibility	Ti, Zr, REE
Burra Project	Rio Tinto	Feasibility	Sc, Ni, Co
Euston	Iluka Resources	Feasibility	Ti, Zr, REE
Taronga Tin	First Tin	Feasibility	Sn
Woodlawn	DEVELOP Global	Feasibility	Zn, Cu, Pb, Au, Ag
Narraburra REE	Godolphin Resources	Advanced Exploration	REE
NiCo Young	Jervois Global	Advanced Exploration	Ni, Co
South Cobar Copper	Peel Mining	Advanced Exploration	Cu, Zn, Pb, Au, Ag
Northern Molong	Alkane Resources	Advanced Exploration	Cu, Au



New South Wales has a significant pipeline of approved, developing, and advanced exploration projects (~45 projects)

Battery metals

NSW ranked
No. 3

27 Co Cobalt

28 Ni Nickel

- NSW has the third largest Economic Demonstrated Resource for cobalt and nickel in Australia
- Strong cobalt and nickel demand for use in electric vehicle batteries
- NSW occurrences include nickel-cobalt laterites and cobalt-pyrite

Sunrise Battery Materials Project

Company	Sunrise Energy Metals Limited
Commodities	Co 27 Cobalt; Ni 28 Nickel; Sc 21 Scandium
Project stage	Pre-construction / financing
Planning stage	Development consent received
Mineral rights	Mining lease granted
Life of mine	50-year reserve life
Expected annual production	▪ 21.3 ktpa nickel (nickel sulfate) ▪ 4.4 ktpa cobalt (cobalt sulfate) ▪ 18 tpa scandium oxide
More information	sunriseem.com

- One of the world's largest undeveloped nickel, cobalt and scandium deposits
- Largest project in Australia of its kind
- Placed to become a strategic supplier of battery raw materials and aluminium-scandium alloys
- Granted Major Project Status by the Australian Government
- All key permits and approvals in place

JORC mineral resource (Sep 2020)

Tonnage	177	Mt
Nickel metal	935,000	t
Cobalt metal	168,000	t
Scandium oxide	24,700	t
Platinum	1,084,000	oz

Broken Hill Cobalt Project

Company	Cobalt Blue Holdings
Commodities	27 Co Cobalt
Project stage	Feasibility
Mineral rights	Mining lease application lodged
Life of mine	17+ years
Expected initial annual production	3,000 tpa cobalt (as cobalt sulphate) ~500 tpa nickel (as nickel metal) *Initial production from the Kwinana Cobalt Refinery
Processing	6.7 Mtpa
More information	cobaltblueholdings.com

- Ethically sourced cobalt for new age batteries
- To be one of the largest greenfield cobalt projects outside of Africa
- Granted Major Project Status by the Australian Government

JORC mineral resource (Nov 2023)

Tonnage	126.5	Mt
Cobalt Eq.	867	ppm
Cobalt	690	ppm
Sulphur	7.5	%
Nickel	134	ppm
Cobalt contained	87.3	kt
Sulphur contained	9,510	kt
Nickel contained	17	kt

Scandium

NSW ranked
No.1

21
Sc
Scandium

- NSW has the largest scandium Economic Demonstrated Resource in Australia
- High-grade deposits located in western NSW
- Growing application of scandium alloy in aerospace, electric vehicles, aviation and defense

Nyngan Scandium Project

Company	Scandium International Mining Corporation
Commodities	Sc 21 Scandium
Project stage	Pre-construction
Planning stage	Development consent received
Life of mine	20+ years*
Expected Processing capacity	175,000 tpa*
Expected annual production	38,000 kg/yr scandium oxide (phase 1)*
Seeking	Scandium product offtakes with potential customers to proceed to project FID and financing, prior to construction.
More information	scandiummining.com

- A scandium-only mining project with an attractive scandium enrichment
- High-grade scandium oxide powder
- Project to supply a growing scandium market
- Project is approved and has secure water and electricity
- Initial physical site development commenced (Nov 2024)

NI 43-101 mineral resource (May 2016)		
Tonnage	16.9	Mt
Scandium	235	ppm
NI43-101 mineral reserve (May 2016)		
Tonnage	1.43	Mt
Scandium	409	ppm

Burra Scandium Project

Company	Rio Tinto
Commodities	Sc 21 Scandium; Ni 28 Nickel; Co 27 Cobalt
Project stage	Feasibility Study underway
Planning stage	FS & EIS commenced early 2024
Mineral rights	Exploration leases
Expected production	Primary commodity to be produced is scandium oxide. Nickel, cobalt and High-purity Alumina by-products to be produced.
More information	riotinto.com

- Formerly known as the Owendale scandium project
- Project acquired in May 2023 from Platina Resources
- Long life, high-grade scalable resource
- Primary product is scandium oxide

JORC mineral resource (Dec 2018)

Tonnage	35.6	Mt
Scandium	405	ppm
Cobalt	0.06	%
Platinum	0.28	g/t
Nickel	0.10	%
Scandium oxide (metal)	22,000	t
Nickel (metal)	35,700	t
Cobalt (metal)	20,500	t
Platinum (metal)	317	koz

Silver and copper

NSW ranked
No. 2

29
Cu
Copper

47
Ag
Silver

- Second largest Economic Demonstrated Resources for silver and copper in Australia
- High copper needs for clean energy technology and transmission infrastructure
- NSW has large reserves of copper, presents opportunities to capitalise on global demands

Bowdens Silver Project

Company	Silver Mines Limited
Commodities	47 Ag Silver; 30 Zn Zinc; 82 Pb Lead
Project stage	Project optimisation
Planning stage	Reviewing planning requirements
Life of mine	16.5 years (initial)
Proposed processing capacity	2 Mtpa
Expected annual production	Silver: 3.4 Moz (5.4 Moz average first 3 years) Zinc: 6,900 tpa (6,000 tpa average first 3 years) Lead: 5,100 tpa (5,200 tpa average first 3 years)
More information	silvermines.com.au

- The largest known undeveloped silver deposit in Australia
- One of the largest silver deposits globally (396 Moz AgEq Resource)

JORC mineral resource (Mar 2023)

Total	200	Mt
Silver Eq.	62	g/t
Silver	40	g/t
Zinc	0.37	%
Lead	0.26	%
Gold	0.07	g/t
Silver	189	Moz
Silver Eq.	396	Moz

*30 g/t Ag Eq cut

Woodlawn Zinc-Copper Project

Company	DEVELOP Global Limited
Commodities	Zn 30 Zinc; Cu 29 Copper; Pb 82 Lead; Ag 47 Silver; Au 79 Gold
Project stage	Pre-production (mine restart underway)
Mineral rights	Mine currently on care & maintenance (awaiting restart)
Life of mine	10 years expected
Processing capacity	850,000 tpa
More information	develop.com.au

- A high-grade Zn-Cu-Pb-Ag-Au mine restart project located in the world-class Lachlan Fold Belt
- Resource increased 55% and Reserve increased 94% on earlier MRE
- Mine restart design & construction underway,
- First production expected mid-CY25
- First 2 years of ore production fully developed

JORC mineral resource / reserve (2024)

	Resource	Reserve	
Tonnage	11.3	6.0	Mt
Copper	1.8	1.5	%
Zinc	5.8	3.6	%
Lead	2.1	1.3	%
Silver	46.0	29.0	g/t
Gold	0.5	0.4	g/t

Northern Molong Porphyry Project (Boda – Kaiser)

Company	Alkane Resources Ltd
Commodities	Cu 29 Copper; Au 79 Gold
Project stage	Advanced exploration Scoping study completed (July 2024)
Mineral rights	Exploration licences
Mineral resource (additional detail)	The Boda District (Boda-Kaiser) has a global resource of: **TOTAL:** 796Mt at 0.58g/t AuEq* for 14.7Moz AuEq* (0.33g/t Au, 0.18% Cu, 8.3Moz Au, 1.5Mt Cu)
More information	alkane.com.au

- Strong potential to be a large Tier-1 copper-gold project
- Large mineralised corridor of up to 5 km long
- Initial inferred MRE for the Boda and Kaiser gold-copper deposits (collectively the NMPP) is 14.7 Moz Au equivalent

JORC mineral resource (May 2024)

Boda		
Tonnage	583	Mt
AuEq.	0.58	g/t
AuEq. contained	10.9	Moz
Kaiser		
Tonnage	213	Mt
AuEq.	0.55	g/t
AuEq. contained	3.74	Moz

Tin

50
Sn
Tin

- Strong demand growth from multiple sectors
- Constrained supply in geopolitically unstable areas
- NSW building a tin narrative with multiple projects progressing with development

Ardlethan Tin Reprocessing Project

Company	Australian Tin Resources Ltd
Commodities	Sn 50 Tin
Project stage	Restart of the old Ardlethan tin mining operation through a rehabilitation and tailings reprocessing project. Pilot testing to shift to production.
Planning stage	Development consent received
Processing capacity	Scale up to 1.5 Mtpa
Contained tin	U/G resource = 24,700t Sn Tailings resource = 21,600t Sn Waste material resource = 20,200t Sn Total contained = 66,500t Sn
More information	atresources.com.au

- Mining ceased at Ardlethan mine in 1986, ~21 Mt of ore was left in stockpiles due to the tin content being below cut-off grade of 0.20% tin
- Approval granted for an onsite processing plant
- Growth potential with progressive ramp up
- The mine's underground hard rock resource offers an attractive future opportunity in the longer term

JORC mineral resource (Oct 2011)

U/G resource tonnage	5.5	Mt
U/G Tin grade	0.45	%
Waste resource tonnage	21.3	Mt
Waste resource grade	0.09	%
Tails resource tonnage	10.7	Mt
Tails resource grade	0.20	%
TOTAL	37.5	Mt
Contained Tin	66,500	t

Tallebung Tin Project

Company	Sky Metals Ltd
Commodities	Sn 50 Tin; W 74 Tungsten
Project stage	Advanced exploration
Planning stage	Preparing scoping study
Mineral rights	Exploration leases
More information	skymetals.com.au

- The project is in a large-scale tin system
- Lies within the prospective Wagga Tin Belt of the central Lachlan Orogen, close to Ardlethan, mainland Australia's largest historical tin resource (>31,500t Sn)
- 53% increase in total tonnes from maiden MRE
- Positioning to be a producer of low-cost tin from reliable and ethical sources at Tallebung

JORC mineral resource (Jan 2024)

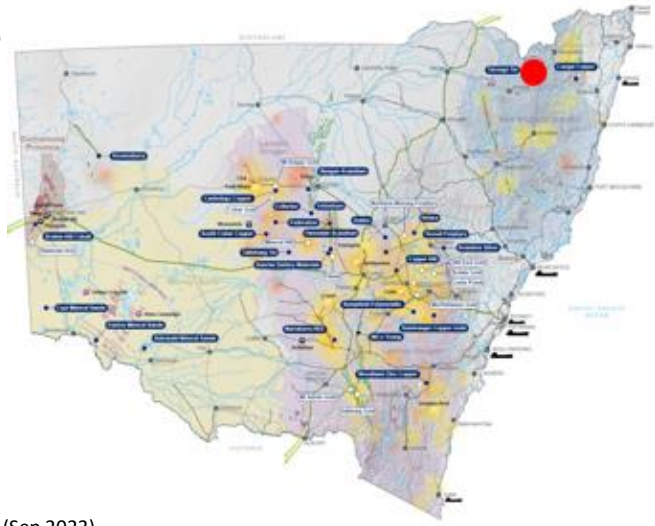
Tonnage	15.6	Mt
Tin	0.15	%
Tungsten	0.03	%
Tin (contained)	23.2	kt
Tungsten (contained)	433,940	mtu

Taronga Tin Project

Company	First Tin Plc
Commodities	Sn 50 Tin
Project stage	Advanced development Definitive Feasibility Study completed (May 2024)
Planning stage	Preparing EIS
Mineral rights	Exploration lease and one mining licence
Production life	9 years (operational)
Expected annual production	3,000-4,000 tpa tin metal in 55-60% concentrate (total tin to be produced = 26,203t)
More information	firsttin.com

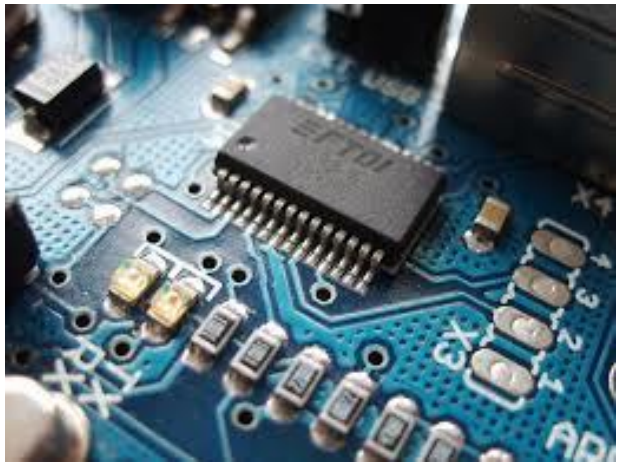
- Taronga project is one of the larger undeveloped tin projects globally
  - 8th largest tin **resource**
  - 5th largest tin **reserve**
- An ethical supply of tin – high ESG credentials and provenance
- Construction expected 2025-26 (subject to approvals). Up to 2-yr construction

JORC mineral resource (Sep 2023)		
Sn cut-off @ 0.05%*		
Tonnage	133.0	Mt
Tin grade	0.104	%
Tin (contained)	138.3	kt
Density	2.75	t/m^3



*Cut-off reduced from 0.10% to 0.05% Sn based on updated opex and tin price (Sep 2023)

Antimony



51
Sb
Antimony

- Antimony is used as a fire retardant and a hardener for other metals, particularly lead.
- It is increasingly being used in electronics and various military uses.
- Antimony is extensively used in the production of glass to help improve stability of solar panels when exposed to the ultraviolet rays of sunlight.

Hillgrove Gold-Antimony Project

Company	Larvotto Resources Ltd
Commodities	Au 79 Gold; Sb 51 Antimony
Project stage	Definitive Feasibility Study (Pre-Feasibility Study completed August 2024)
Mineral rights	Mining leases
Life of mine	7 years
Expected annual production	Antimony: - Annual average recovered (LOM) = 5.4 kt - Total recovered tonnes (LOM) = 37.7 kt Gold: - Annual average recovered (LOM) = 41.0 koz - Total recovered ounces (LOM) = 288 koz
More information	larvottoresources.com

- Strategically located close to major infrastructure including major highways, rail links and regional airports
- Extensive existing surface and underground infrastructure
- Antimony extensively used in the production of glass and solar panels
- Aiming for FID in 2025 and first ore production in 2026 (subject to approvals)

JORC mineral resource (Aug 2024)

Tonnage	7.264	kt
Au grade	4.4	g/t
Sb grade	1.3	%
AuEq grade	7.4	g/t
Cont. Au	1,036	koz
Cont. Sb	93	kt

REE
Rare earth elements

Ti 22
Titanium

Zr 40
Zirconium

Rare Earth Elements & Mineral Sands

- Range of REE projects from approved to new exploration opportunities
- NSW is ranked first in Australia for niobium contained resources (63% of national resources)
- Significant mineral sands province in south-west
- REE are critical for high-performance permanent magnets, clean energy infrastructure, computers and communications technology

Dubbo Project

Company	Australian Strategic Materials Ltd
Commodities	REE Rare earth elements; Zr 40 Zirconium; Hf 72 Hafnium; Nb 41 Niobium
Project stage	FEED studies and financing
Planning stage	Development consent received
Mineral rights	Mining lease granted
Life of mine	20 years +
Processing capacity	1 Mtpa
Expected annual production	▪ 13,500 tpa Zirconia ▪ 2,500 tpa Dehafniated zirconia ▪ 30 tpa Hafnium oxide ▪ 2,650 tpa FerroNiobium
Seeking	Seeking funding partners
More information	asm-au.com

- Vertically integrated ‘mine to metals’ producer of critical minerals
- Construction ready, with all major permits approved
- Long mine life, initially 20 years
- Resource of rare earth elements, zirconium, niobium and hafnium
- An alternative and reliable source of critical minerals and rare earth elements
- Non-process infrastructure studies and financing underway

JORC mineral resource (July 2020)

Tonnage	75.18	Mt
Zirconium dioxide	1.89	%
Hafnium oxide	0.04	%
Niobium oxygen	0.44	%
Tantalum pentoxide	0.03	%
Yttrium oxide	0.14	%
TREO	0.74	%

Copi Mineral Sands Project

Company	RZ Resources
Commodities	Zr 40 Zirconium; Ti 22 Titanium; REE Rare earth elements
Project stage	Feasibility Study
Planning stage	EIS
Mineral rights	Exploration lease
Life of mine	20+ years
Expected Processing capacity	350,000 tpa
Expected annual production	▪ ~260,000 tpa of Ilmenite product ▪ ~10,000 tpa of monazite product ▪ ~180,000 tpa of non-magnetic concentrate
Seeking	Product offtake, debt and equity funding
More information	rzresources.com

- Titanium feedstocks (rutile & ilmenite)
- Rare earth oxides (monazite & xenotime)
- In the globally recognised Tier 1 Murray Basin mineral sands district
- Project will be a dredge mine with low costs and low environmental impacts

JORC mineral resource (Sep 2023)

Tonnage	2,540	Mt
Total HM	1.2	%
Xenotime*	0.12	%
Monazite*	1.03	%
Rutile*	15	%
Zircon*	15	%
Ilmenite*	45	%
Leucoxene*	9.0	%

* % of HM

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Thank You

Dr Phillip Blevin,
Chief Geoscientist & Head,
Geological Survey of New South Wales

NSW GOVERNMENT

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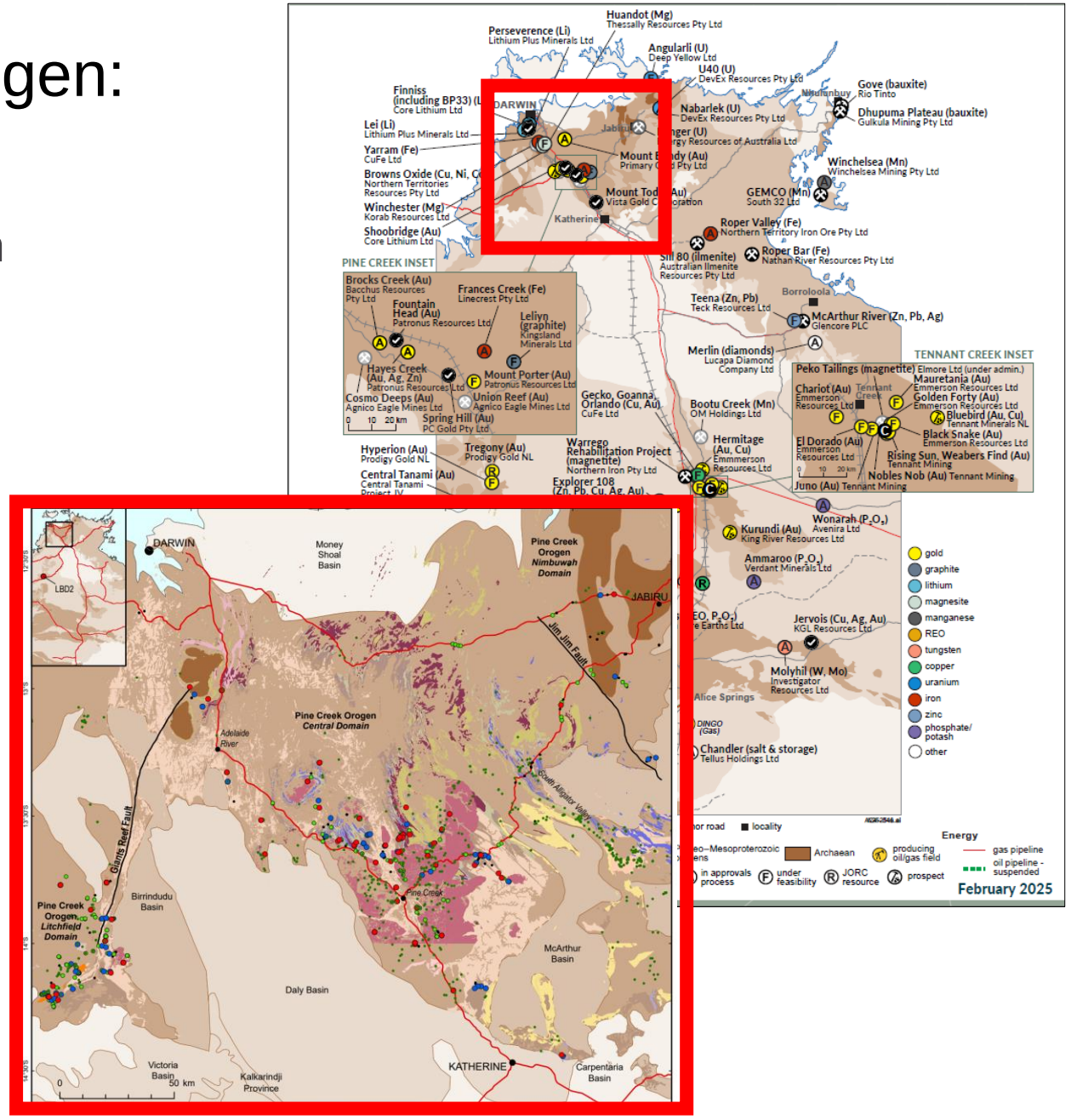
The polymetallic potential of the Pine Creek Orogen, Northern Territory: new precompetitive data

Dorothy Close
Director Regional Geoscience
Northern Territory Geological Survey

AUSTRALIA'S NORTHERN TERRITORY

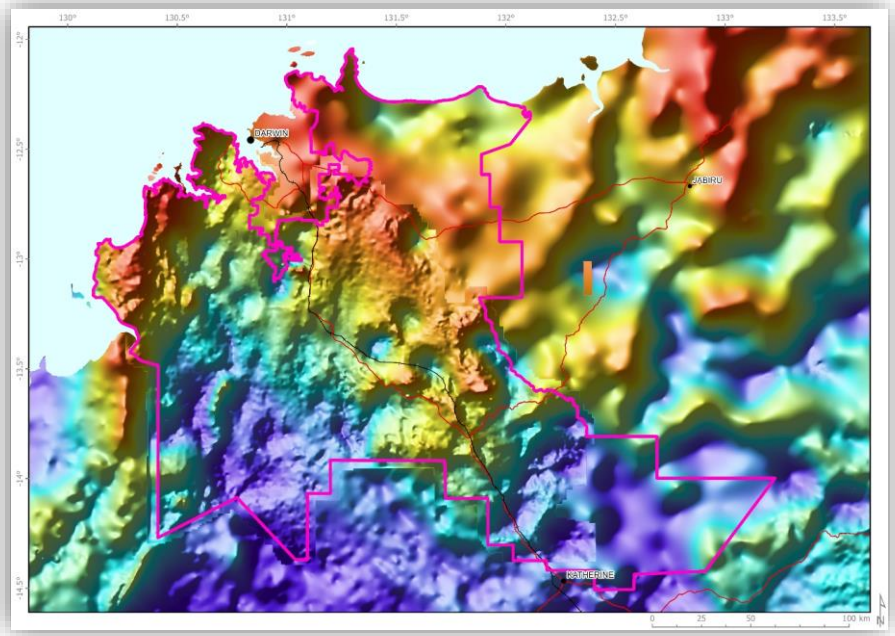
Palaeoproterozoic Pine Creek Orogen: polymetallic province

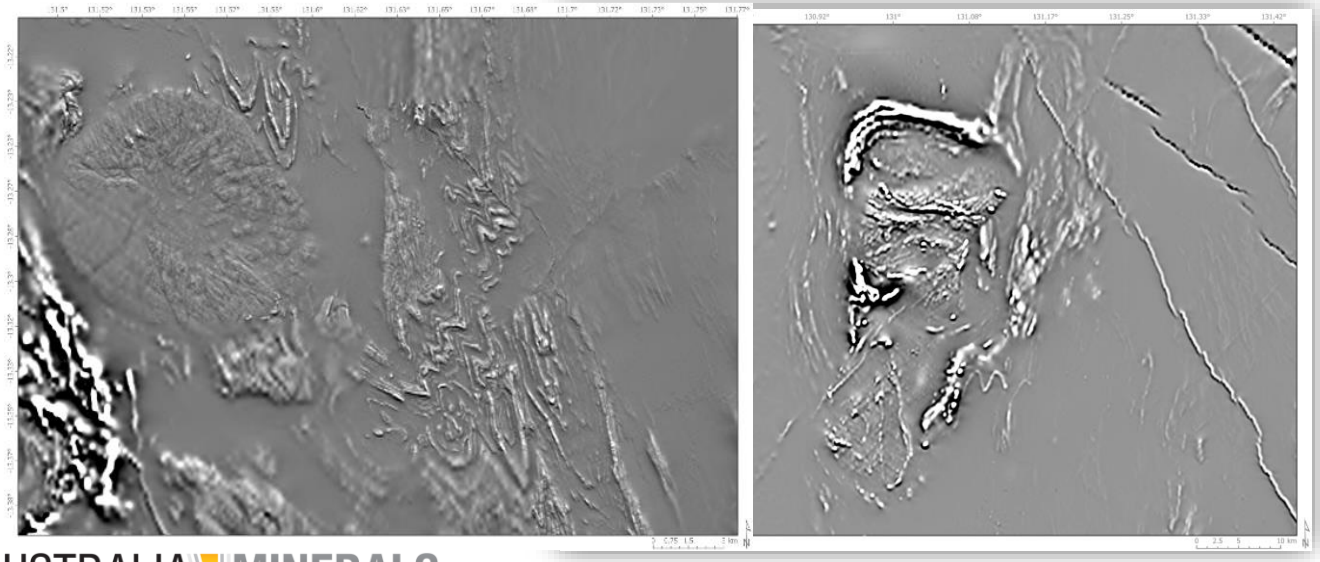
- Historical gold, uranium and iron ore production
  - >10 Moz remaining gold resources
  - Australia's largest graphite deposit
  - High grade unconformity-style uranium deposits
  - Regolith hosted and hydrothermal REE
  - Expanding lithium resources
- Known resources of Au, U, Pb-Zn-Ag, PGEs, Cu-Co-Ni, Li, REs, graphite, Mg, Sn-Ta, W, P
- Close to rail, road, power infrastructure, workforce….. And Australia's closest port to SE Asia
- BUT….outdated and sparse pre-competitive data coverage

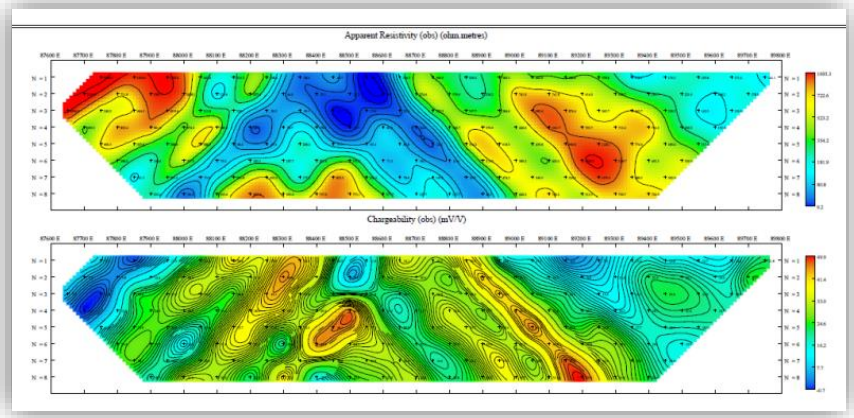


Pre-competitive data: upgrading regional scale geophysics

- Improve resolution of regional gravity from 11km spacing to 2km spacing or better (industry infill @ 500m to 1 km spacing)
- Uplift existing 400m line spaced magnetics and radiometric data – plus re-acquiring at higher resolution if required
- Compile and upgrade industry acquired geophysics and assess applicability of different techniques to varying ore deposits

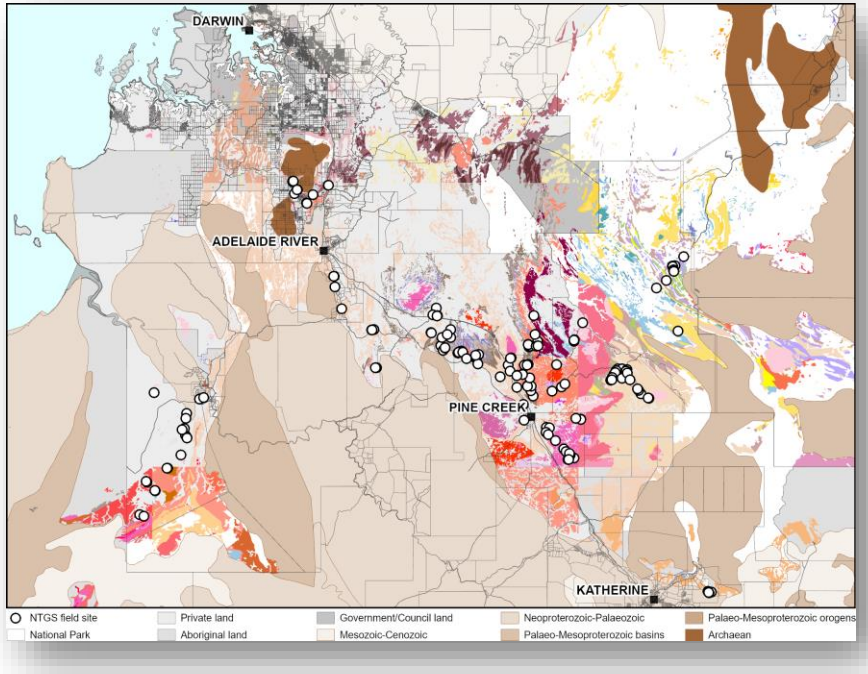


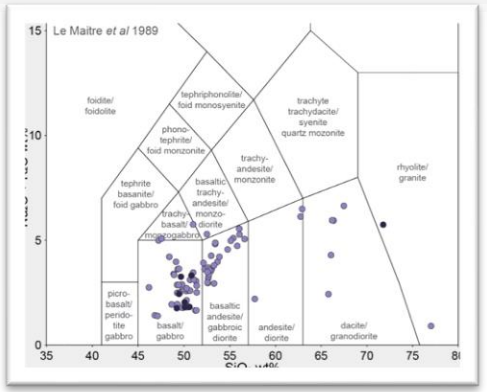


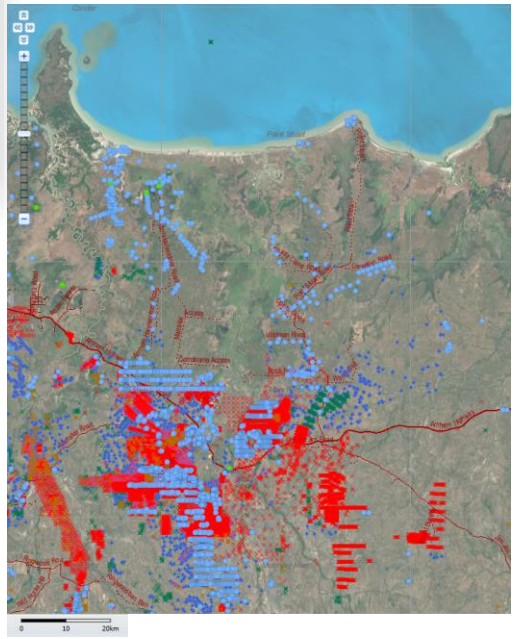


Pre-competitive data: improve quality and accessibility of geochemistry

- Reanalyse govt-acquired whole rock igneous geochemistry to full suite (over 1000 samples)
- Digital capture of all industry submitted drill core and surface geochemistry (> 400 000 data points captured to date); due to be complete across Pine Creek by 2026
- All geochemical data provided with analytical methods and detection limits

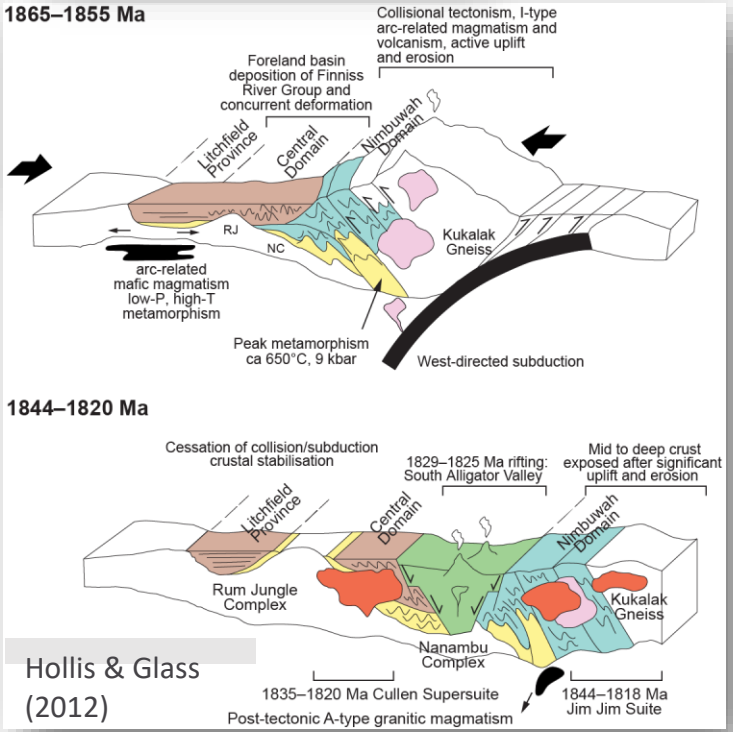




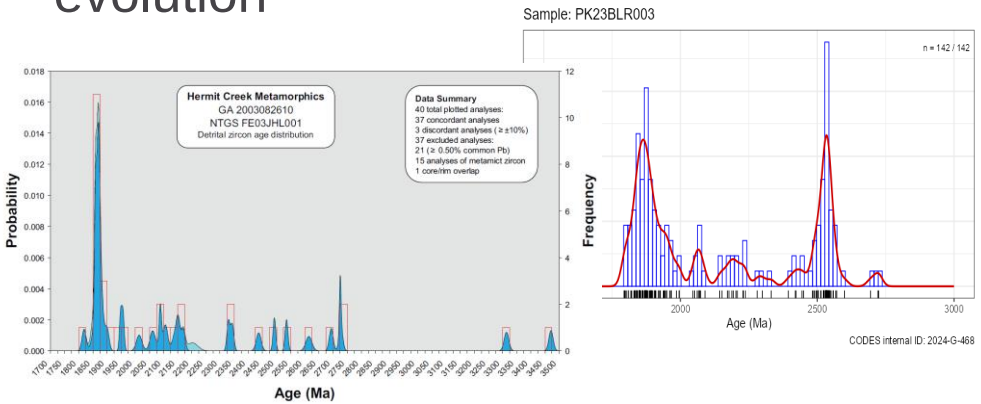


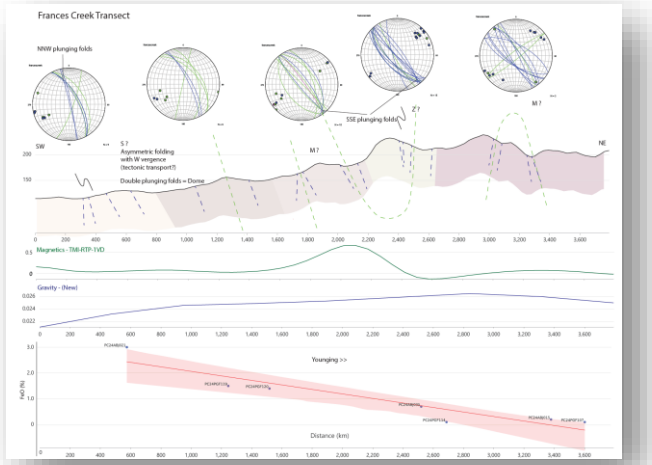
Pre-competitive data: redefine stratigraphy and tectonic evolution

- Characterise all stratigraphic unites through geochemical, geochronological and isotopic analysis
- Redefine magmatic suites and systems, depositional packages, structural and metamorphic overprints
- Integrate new data and interpretations to redefine tectonic evolution



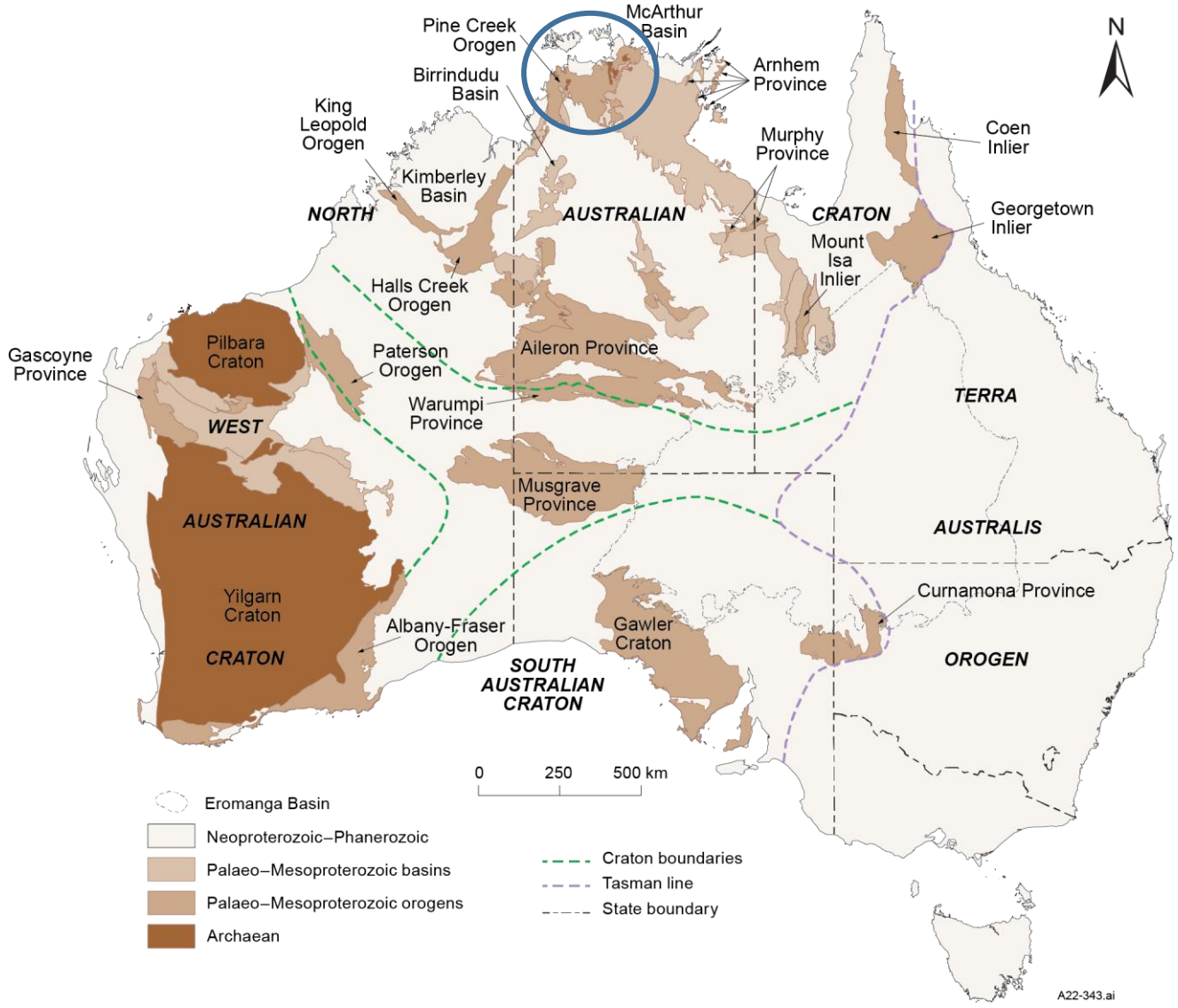
Hollis & Glass (2012)





De-risking exploration in the Pine Creek Orogen

- The Pine Creek Orogen is a diversely mineralised Palaeoproterozoic province with under-recognized critical minerals potential
- The NT Geological Survey is dedicated to attracting and de-risking exploration in this highly prospective province to unlock a new generation of resource discoveries through:
  - Upgrading baseline geophysical coverage
  - Digital data capture of all legacy industry geochemical and drilling data
  - Value-adding to industry geophysics
  - Geological framework studies
  - Partnering with industry to collaborate through infill of geophysical surveys and collaborative industry grants



Annual Geoscience Exploration Seminar (AGES)

The Territory's premier exploration-focussed technical event
Alice Springs, April 8-9 2025

Record 333 attendees in 2024

ages.nt.gov.au

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Thank you

Dorothy Close
Director Regional Geoscience
Northern Territory Geological Survey

AUSTRALIA'S NORTHERN TERRITORY

AUSTRALIA MINERALS

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High-grade Copper-Gold opportunities in the Tennant Region, Northern Territory, Australia

Kate Mornane
Manager Grants, Investment and Promotion
Northern Territory Geological Survey

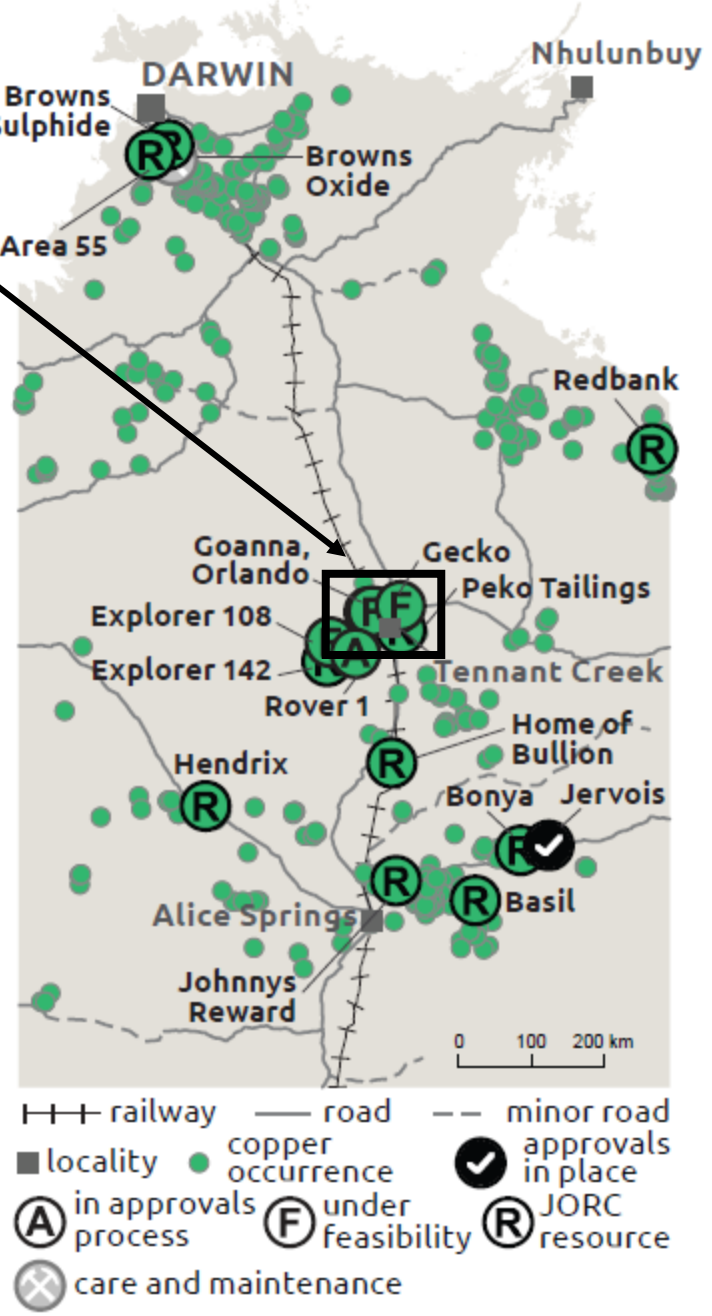
AUSTRALIA'S NORTHERN TERRITORY

Australia's Northern Territory

- 1.3 million km^2 in land area, 250,000 people
- Resources-driven economy
- Currently a major producer of manganese, bauxite, lead-zinc-silver, gold, LNG
- Strong history of uranium mining
- Growing critical minerals sector (lithium, REE, copper, graphite, 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 mandate to rebuild the economy, with strong focus on supporting advanced projects by implementing mining royalty reforms, and a plan to reduce approvals timeframes and duplication

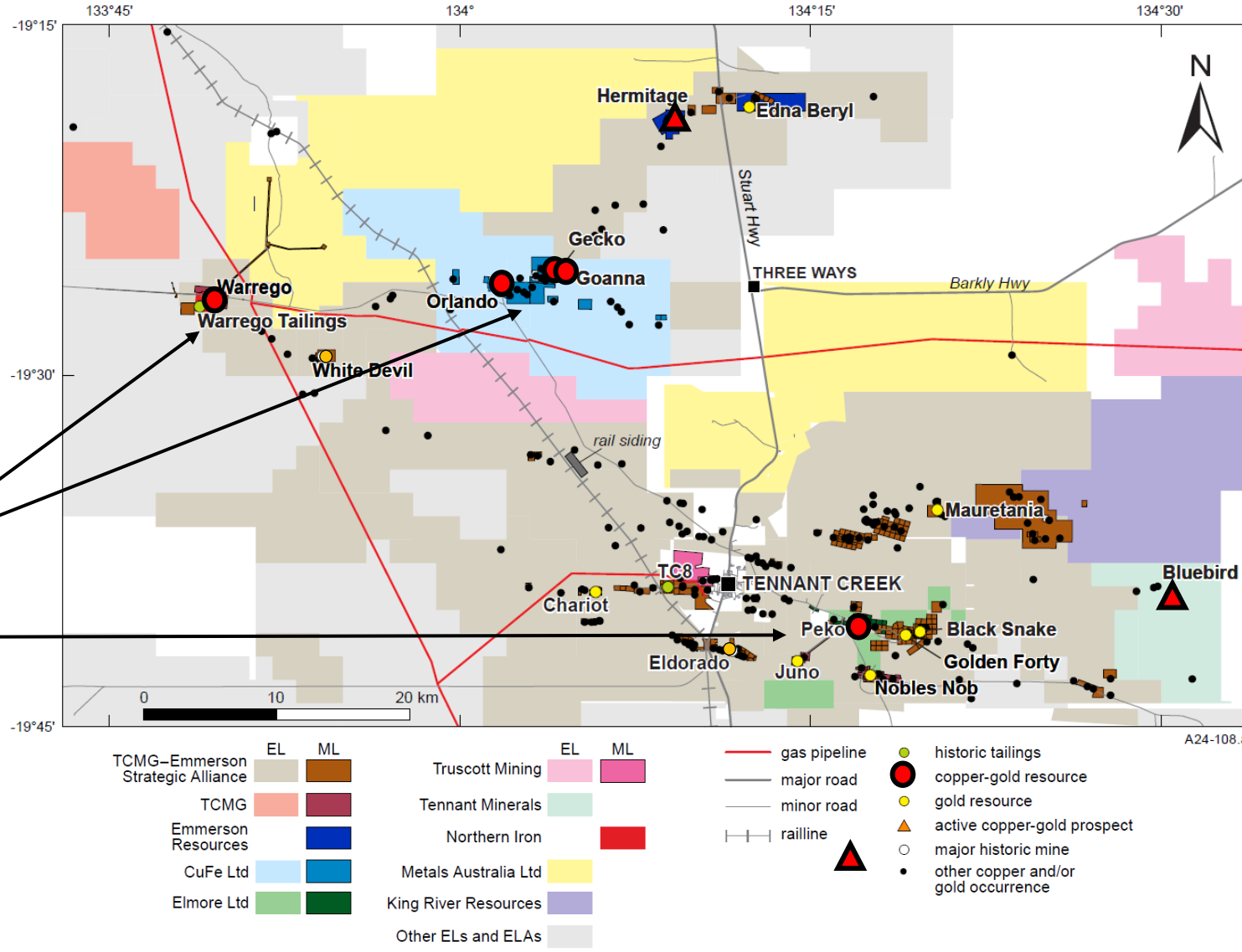
Tennant Creek Copper-Gold opportunities

- Tennant Creek is a regional hub with a population of ~3000 people located ~1000km south of Darwin and ~500km north of Alice Springs
- Direct access road, rail, regional airport and gas pipelines
- Infrastructure
- Distinctive small, extremely high-grade gold-copper deposits
- Rich mining history
- A focus on remnant mining, re-processing tailings and stockpiles for gold (Tennant Mining - *Nobles Nob - gold plant in construction*) and magnetite (Northern Iron - *Warrego Tailings Project - operating*)
- Evaluating the copper, cobalt and bismuth potential.
- The region remains highly prospective for its deeper untested **IOCG potential.**



Historic production and remaining mineral resources

- Historic gold production:
  - Total recorded production of **5.5 million ounces of gold** produced from *Nobles Nob mine*, *Warrego mine, Peko mine, Juno, Orlando, Gecko* and *White Devil mines*
- Historic copper production:
  - *Warrego mine* (~**90,000 t @ 2% Cu**)
  - *Gecko* (~**122,000 t @ 4% Cu**)
  - *Peko mine* (~**118,000 t @ 4% Cu**)
  - Other additional copper, bismuth, silver and selenium production



Emerging high-grade copper-gold (-cobalt) projects

Emmerson Resources Ltd – *Hermitage*

119 m @ 3.3% Cu, 0.87g/t Au

94.4 m @ 2.74% Cu, 5.58g/t Au, 17.88g/t silver, 0.44% Bi including 4.8 m @ 19.4% Cu, 214.4 g/t Au, 103.8g/t Ag 13.8% Bi, 0.12% Co from 164m

Cu-Fe Ltd – *Orlando-Gecko*

Orlando resource upgrade

5.95 Mt @ 1.16% Cu and 1.5 g/t Au

~70 kt of contained copper

Tennant Mining – *Warrego*

Metals Australia Ltd – *East Warrego*

Tennant Minerals Ltd – *Bluebird*

61.8 m @ 2.3% Cu, 0.4 g/t Au

63 m @ 2.1% Cu, 4.6 g/t Au

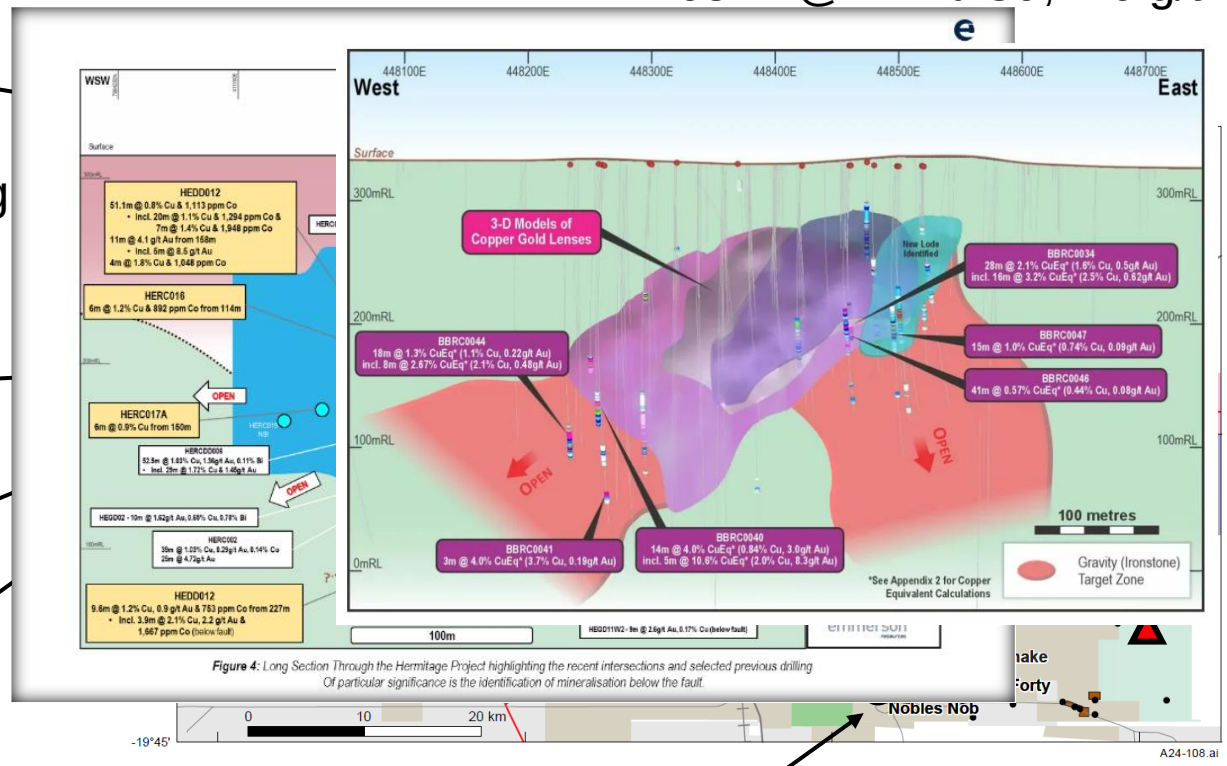


Figure 4: Long Section Through the Hermitage Project highlighting the recent intersections and selected previous drilling. Of particular significance is the identification of mineralisation below the fault.

Tennant Mining (wholly owned subsidiary of Pan African Resources) – *Nobles Nob*

CIL gold plant in construction

Production targeting Q3 2025

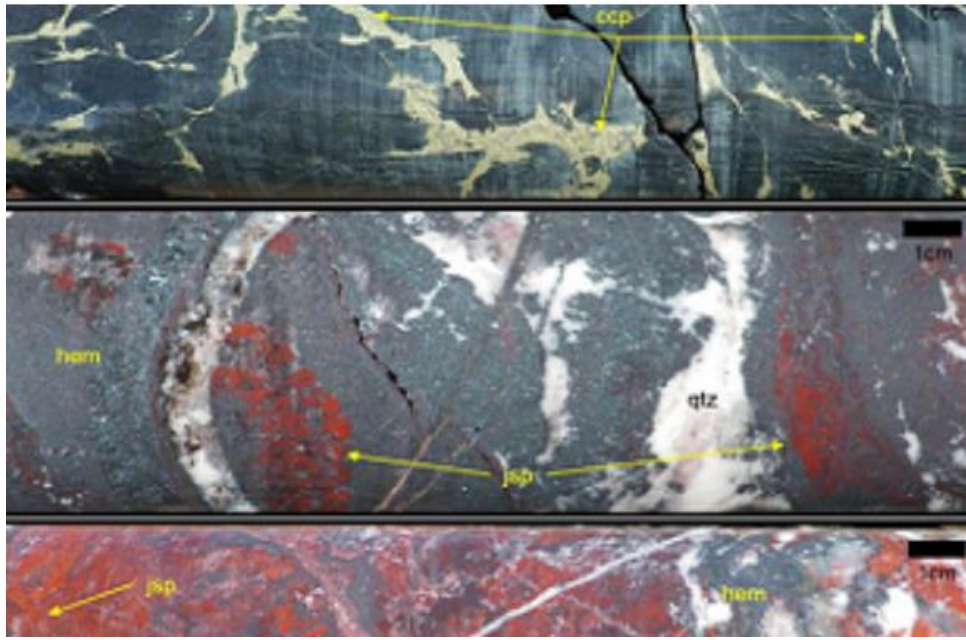
Current reported reserves ~400,000 oz Au (Tennant Mining/Emmerson Resources JV)

AUSTRALIA MINERALS

Evaluating options for copper processing

- Tennant Minerals Ltd, Emmerson Resources Ltd and CuFe Ltd recently announced a strategic alliance to assess development options including single multi-user processing facility for copper, gold and critical minerals.

- Tennant Mining (Nobles Nob CIL gold plant in construction) investigating 840ktpa copper circuit.



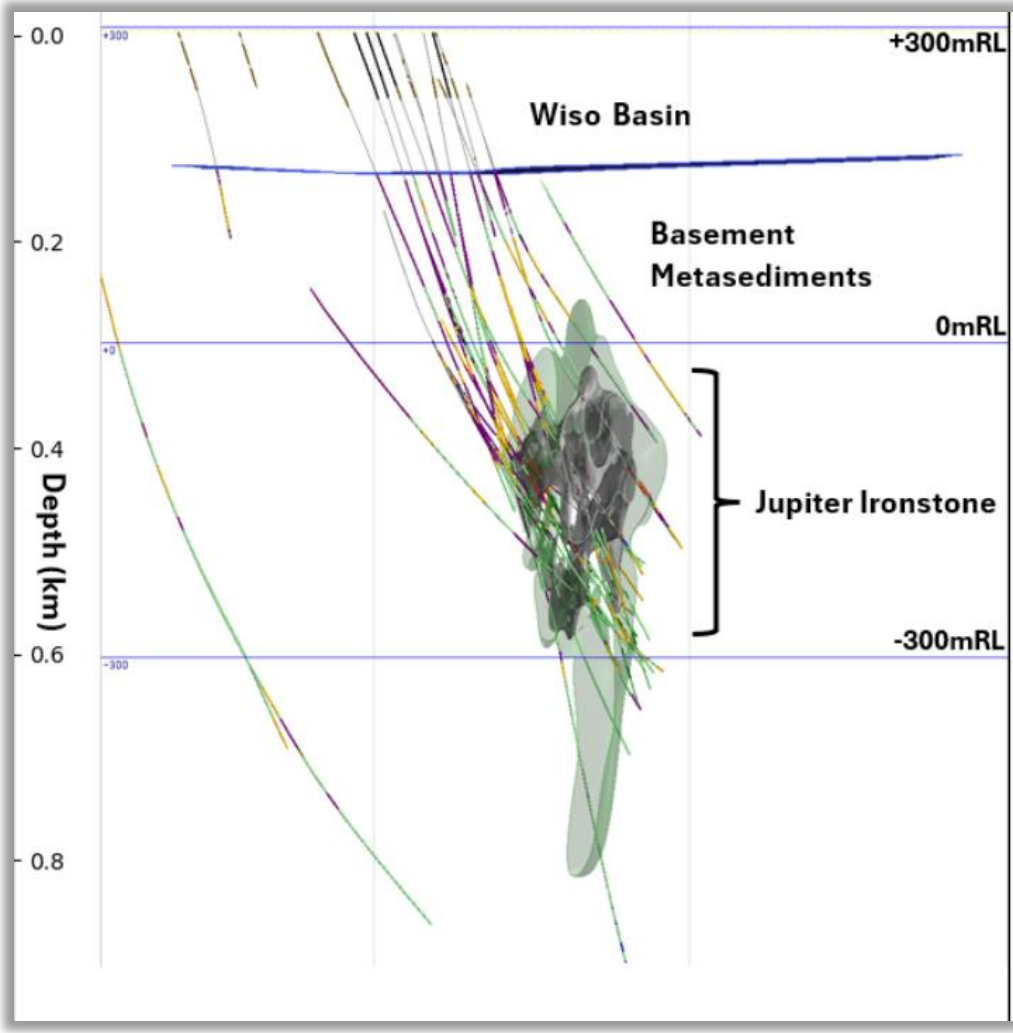
Investment ready multi commodity project seeking offtake

- Rover Mineral field 80 km west of Tennant Creek mineral field
- Warramanga Formation hosted IOCG potential undercover

Castile Resources Ltd – *Rover 1 Au-Cu-Co-Magnetite*

Ore reserve 3.11 Mt @ 2.02 g/t Au, 1.52% Cu, 0.07% Co, 22.92% magnetite ~ 50 kt contained copper ~8 yr mine life

- Castile Resources evaluating locating the refinery at Middle Arm Sustainable Development Precinct to produce downstream metals
- Recent mine optimisation, BFS progressing and exploration upside with numerous undercover targets.



Exploration grants available to co-fund new geoscience to support discovery and development

The Geophysics and Drilling Collaborations program (GDC) allocates up to $3 million to co-fund projects that address geoscientific knowledge gaps, advance exploration activity, and support the discovery and development of resources in the Territory.

Co-fund 50% of direct costs capped at:

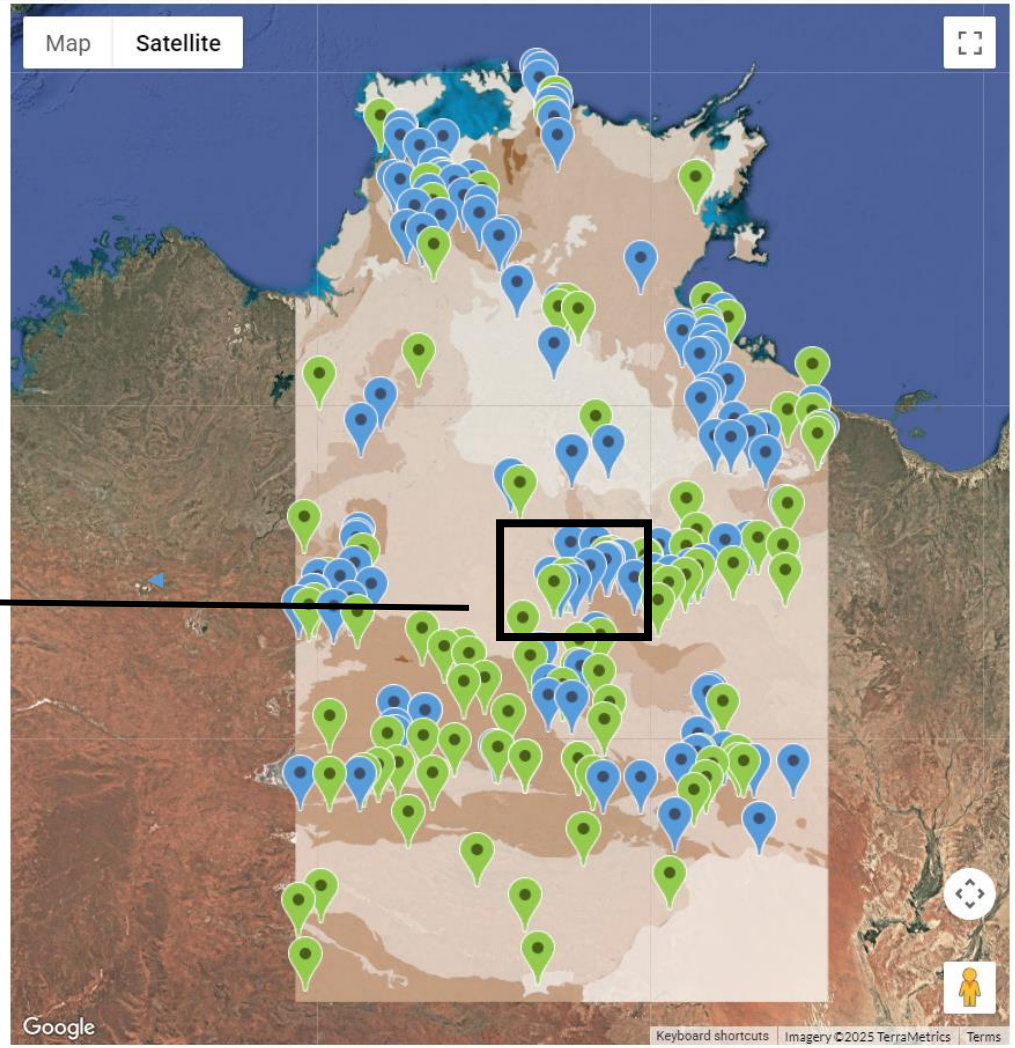
- Greenfields drilling **up to $200 000**
- Brownfields drilling **up to $150 000**
- Regional-scale geophysics **up to $150 000**
- Innovative targeting **up to $100 000**
- Advancing critical minerals **up to $50 000**

Round 18 applications are open until **28 April 2025**.

www.resourcingtheterritory.nt.gov.au/gdc

Exploration grants have supported projects in the Tennant Creek and Rover fields

- Multiple greenfields and brownfields drilling programs, including round 17 drilling by Castile Resources and Tennant Minerals
- High definition drone magnetics
- Re-analysis of existing samples for additional critical minerals
- Characterising magnetic remanence of the TCMF
- Ambient Noise Tomography and 3D IP at Rover 1



www.resourcingtheterritory.nt.gov.au/gdc

Tennant Creek and Rover Field: the opportunity

- Consolidation across the region
- Mid tier backed gold plant in construction
- Investment ready projects
- Mining friendly community
- Access to infrastructure
- Ongoing exploration using complimentary geophysical techniques to target small undercover deposits
- Untested IOCG potential at depth
- Copper and critical minerals demand may support smaller scale mining, smaller footprints, lower waste, high-grade deposits
- NT Government committed to advancing mining projects and supporting new geoscience to improve knowledge in known mineral provinces through collaborative grants.

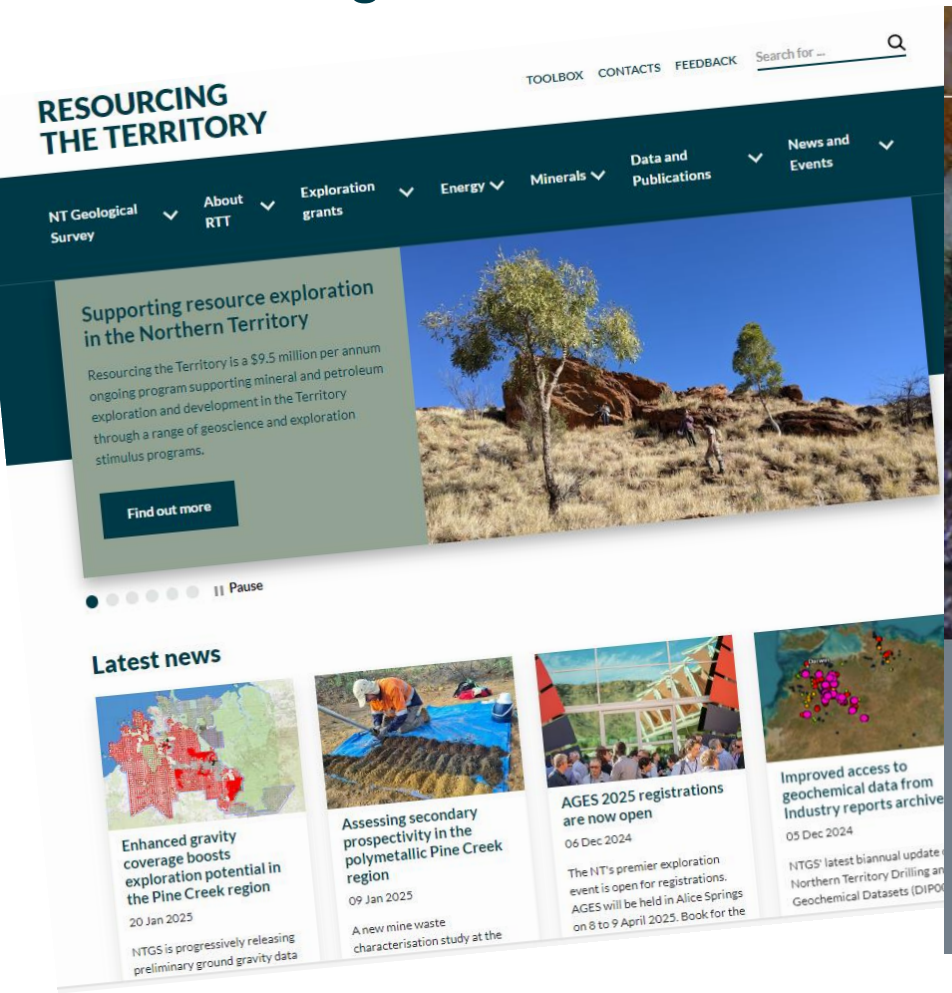
TENNANT MINERALS

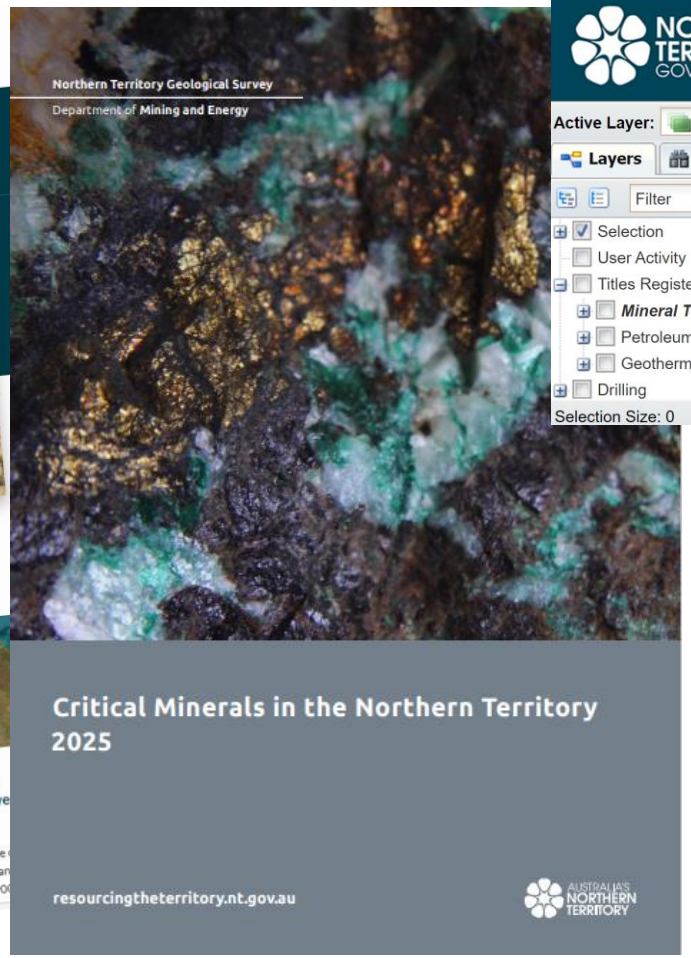
CuFe ltd

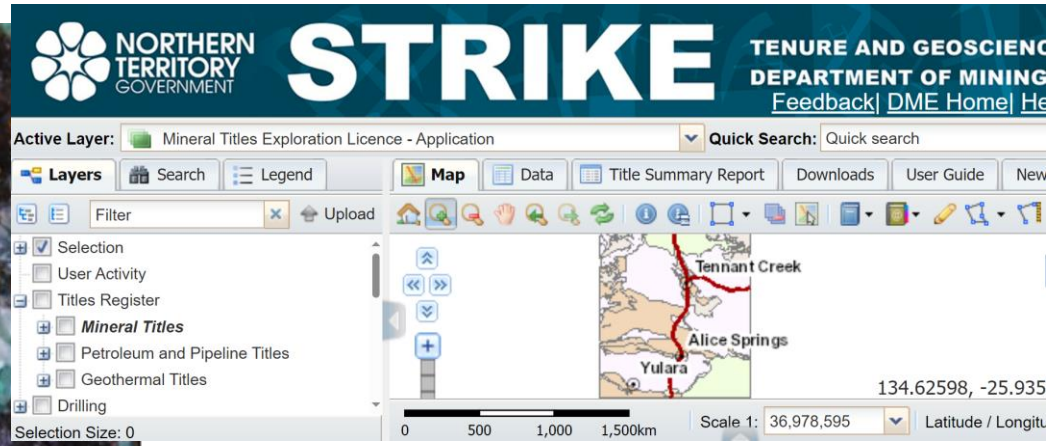
emmerson

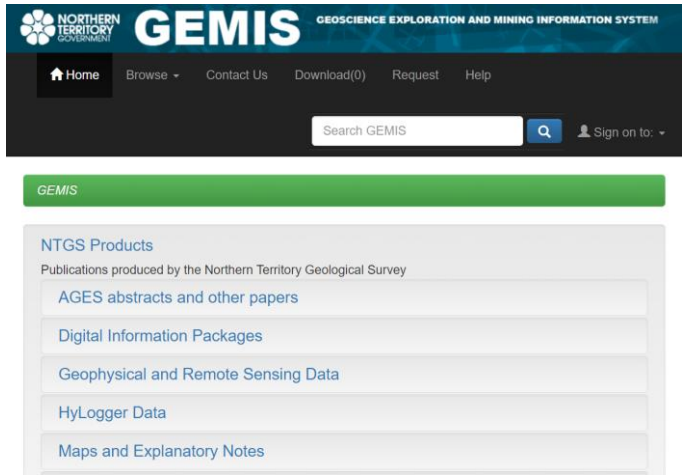
CASTILE RESOURCES LTD

Looking for information on the Northern Territory's resources and freely available geoscience data









Visit www.resourcingtheterritory@nt.gov.au

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REALISE THE OPPORTUNITY

For more information on the Northern Territory visit www.resourcingtheterritory@nt.gov.au

AUSTRALIA'S NORTHERN TERRITORY

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Accelerating exploration in greenfields regions

Exploration Incentive Scheme

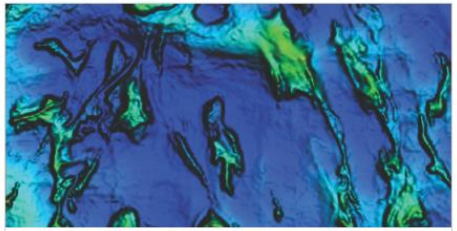
Michele Spencer
Department of Energy, Mines, Industry Regulation and Safety

GOVERNMENT OF WESTERN AUSTRALIA
Department of Mines, Industry Regulation and Safety

What is the Exploration Incentive Scheme?

Co-funded Exploration Drilling Program

A competitive program that offers co-funding to innovative exploration drilling projects in WA.

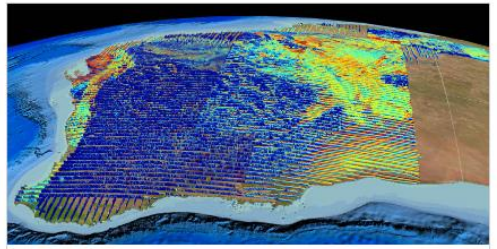


Co-funded Geophysics Program - Mineral

Encouraging greenfields geophysical exploration in WA's mineral resources sector.

Co-funded Energy Analysis Program

Supporting petroleum and geothermal exploration in WA by co-funding energy systems projects.



Regional Data

Collection of high-quality geophysical data across the state. Download free from our website.

Collaborative Projects

Understanding and facilitating deep exploration and providing smarter data management.

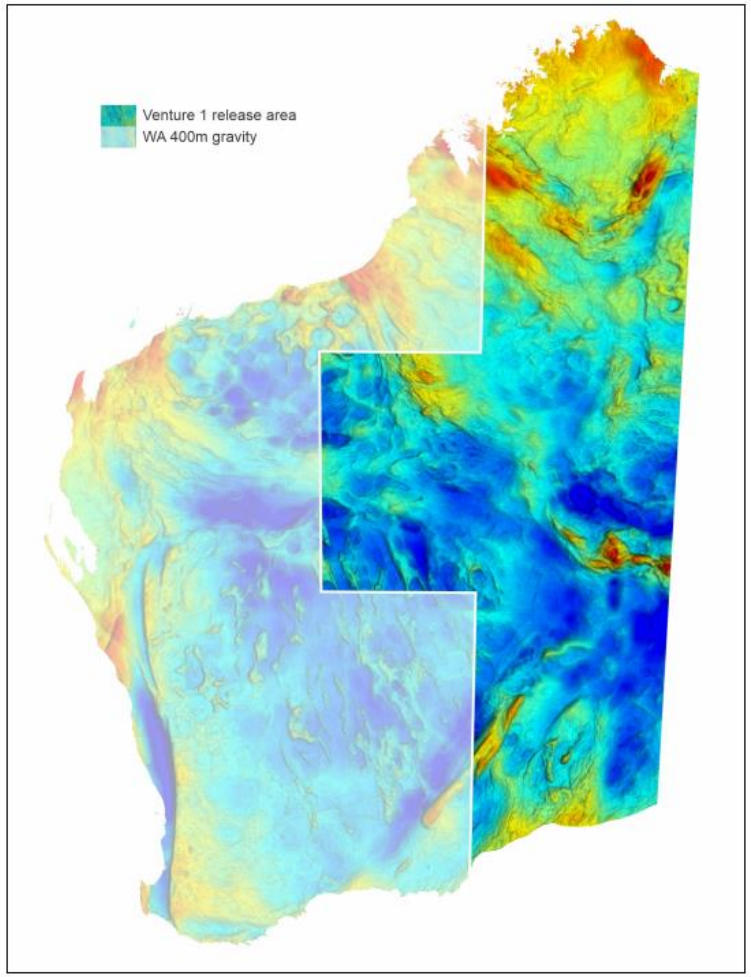
Our current co-funded opportunities…

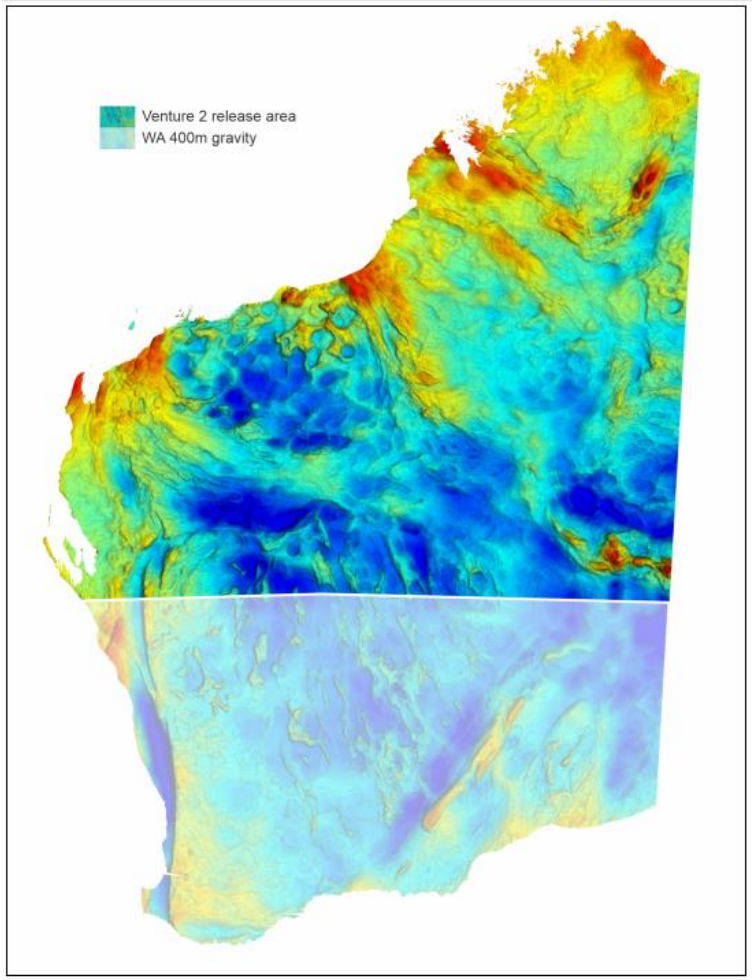
Co-funded Exploration Drilling Program

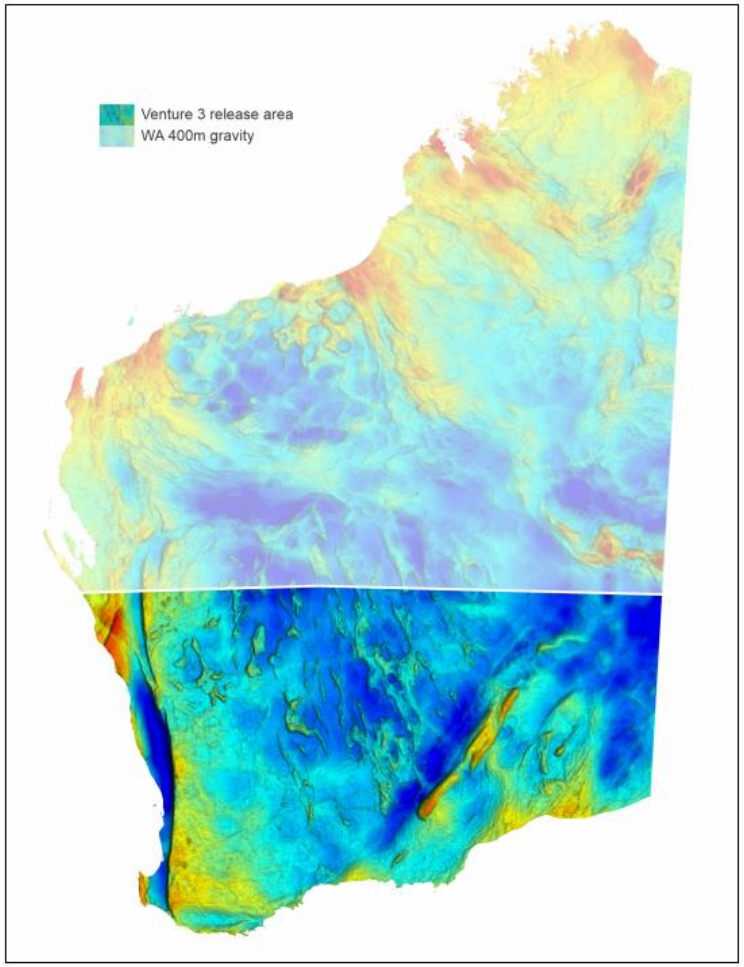
- To encourage exploration in greenfields areas.
- Two rounds per year
- Approximately $7m in funding allocated per annum
- Support offered to approximately 90 – 100 projects per annum
- Supports direct drilling costs

Our current co-funded opportunities…

Co-funded Geophysics





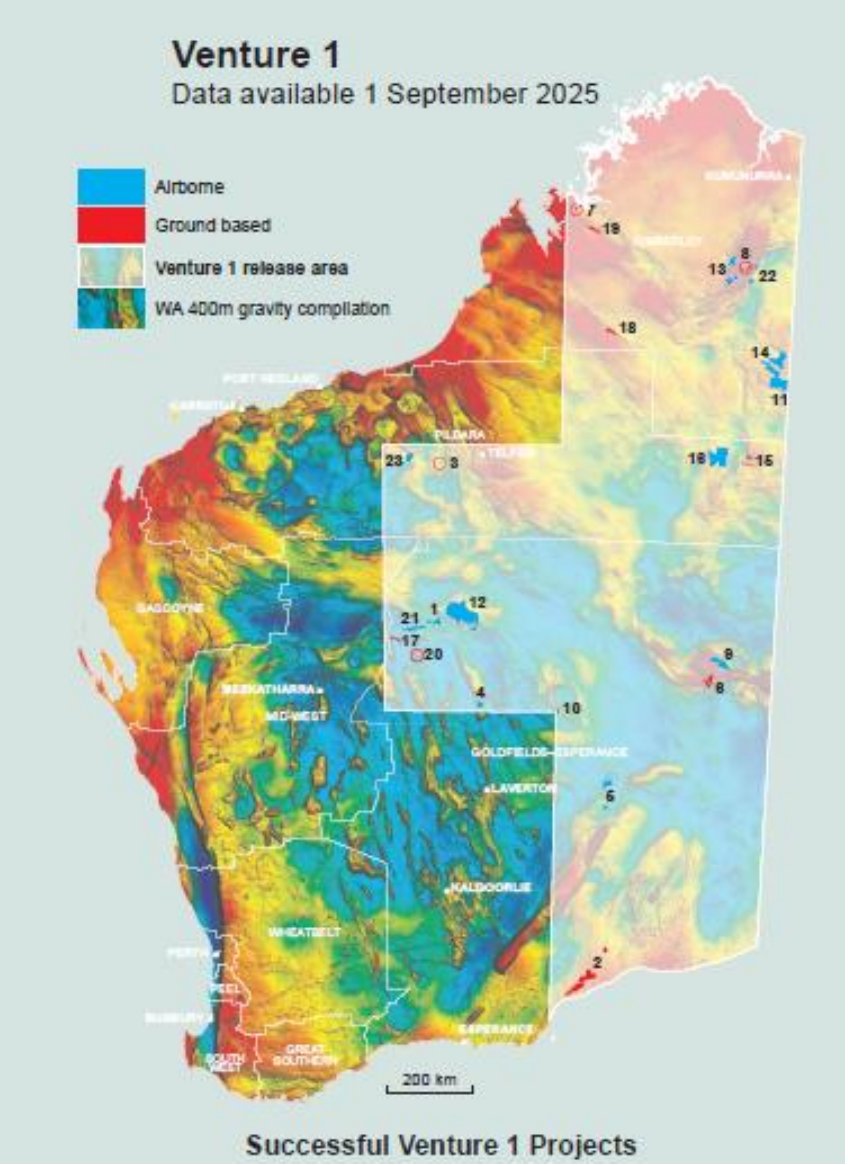


Our current co-funded opportunities…

Co-funded Geophysics

Venture 1:

- Funded 23 projects out of 33 applications
- Mostly for airborne magnetics and ground gravity surveys
- Data will be available from the 1st September 2025



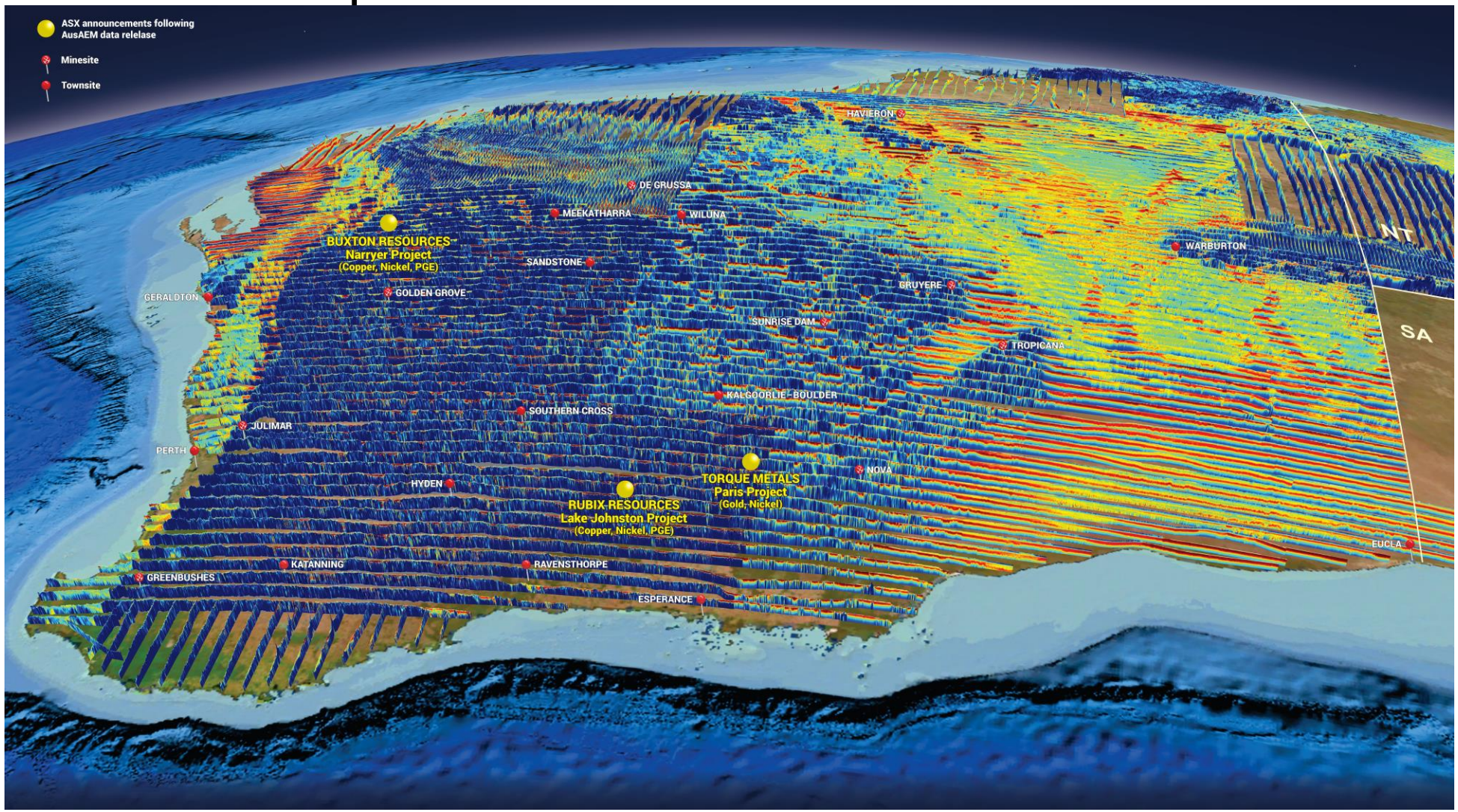
Successful Venture 1 Projects

Our current co-funded opportunities…

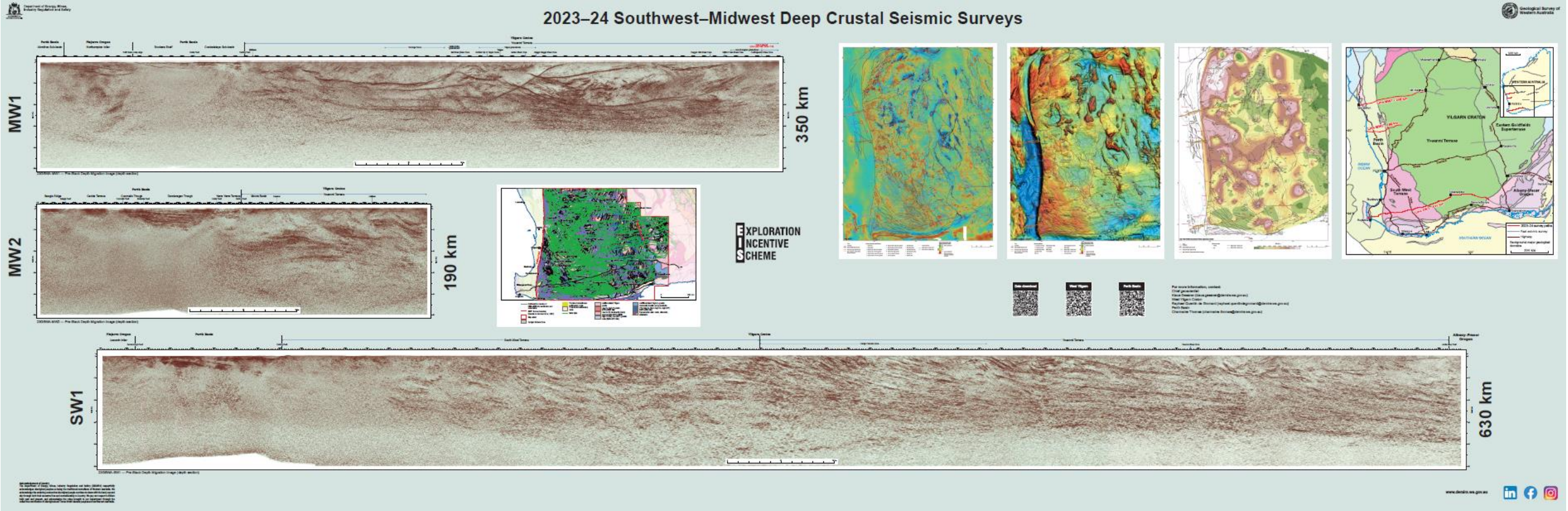
Co-funded Energy Analysis

- Open once per year
- Provides funding for:
  - Analysis and reprocessing and,
  - Acquisition

Regional Data Acquisition

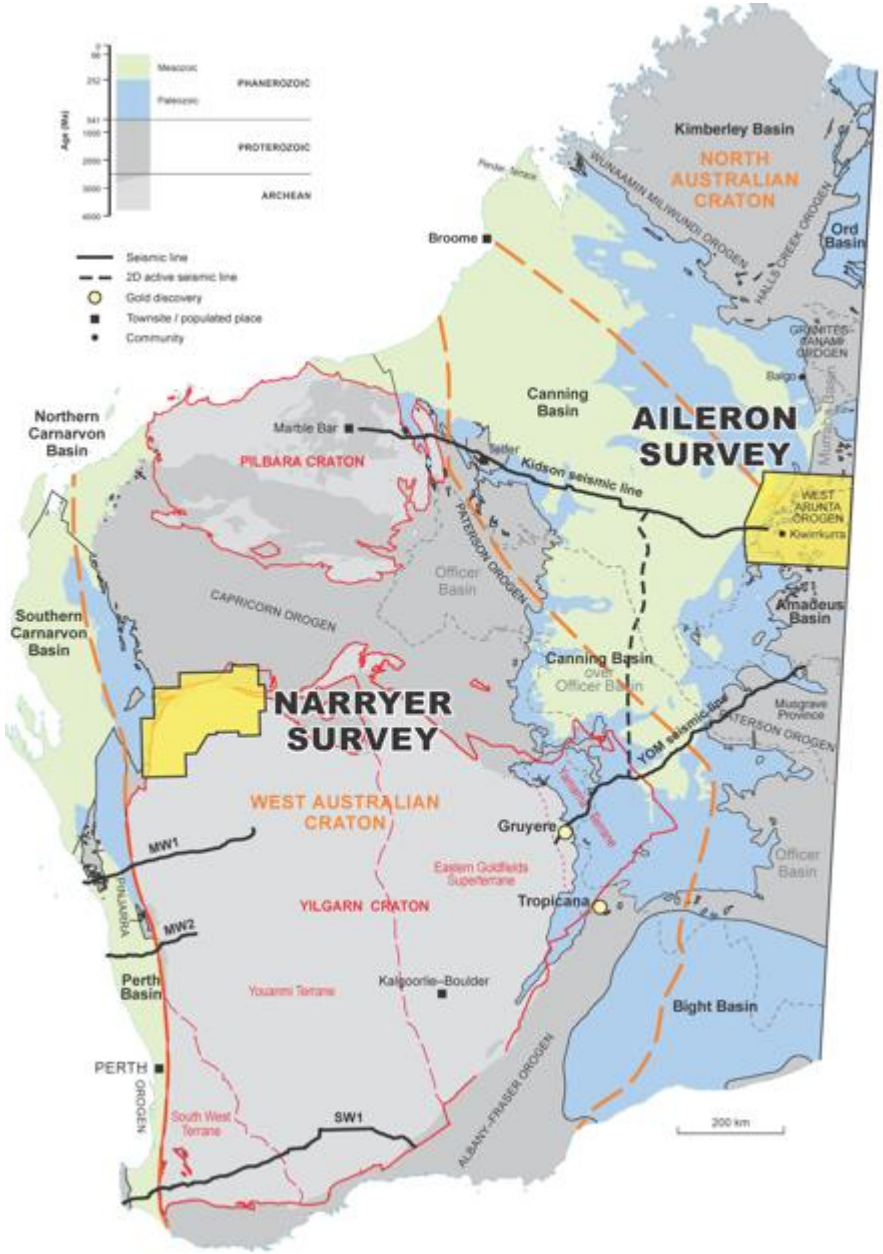


Regional Data Acquisition



Regional Data Acquisition

- Currently conducting Airborne Magnetic and Radiometric Survey (AMR) in Narryer Terrane
- Next FY will do AMR in the Aileron Province, West Arunta



Thank You

For further information contact:

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General Manager Investment

Charlotte.Hall@demirs.wa.gov.au

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Rediscovering Tasmania

Geoscience initiatives stimulating new exploration ideas

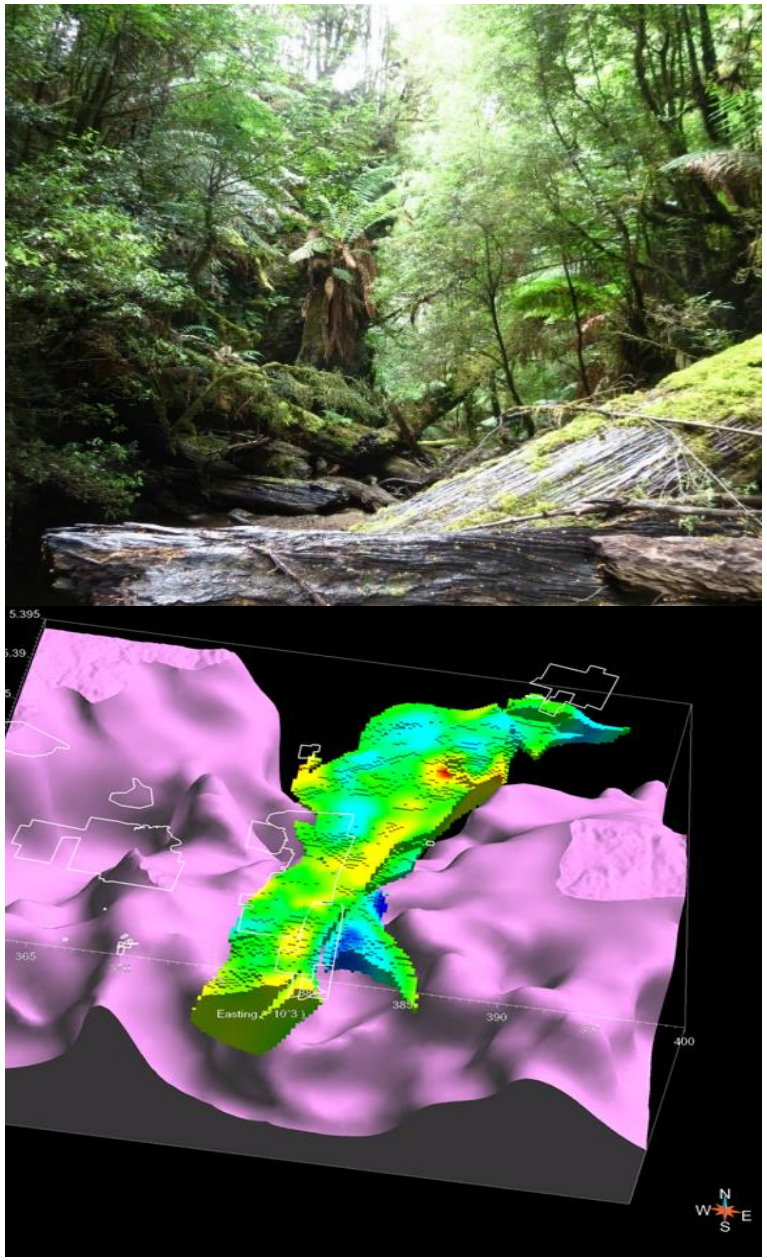
Dr Rebecca Sproule
Chief Government Geologist
Mineral Resources Tasmania

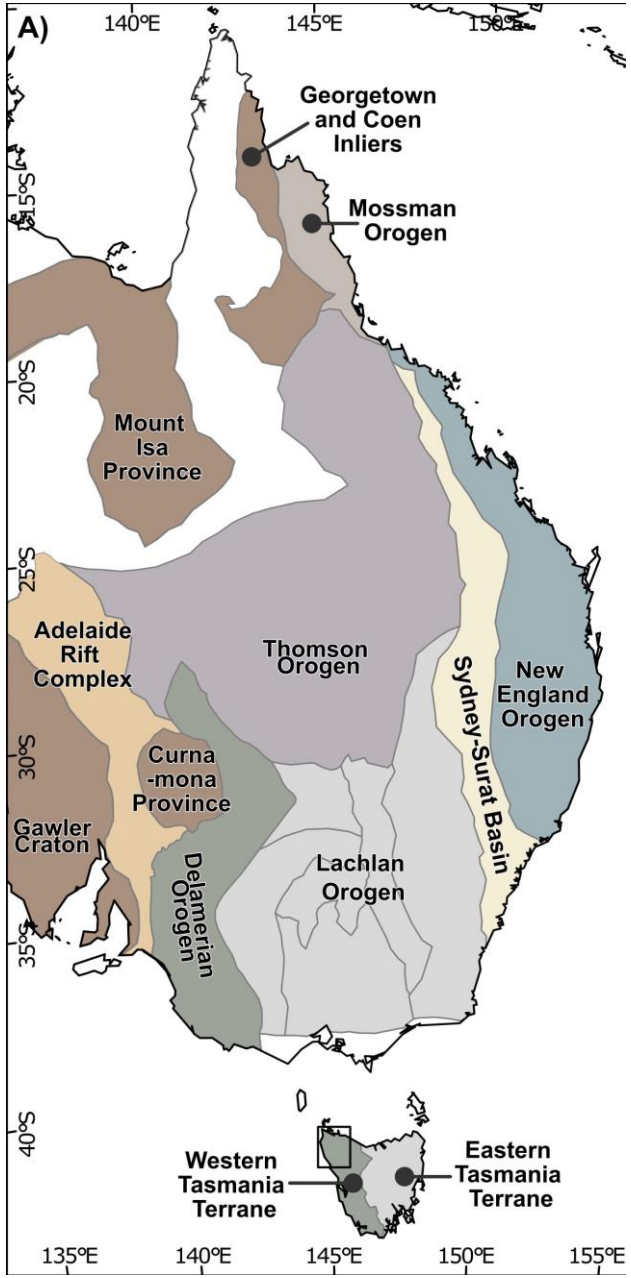
Tasmanian Government

Introduction

- One of MRTs main roles is to reduce investment and land use risk by developing a robust geological framework for the State
  - “Removing” the vegetation – LiDAR and new DEMs
  - Establishing the geological framework – mapping
  - Establishing the geological framework – magnetics, gravity, MT, passive seismic – will only discuss gravity
  - Confirming the framework - geochronology
  - The third dimension – geophysically corroborated 3D modelling

Let’s discuss some of the results from the Mineral Resources Tasmania team (Grace Cumming) and their combined research with CODES at the University of Tasmania and Potential areas for exploration follow-up

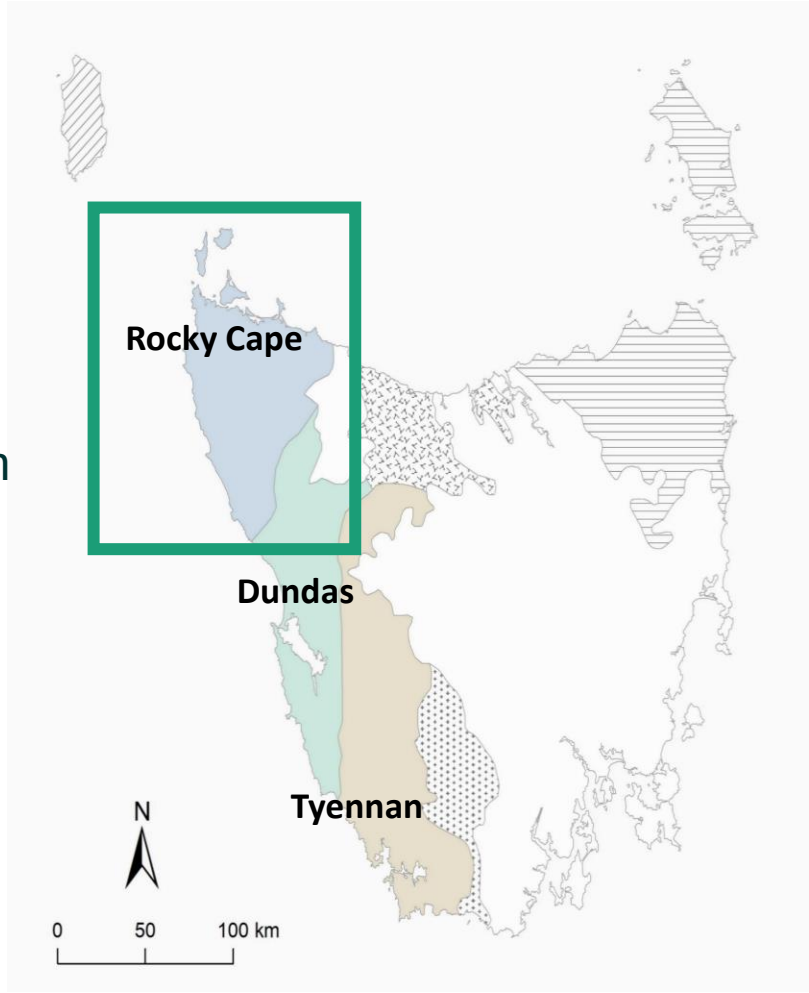




Background

The Western Tasmania Terrane (WTT) consists of:

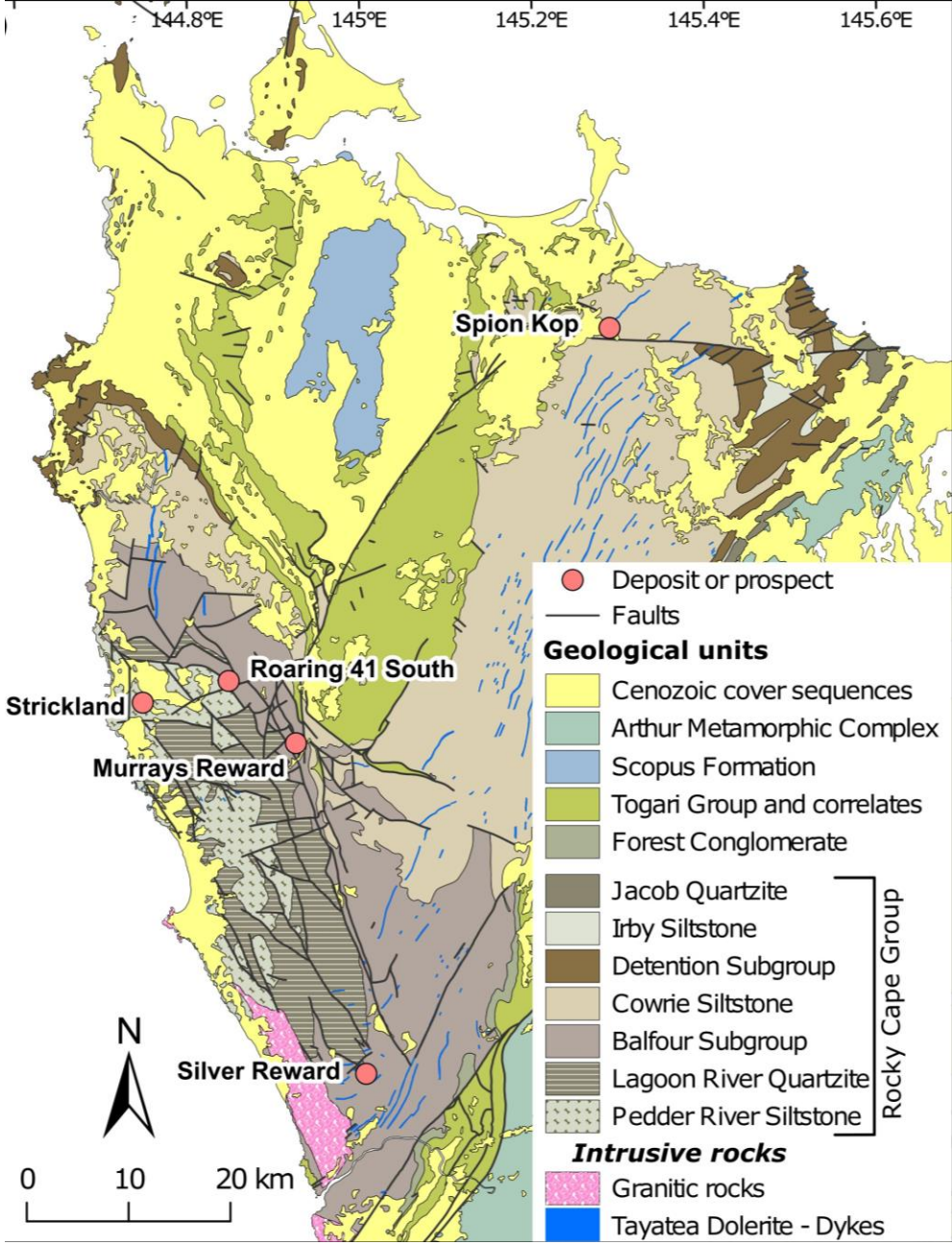
- **Rocky Cape Element** (dominantly Mesoproterozoic to Neoproterozoic siliciclastic rocks)
- **Dundas Element** (dominantly Cambrian Mount Read Volcanics)
  - Hosting Mt Lyell Cu, Rosbery VMS, Henty Au)
- **Tyennan Element** (dominantly Mesoproterozoic siliciclastic rocks)
- All these tectonic elements are intruded by **Devonian granites**



Armistead et al., 2024

Rocky Cape Group

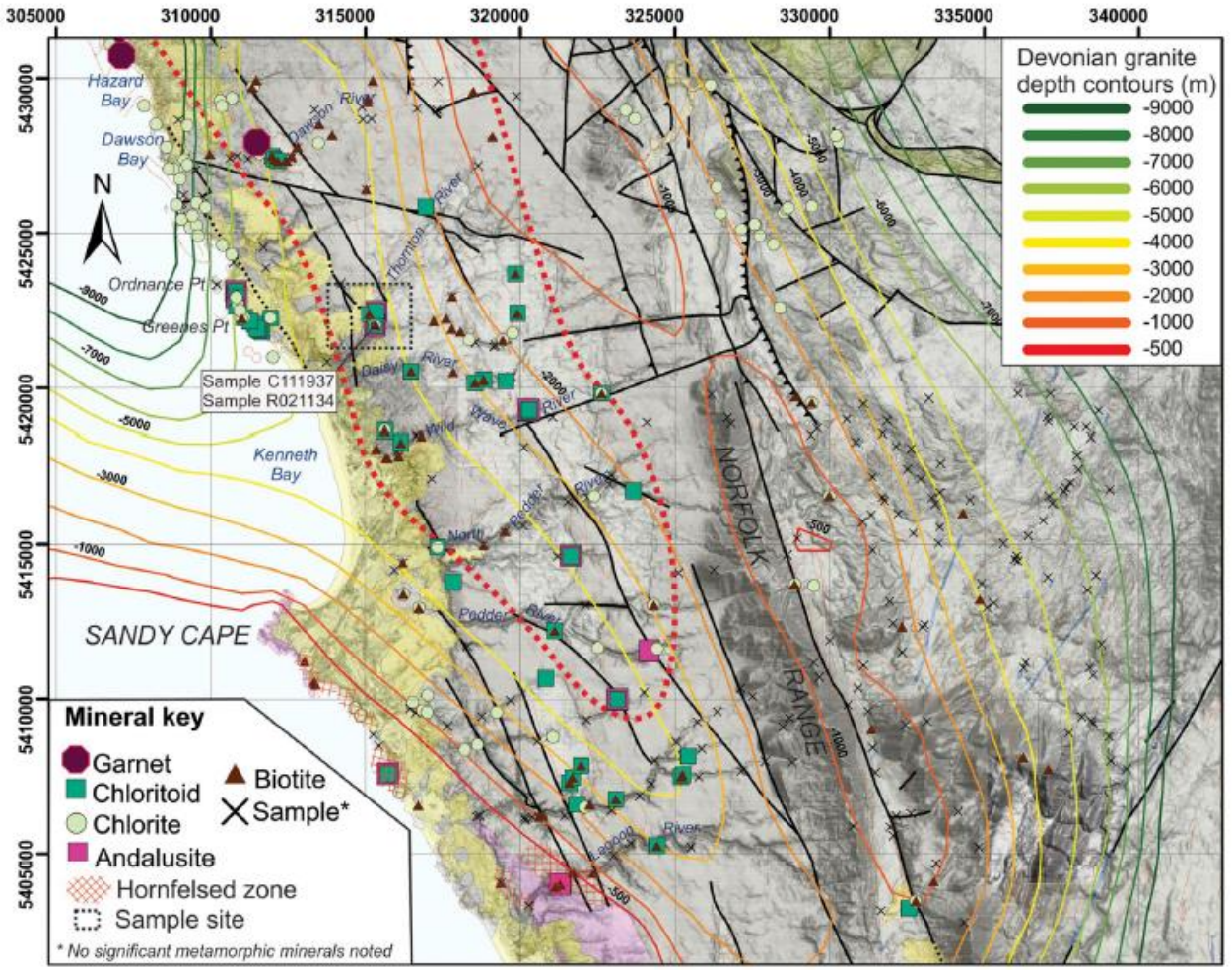
- Less studied area of NW Tasmania with limited exploration work and drilling
- Dominantly Mesoproterozoic to Neoproterozoic thick marine shelf sequence.
- Lower-Middle Rocky Cape Group (1300-1450 Ma) composed of sedimentary fill of rift basin on thinned crust at the edge of SW Laurentia during Nuna break-up
- Upper Rocky Cape Group (1260-1100 Ma) composed of siliciclastics and carbonate-shale sequences in foreland basins related to the Grenville orogen



Armistead et al., 2024 Precambrian Research

Geochronology – new insights from the Rocky Cape Group

- New metamorphic age from monazite enclosed by andulusite reveals 1.1 Ga age
- Low-pressure <200. Mineral map and modelled depth to granite (>4.5 km) and dating suggest andalusite mineral assemblage formed from an older heat source (unrelated to Devonian granite)
- The high-temperature mineral associations (500ºC) suggest an older heat source was responsible for the andalusite mineral assemblage.



Mineral occurrence map with depth to granite contours.

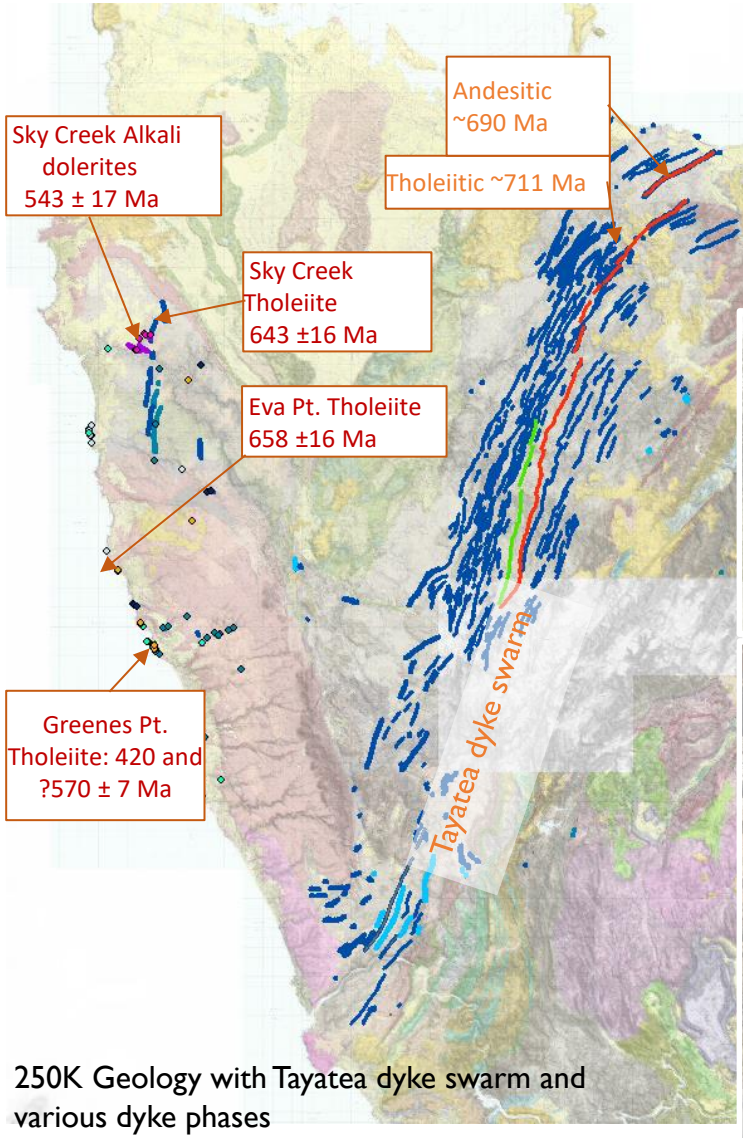
Geochronology –New U-Pb apatite and zircon ages from dyke phases in NW Tasmania

Possibly 5

Five Dyke suites intruding Rock Cape Group showing ages much older than expected with episodic and protracted magmatism

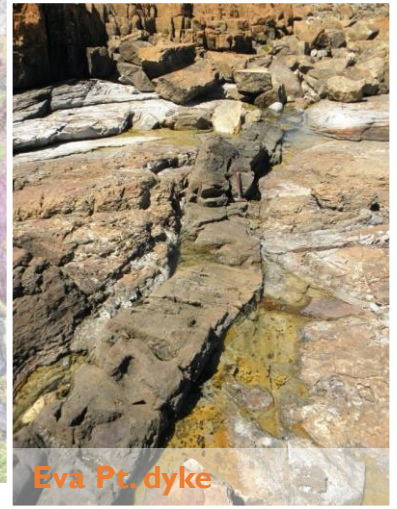
1. Highly magnesian (Mg# >70) tholeiites at 497 Ma
2. Fractionated tholeiites from 420, 570, ~650, 711 Ma
3. Alkalic dolerites at 543 Ma

This work is ongoing



250K Geology with Tayatea dyke swarm and various dyke phases

High Mg dyke, Temma



Eva Pt. dyke

Geochronology – new insights from the Rocky Cape Group

- Tasmania was positioned close to continental fragments that make up present day North America (The Belt Purcell Supergroup) as already defined by Halpin (et al., 2014), Mulder (et al., 2018) and others
- The same metamorphic and magmatic events are observed in the Purcell Basin

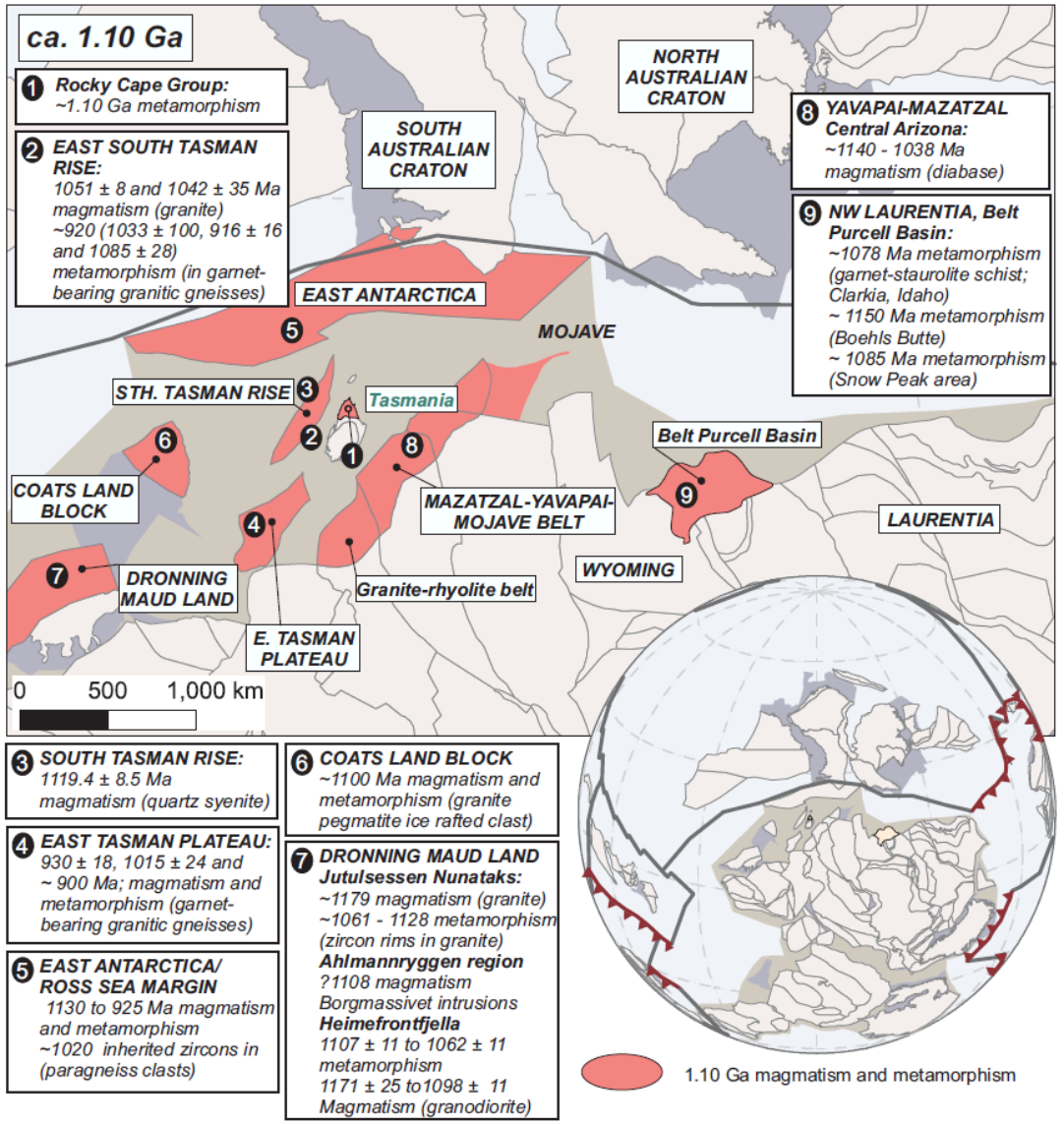
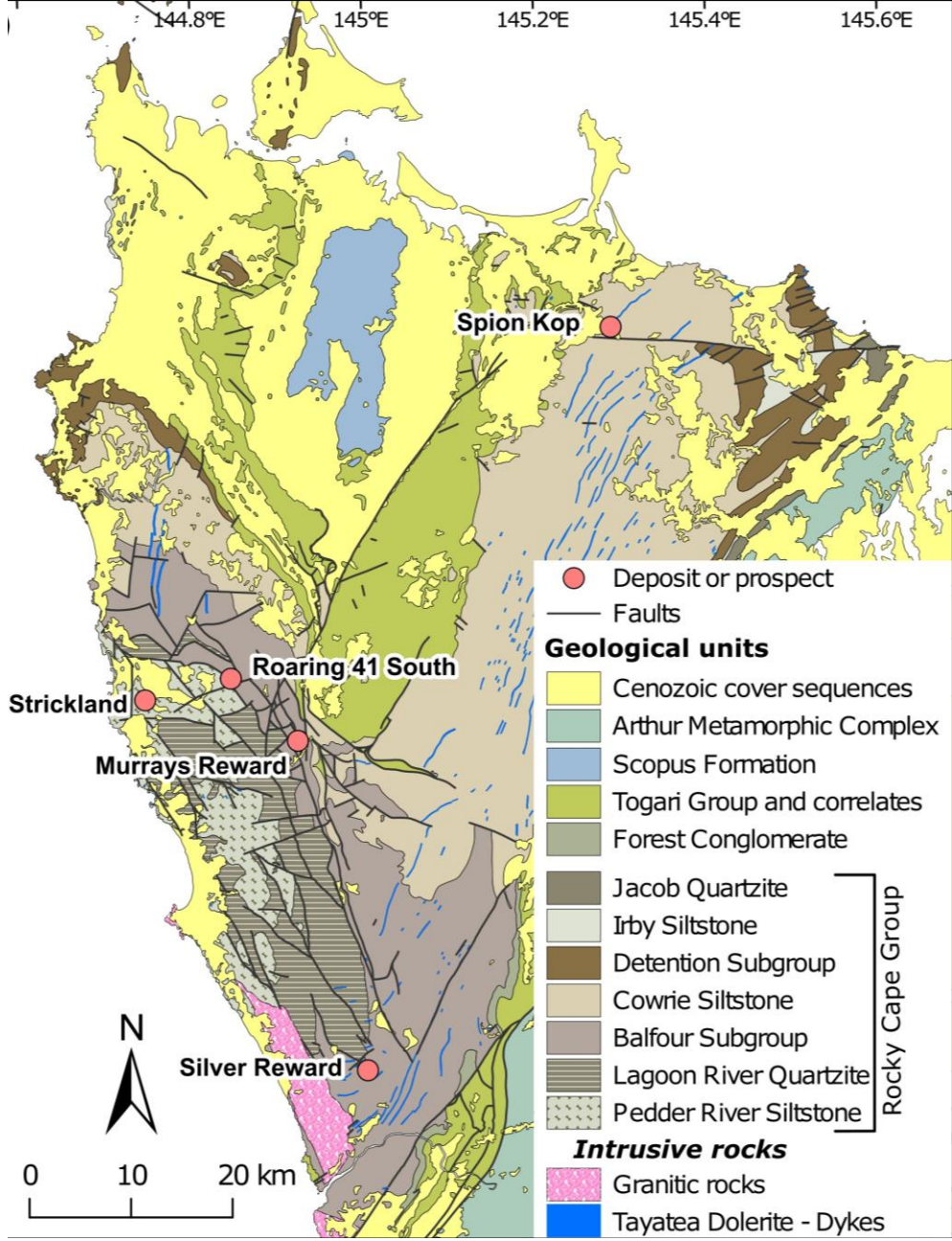


Plate reconstruction showing NW Tasmania at 1.1 Ga (Meredith et. al., 2021) with neighbouring rocks yielding metamorphism and magmatism at a similar age (in pink).

Rocky Cape Group

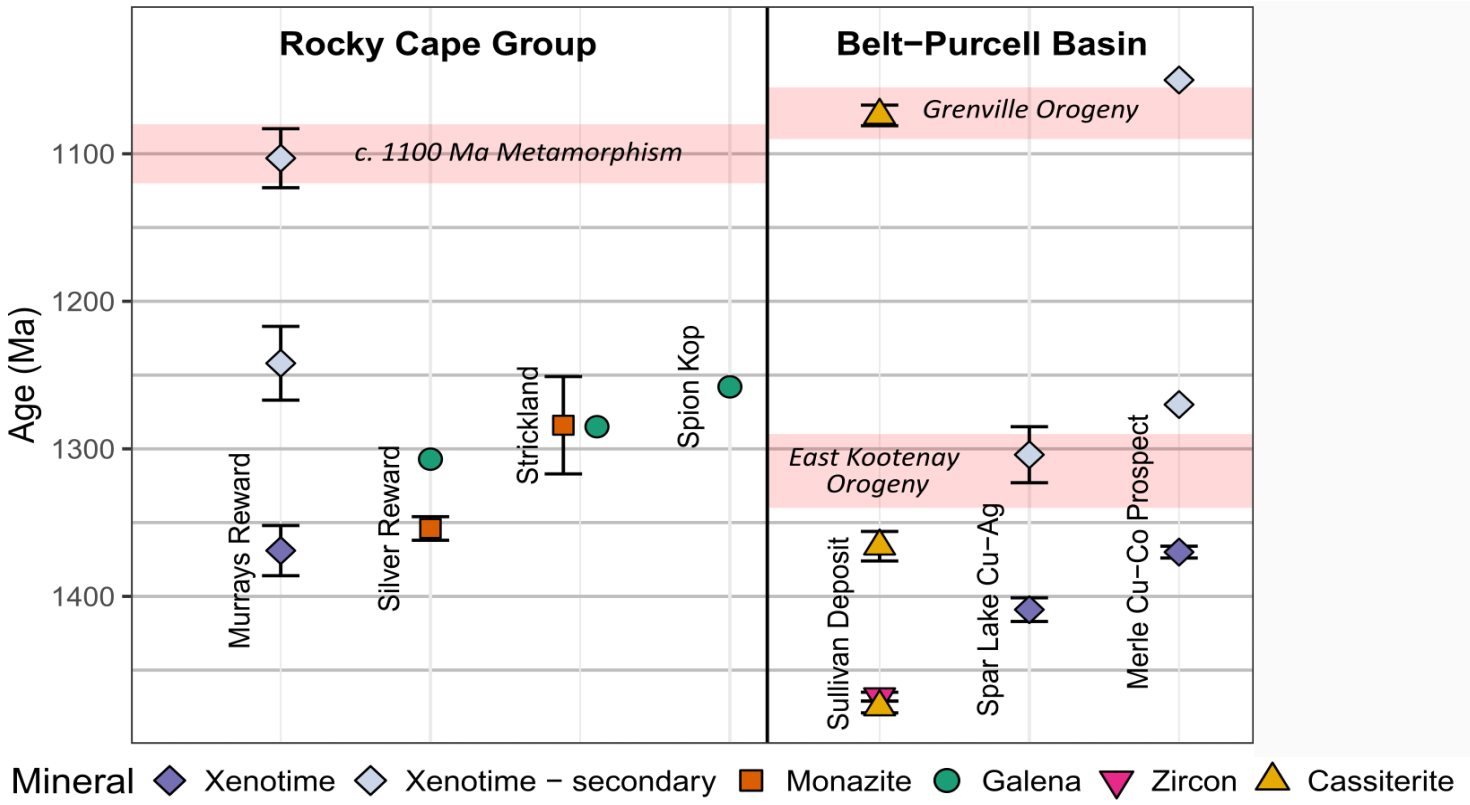
- In addition to extensive mapping by MRT, geochronological studies were completed on a number of Cu-Pb-Zn prospects (Armistead et al., 2024):
  - Balfour/Murrays Reward Cu
  - Roaring 41 South Cu
  - Spion Kop Pb-Zn-Cu
  - Silver Reward Pb-Zn
  - Strickland Cu-Pb-Zn
- Small disseminated and vein style Cu and Pb-Ag occurrences.
- Previously assumed to be related to Devonian – Carboniferous granites



Armistead et al., 2024 Precambrian Research

Summary

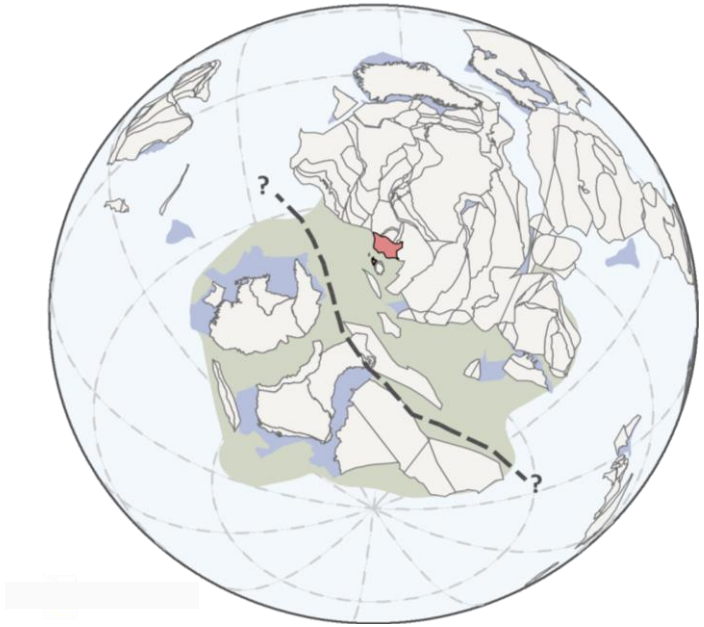
- Cu-Pb-Zn±Co mineralisation in the Rocky Cape Group prospects is Mesoproterozoic in age and the oldest mineralisation in southeastern Australia
- Dating indicated that primary sulphide mineralisation formed at c. 1350 Ma with resetting at c. 1250 Ma, c. 1100 Ma and c. 950 Ma.
- These ages are contemporaneous with depositional ages indicating that mineralisation is broadly *syn*-sedimentary and related to the development of the basin

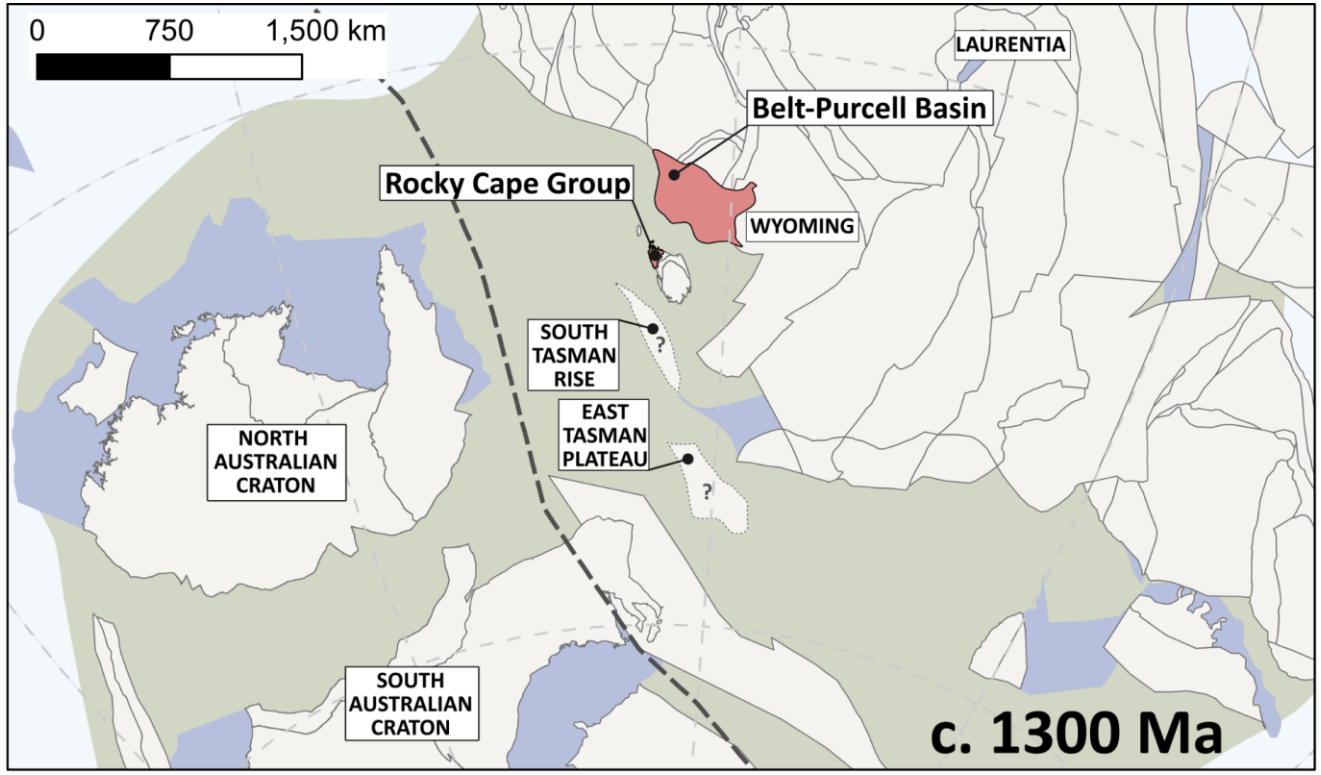


Armistead et al., 2024 Precambrian Research

Confirming the framework - Geochronology

- Given current correlation with the Belt-Purcell Basin which hosts the Sullivan and other deposits may need to re-assess prospectivity of the RCG
- Potential for REE similar to Sheep Creek in Montana?





Belt-Purcell geochronology data: Slack et al., 2020; Schandl et al., 2000; Aleinikoff et al., 2015; Aleinikoff et al., 2012

For further information

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REALISE THE OPPORTUNITY

Thank you

Dr. Rebecca Sproule

Chief Geologist

Mineral Resources Tasmania

Tasmanian Government

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Victoria’s mineral sands opportunities:

Titanium, zirconium and rare earth elements

Melanie Phillips
Team Leader – Exploration Geoscience Information
Resources Victoria

VICTORIA
State Government
Australia

Victoria: Where in the world?

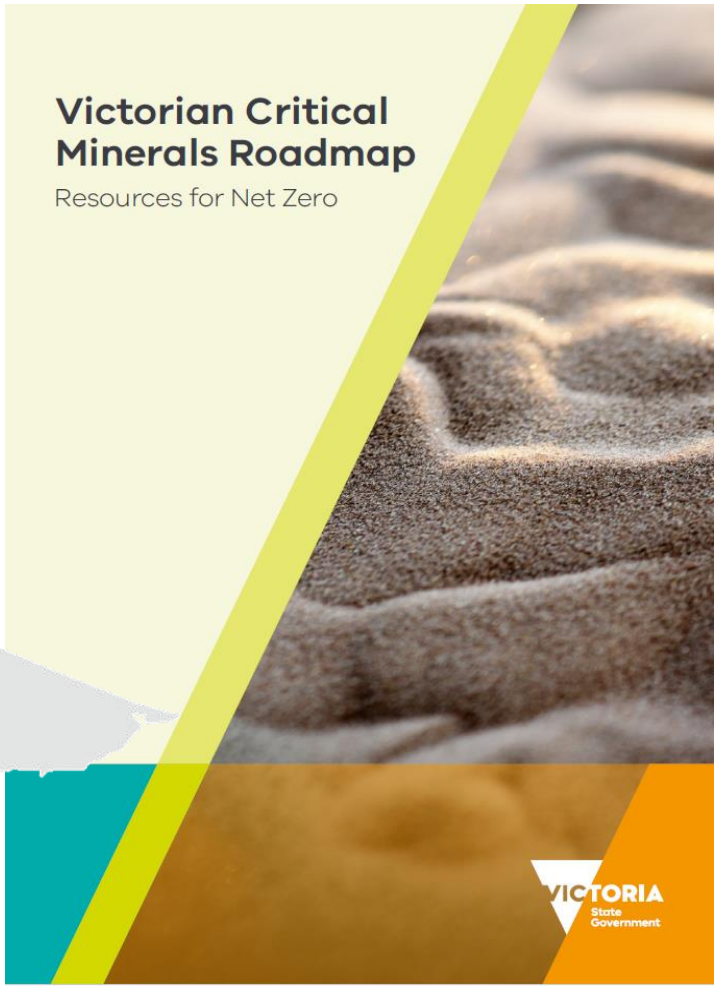
Victoria: a world-renowned jurisdiction

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



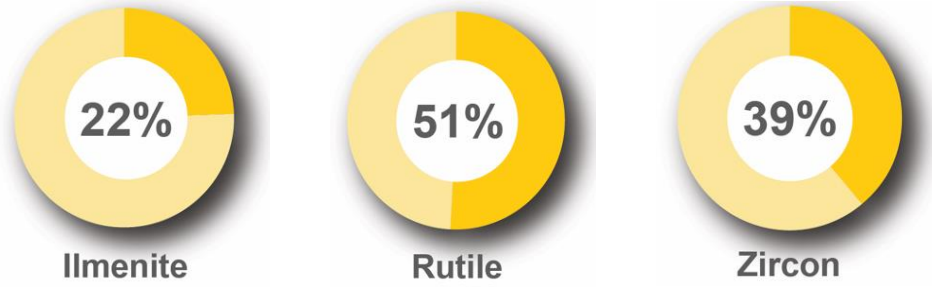
Australia’s next global mining province

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

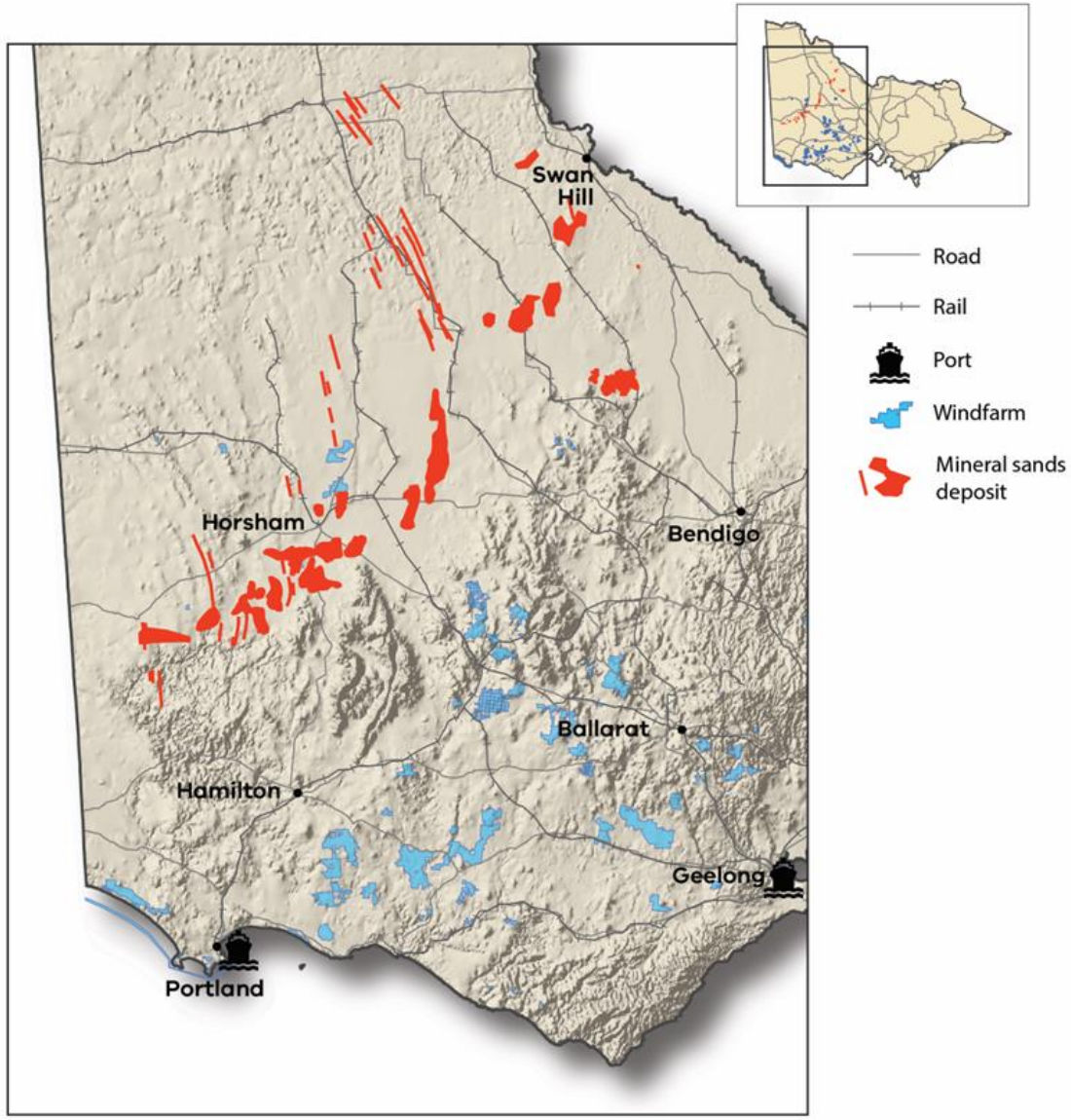
There are two different types of heavy mineral sands deposits:

- 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

Explorers (re)discovering Victoria's mineral sands

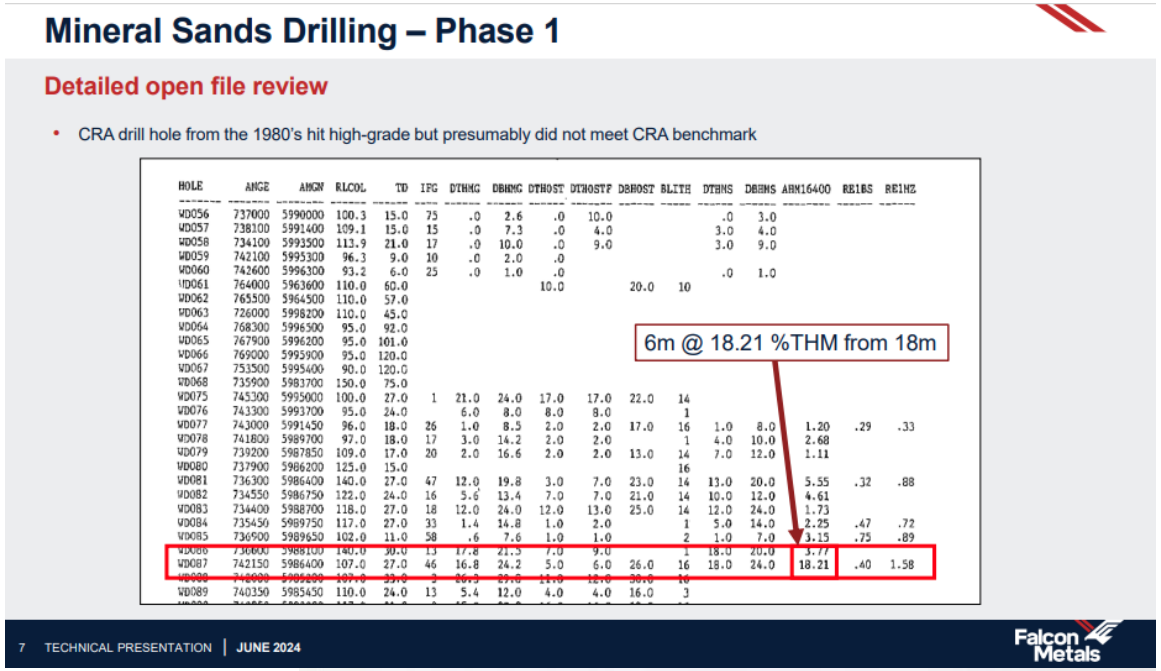
Falcon Metals – Farrelly

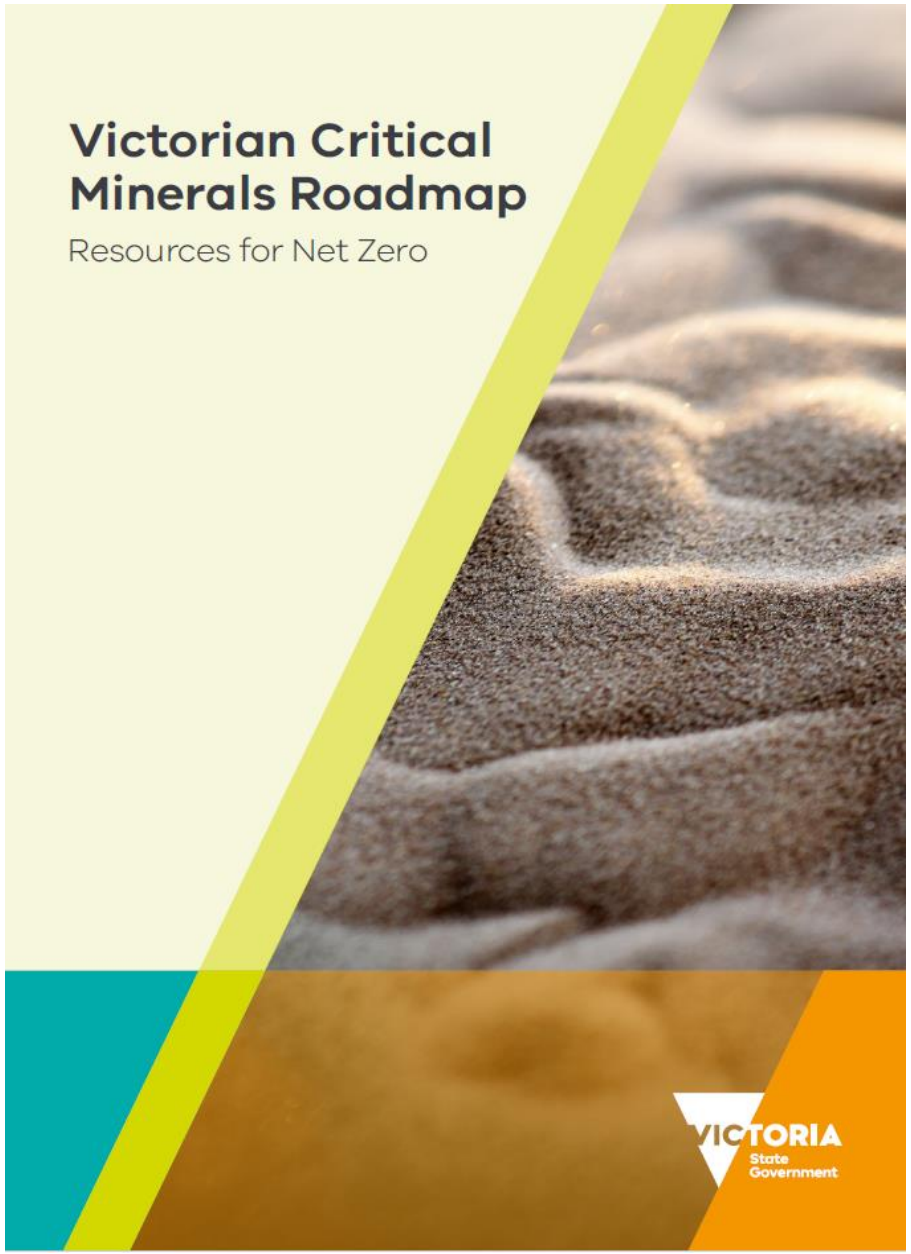
In May 2024 announced a high-grade mineral sands discovery at the Farrelly Prospect, 80 km northwest of Bendigo.

Follow up of an intersection drilled by CRA Exploration in 1980s

High grade results:

- PHAC1803 17 m @ 9.8% THM from 12 m; including
  - 10 m @ 15.3% THM from 16 m, that also includes
    - 1 m @ 21.6% THM from 16 m
- PHAC2064: 20 m @ 9.0% THM from 10 m
    - Incl.. 9 m @ 14.9% from 17 m





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]

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

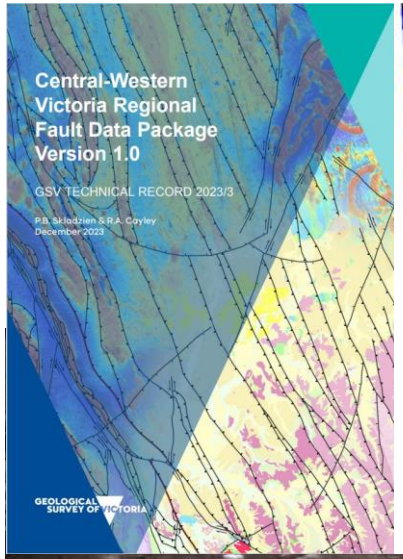
- Seamless – 1:250k and 1:50k
- 3D geological full crust model

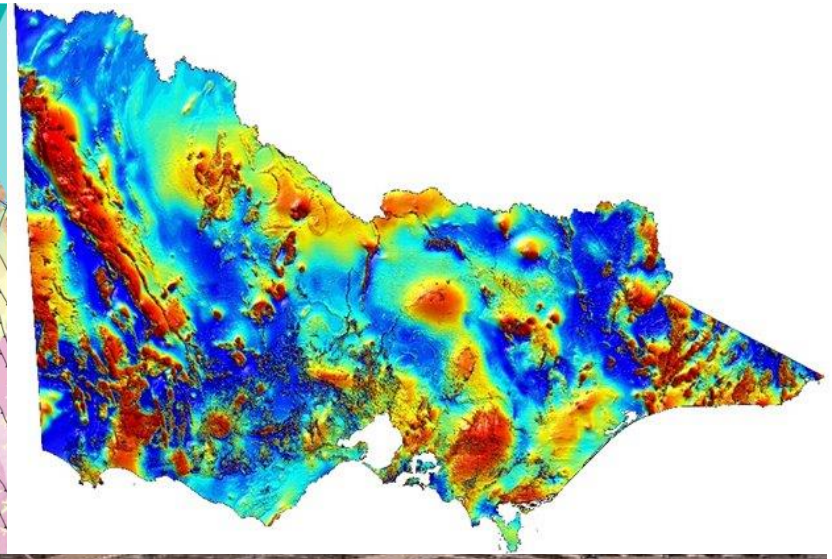
Geophysics

- 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.

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Thank you

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

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Uncovering Tasmania

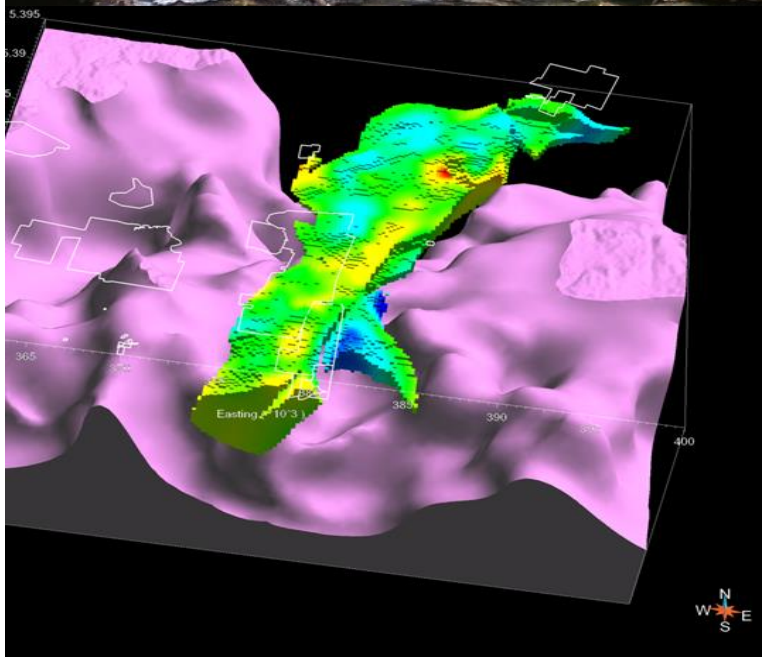
Pre-competitive Geoscience to de-risk exploration

Dr Rebecca Sproule
Chief Government Geologist
Mineral Resources Tasmania

Tasmanian Government

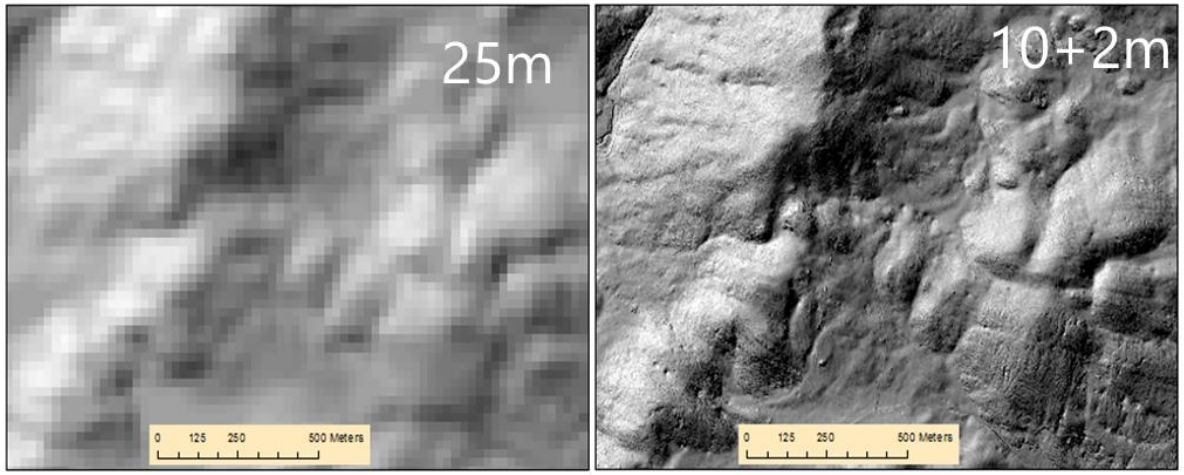
Introduction

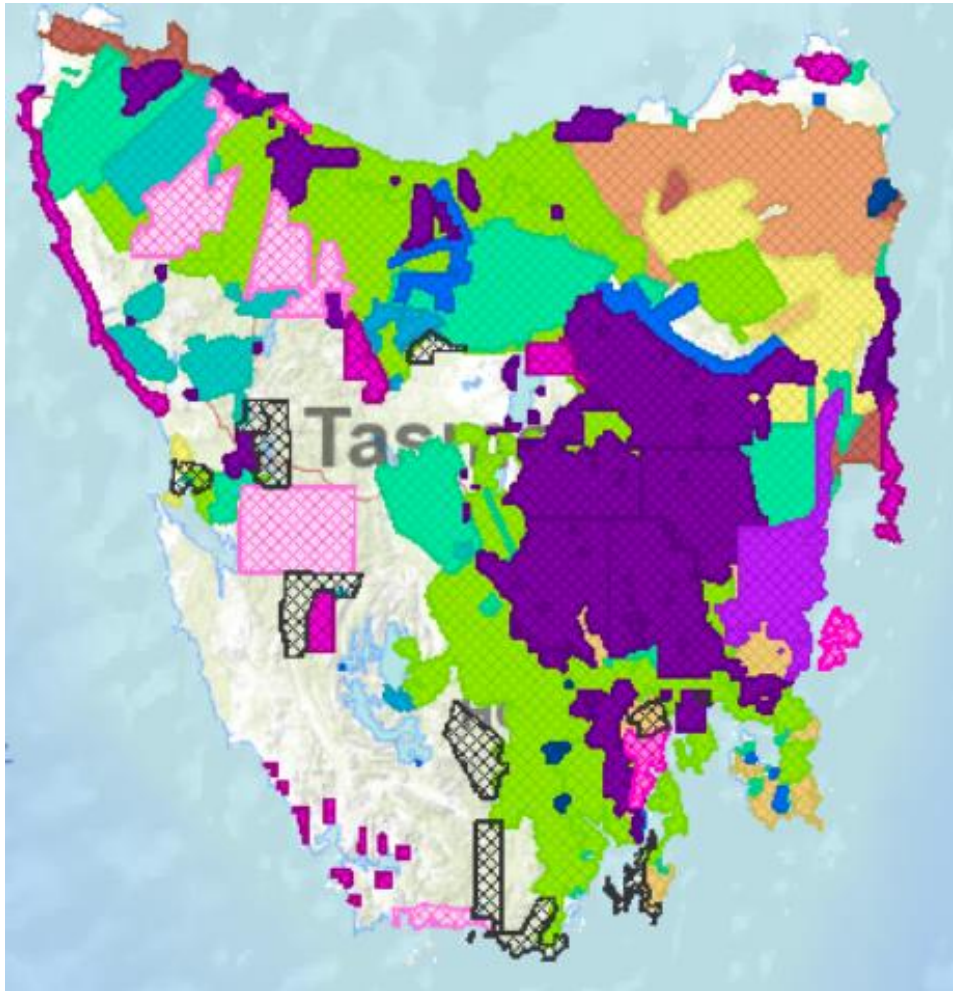
- One of MRTs main roles is to reduce investment and land use risk by developing a robust geological framework for the State
  - “Removing” the vegetation – LiDAR and new DEMs
  - Establishing the geological framework – mapping
  - Establishing the geophysical framework – magnetics, gravity, MT, passive seismic
  - Confirming the framework - geochronology
  - The third dimension – geophysically corroborated 3D modelling



Removing the vegetation

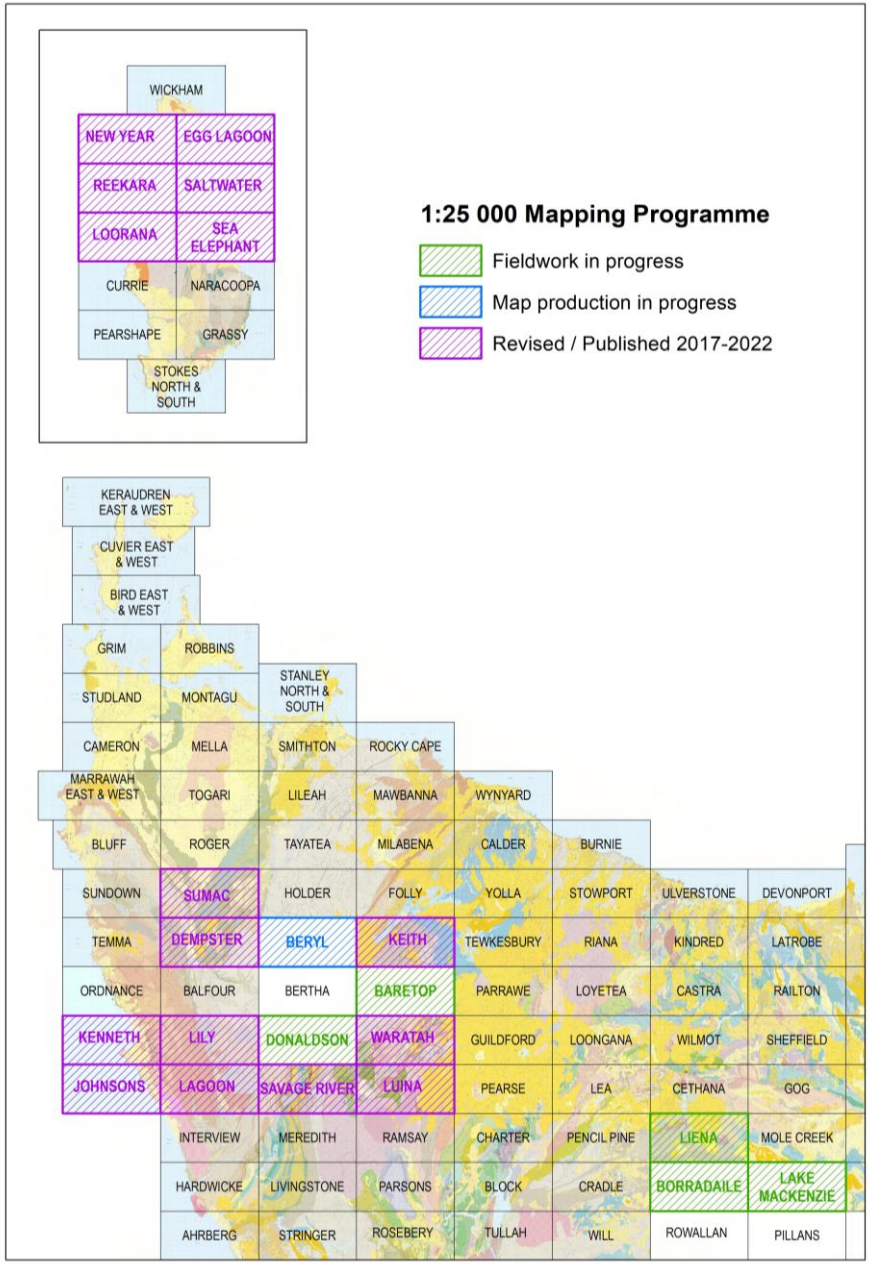
- 70% of state covered by LiDAR (of varying quality)
- MRT contribute to annual acquisition program
- 25m state-wide DEM >20 years old – not being revised by State mapping
- Have produced state-wide 10m and 10+2m DEMs





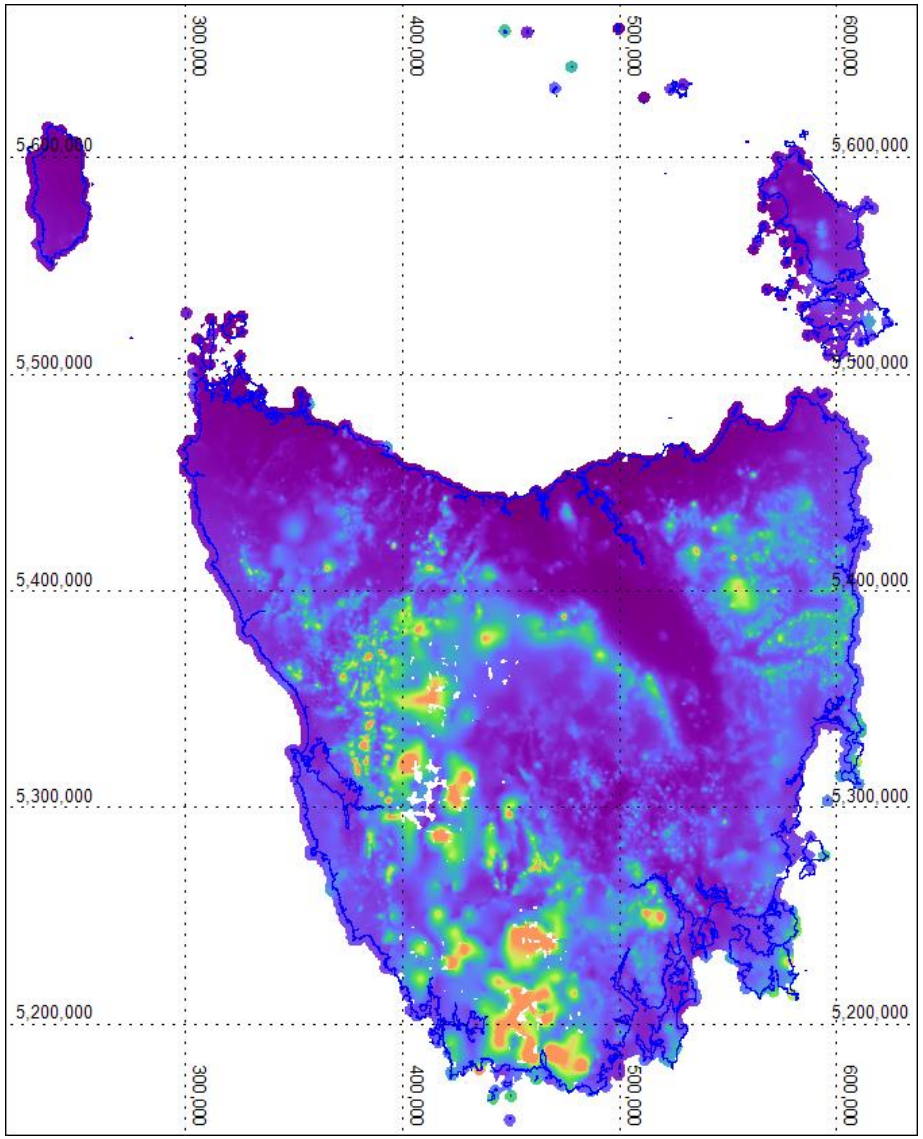
Establishing the framework - mapping

- Digital seamless 1:250K geology complete and being maintained
- Digital seamless 1:25K geology >60% complete (>95% in highly mineralised areas)
- Map sheet covered by LiDAR, modern magnetics, and gravity prior to commencing mapping
- Improved data model developed



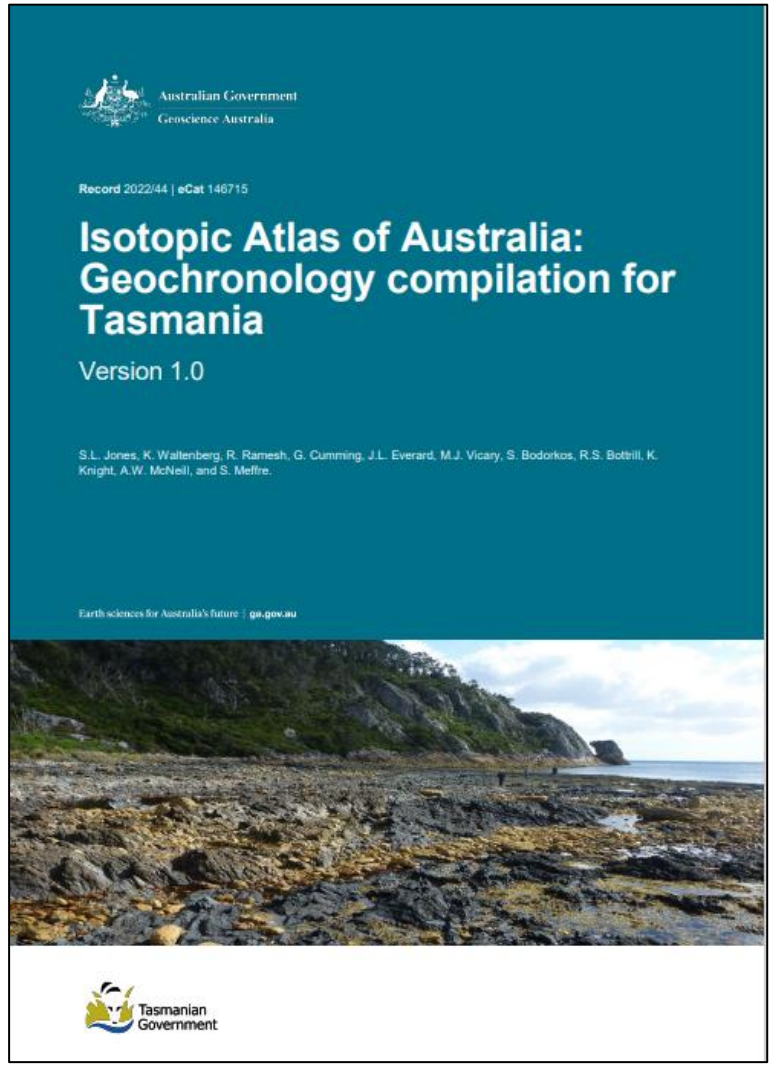
Establishing the framework - geophysics

- Statewide magnetics, gravity and radiometrics at variable scales
- Mineralized and prospective areas typically at 100-200m spacing



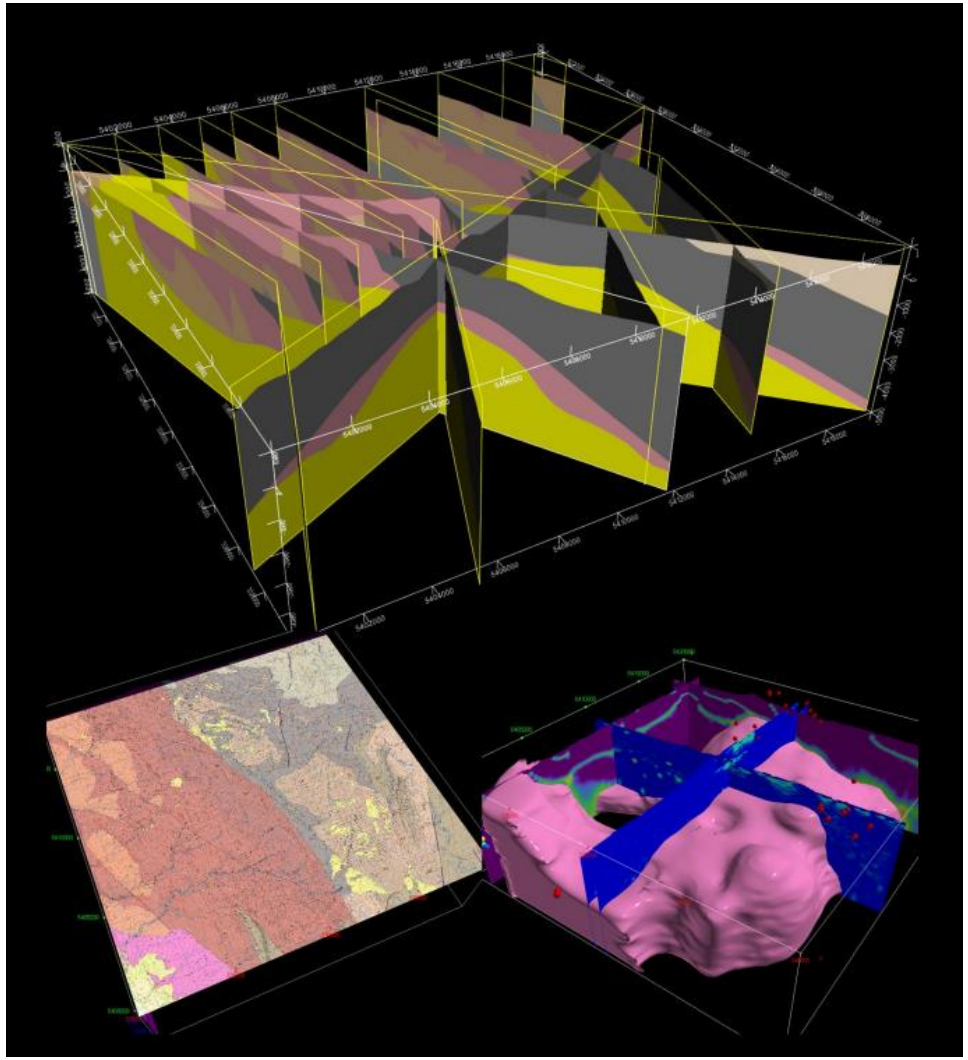
Building the framework - Geochronology

- GA / MRT compilation of existing Geochronological data
- Around 870 ages
- Update planned for 2025



Building the framework – 3D Models

- Value-adding to our data with geophysically corroborated 3D modelling of mineralized and prospective regions
  - Western Tasmania (Cu, Au, VMS, Sn)
    - Includes Mt Lyell and Rosebery
  - Lily Lagoon (Cu, Fe, Sn-W)
  - Alberton-Mathinna (Au [extension of Victoria gold belt], Sn-W)
  - Scamander (Au, Sn-W)
- Free on-line via portal

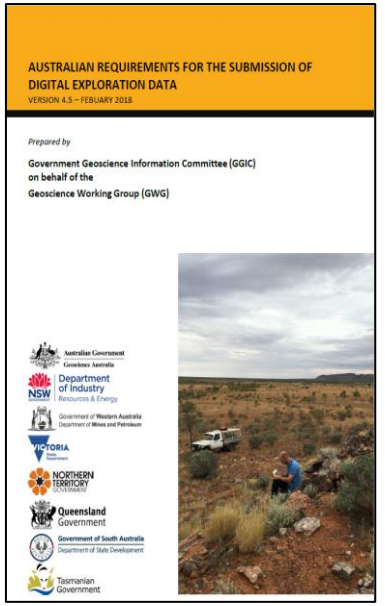


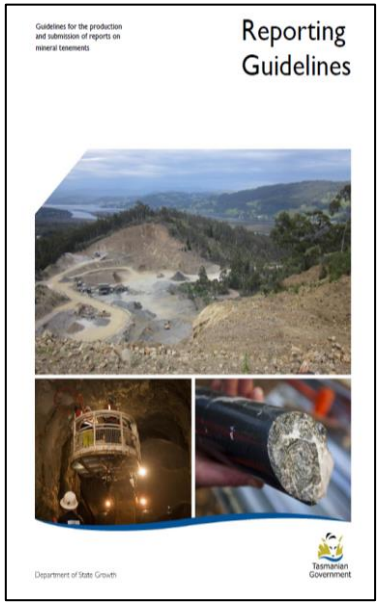
Pre-competitive “legacy” data

Legislated requirement to report on Exploration and on ‘major’ mining tenements

- Confidentiality periods
- Standards for report and data presentation
- Searchable, digital data captured

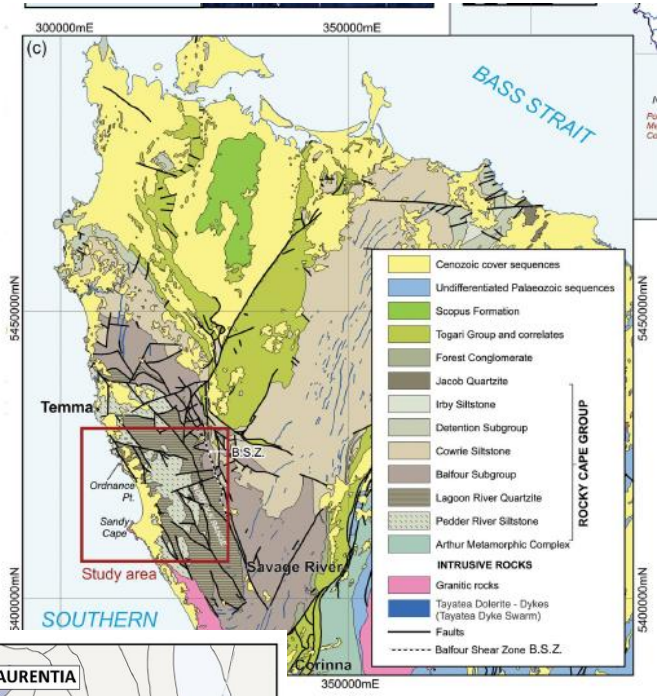
- Legislated requirement to provide drill samples
  - Core and chips
  - Both exploration and mining tenements
  - Confidentiality – as for reporting
  - Value adding – Hylogger and the NVCL
- Drill samples available for viewing and sampling
- Currently Tasmania stores approximately 820 km of drill core and drill chips and 70,000 rock/soil samples



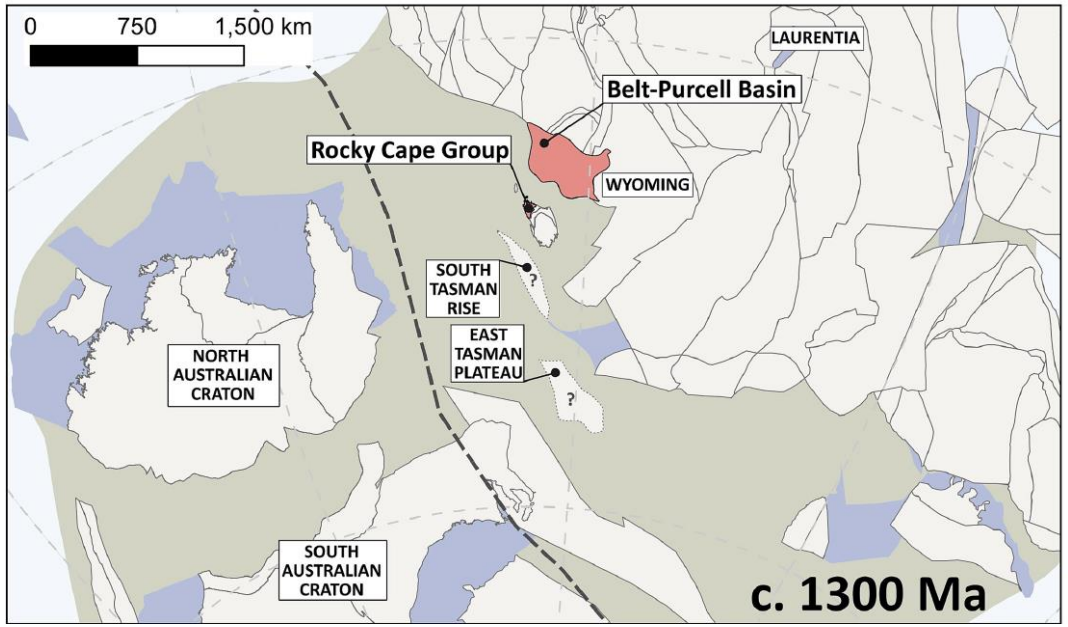


Using the framework - Geochronology

- 1450 – 1150 Ma Rock Cape Group in NW Tasmania - now almost completely mapped
- Plate reconstructions place Eastern Australia and Tasmania with Laurentia in the Mesoproterozoic
- Detrital zircons linking Purcell Basin with Rocky Cape Group
- Ages from 1250 – 1350 Ma indicates some mineralisation was possibly syn-sedimentary
- Given current correlation with the Belt-Purcell Basin which hosts the Sullivan and other deposits may need to re-assess prospectivity of the RCG



Cumming et al. 2024



Armistead et al., 2024

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