

# AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

## Resourcing tomorrow with Australia's minerals

**Marina Costelloe**  
Branch Head Mineral Systems  
Geoscience Australia



**Australian Government**  
**Geoscience Australia**

# Geoscience Australia







**Building Australia's  
resources wealth**



**Supporting Australia's  
community safety**



**Securing Australia's  
water resources**

**Our  
impacts**



**Managing Australia's  
marine jurisdictions**



**Creating a location-  
enabled Australia**



**Enabling an informed  
Australia**



**Ensuring a high  
performing organisation**

# Australia Minerals

- Australia's eight geological surveys working together to attract investment into Australia's minerals sector
- Trade and investment specialists who can connect you with the right people and projects
- Building on Australia's reputation for successful mineral discovery and mining



[www.australiaminerals.gov.au](http://www.australiaminerals.gov.au)



# Australia Minerals – strong government support for resources



- Resourcing Australia's Prosperity
- Critical Minerals Research & Development Hub



- New Frontiers Exploration Program
- Critical Minerals and High-Tech Metals Activation Fund



- Resourcing the Territory
- Exploration Grants



Queensland  
Government  
Australia

- Collaborative Exploration Initiative
- Collaborative Development Program
- Frontier Gas Exploration Grants Program
- Queensland Resources Industry Development Plan
  - Critical Minerals Strategy
- Critical Minerals Queensland Office



- MinEx CRC National Drilling Initiative
- Sedimentary Copper Mineral Systems



- Supporting Tasmania's Mining, Exploration and Quarrying Sector
- Exploration Drilling Grant Initiative
- Geoscience Initiative



- State of Discovery—minerals strategy
- Victorian initiatives & projects
- Developing Victoria's Critical Minerals Program



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

- Exploration Incentive Scheme
- Geoscience Data Transformation Program
- WA Array

# Reducing Australia's greenhouse gas emissions to net zero by 2050



Australian Government

## AUSTRALIA'S NATIONALLY DETERMINED CONTRIBUTION

COMMUNICATION 2022



### Australia's targets:

- 43% reduction by 2030
- net zero emissions by 2050

### Japan's targets:

- 46% reduction by 2030
- net zero emissions by 2050



# The Future Made in Australia Act



*"We recognise that for Australians to fully share in the rewards, Government needs to be prepared to use its size and strength and strategic capacity to absorb some of the risk."*

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

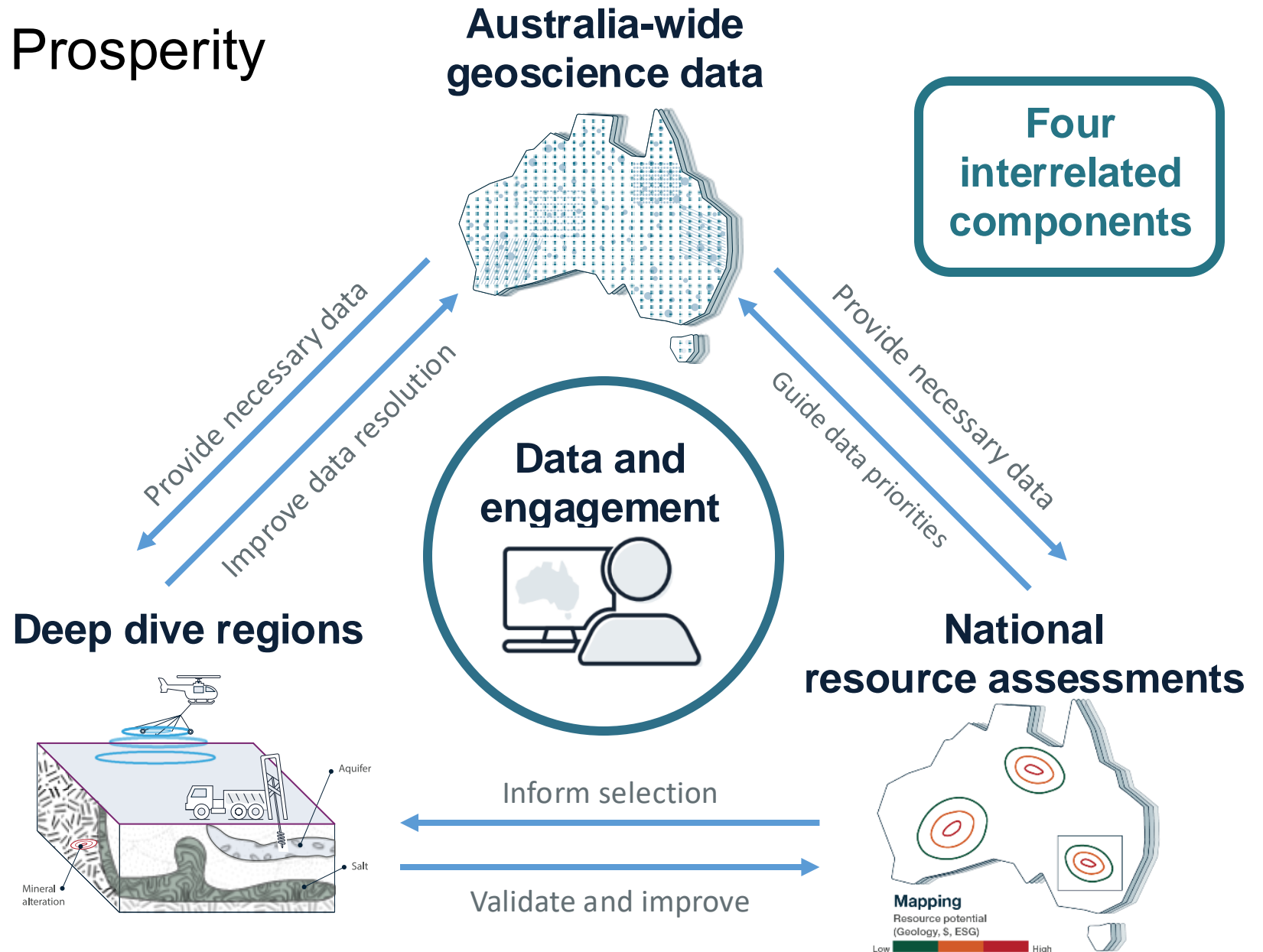
**Prime Minister Albanese, 11 April 2024**

**\$566.1m over 10 years  
Resourcing Australia's Prosperity**

# Resourcing Australia's Prosperity

## Key RAP deliverables by 2060:

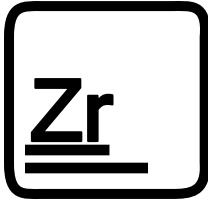
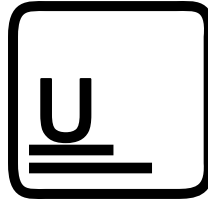
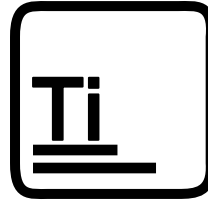
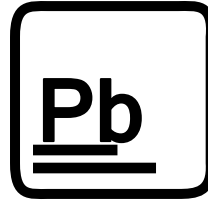
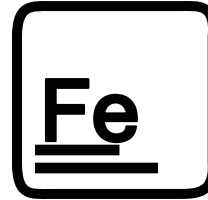
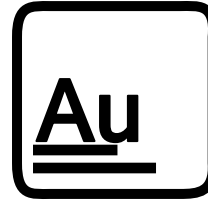
- Resource potential maps for all 36 critical minerals and strategic materials
- 12 multi-commodity deep dive studies



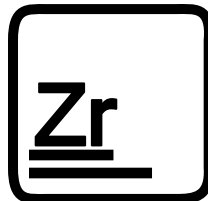
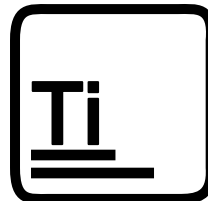
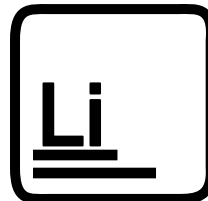
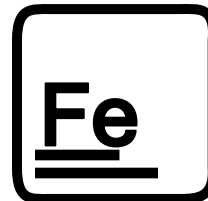
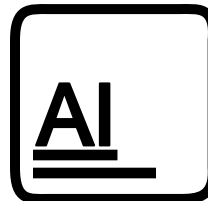


# A strong resources sector is important to Australia and our partners

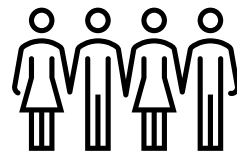
IN THE WORLD FOR RESOURCES



AND PRODUCTION



GDP  
13%





Employment  
>300,000



Exports  
\$467b

# Australia's Identified Critical Minerals and Strategic Materials

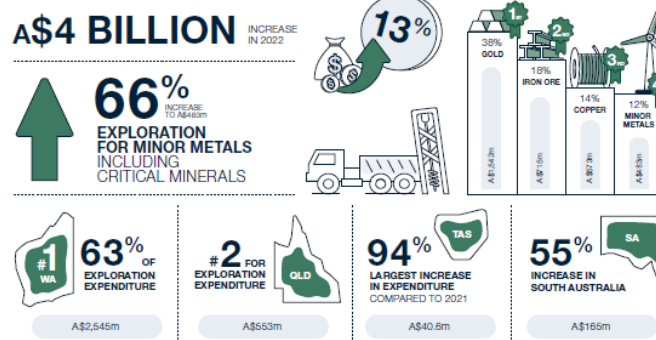
  
**Australia's Identified Mineral Resources 2023**



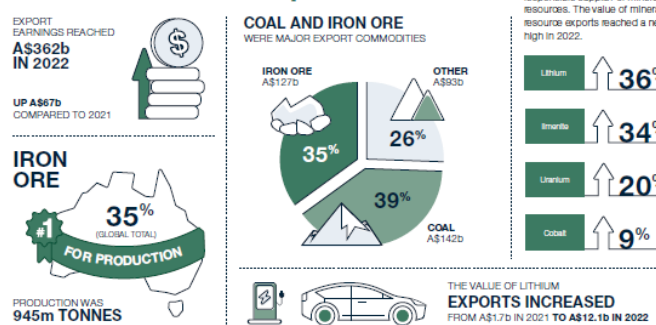
## Critical mineral production



## Australian exploration



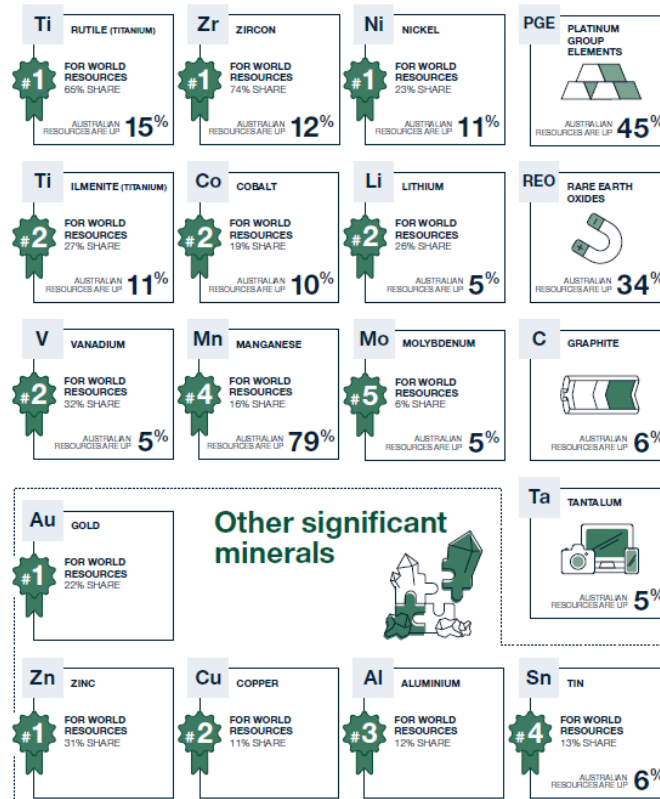
## Mineral resource exports



vi Australia's Identified Mineral Resources 2023

## Critical mineral resources

Critical minerals are essential for modern technology and the clean energy transition. Australia's economic resources increased for 13 critical minerals in 2022; world rankings remain strong.



## GLOBAL SHARE OF CRITICAL MINERAL PRODUCTION



ga.gov.au/AIMR vii



[ga.gov.au/aimr](https://ga.gov.au/aimr)



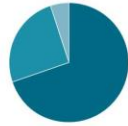
# Australia's Energy Commodity Resources 2024



## Australia's energy resource base

### GAS

250,221 PJ  
▼ 3% FROM 2021



■ CONVENTIONAL ■ COAL SEAM GAS ■ UNCONVENTIONAL

### OIL

8,045 PJ  
OF RESERVES  
(CONVENTIONAL OIL AND NATURAL GAS LIQUIDS)



### COAL

14% OF THE WORLD'S RESERVES  
10% SHARE OF BLA  
23% SHARE OF BRG



### URANIUM

32% OF THE WORLD'S RESOURCES  
REASONABLY ASSURED RESOURCES AT US

## Energy production in 2022

### Gas

RECORD PRODUCTION OF  
**6,362 PJ**



### Coal

**457 MILLION TONNES** EXPORTED  
87.5% EXPORTED



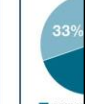
### Uranium

UP 20% TO  
**4,555 tU**  
(2,551 PJ)  
AUSTRALIA EXPORTS ALL OF ITS URANIUM PRODUCTION



### Oil

**687 PJ** OF OIL PRODUCTION  
33%



## GLOBAL RANKING FOR ENERGY PRODUCTION

### Gas

**#7** FOR WORLD RESOURCES  
3.6% SHARE



### Coal

**#5** FOR WORLD RESOURCES  
7% SHARE\*  
\*ON AN ENERGY BASIS



### Uranium

**#4** FOR WORLD RESOURCES  
9% SHARE



### Oil

**#30** FOR RESERVES



## Energy resource exports

Australia exported approximately 84% of its produced energy commodities in 2022.



**A\$253.5 BILLION** IN EXPORT EARNINGS 2022  
AUSTRALIA IS A RELIABLE AND RESPONSIBLE SUPPLIER OF ENERGY RESOURCES WITH THE VALUE OF ENERGY RESOURCE EXPORTS REACHING A NEW HIGH IN 2022

**97%** INCREASE COMPARED TO 2021

### COAL

10,173 PJ  
RECORD VALUE IN 2022  
OUR BIGGEST ENERGY EXPORT  
26% WORLD SHARE



**#1** IN THE WORLD  
23% WORLD SHARE

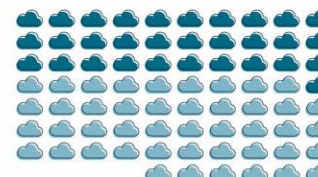
### LNG

4,427 PJ  
RECORD LEVELS OF EXPORTS IN 2022



## Enabling the energy transition

### HYDROGEN



### CARBON CAPTURE AND STORAGE

**16 ANNOUNCED PROJECTS**  
**A\$400M** INDICATIVE EXPENDITURE ON CCS EXPLORATION



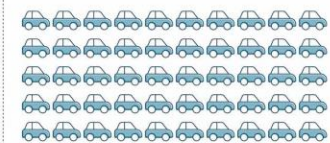
### 76 MAJOR PROJECTS

31 OPERATING AND IN CONSTRUCTION ▲ 58% FROM 2022



OVER **A\$200B** IN INVESTMENT PIPELINE

OVER A\$35B OF ELIGIBLE AND OVER A\$8B IN SPECIFIC GOVERNMENT SUPPORT

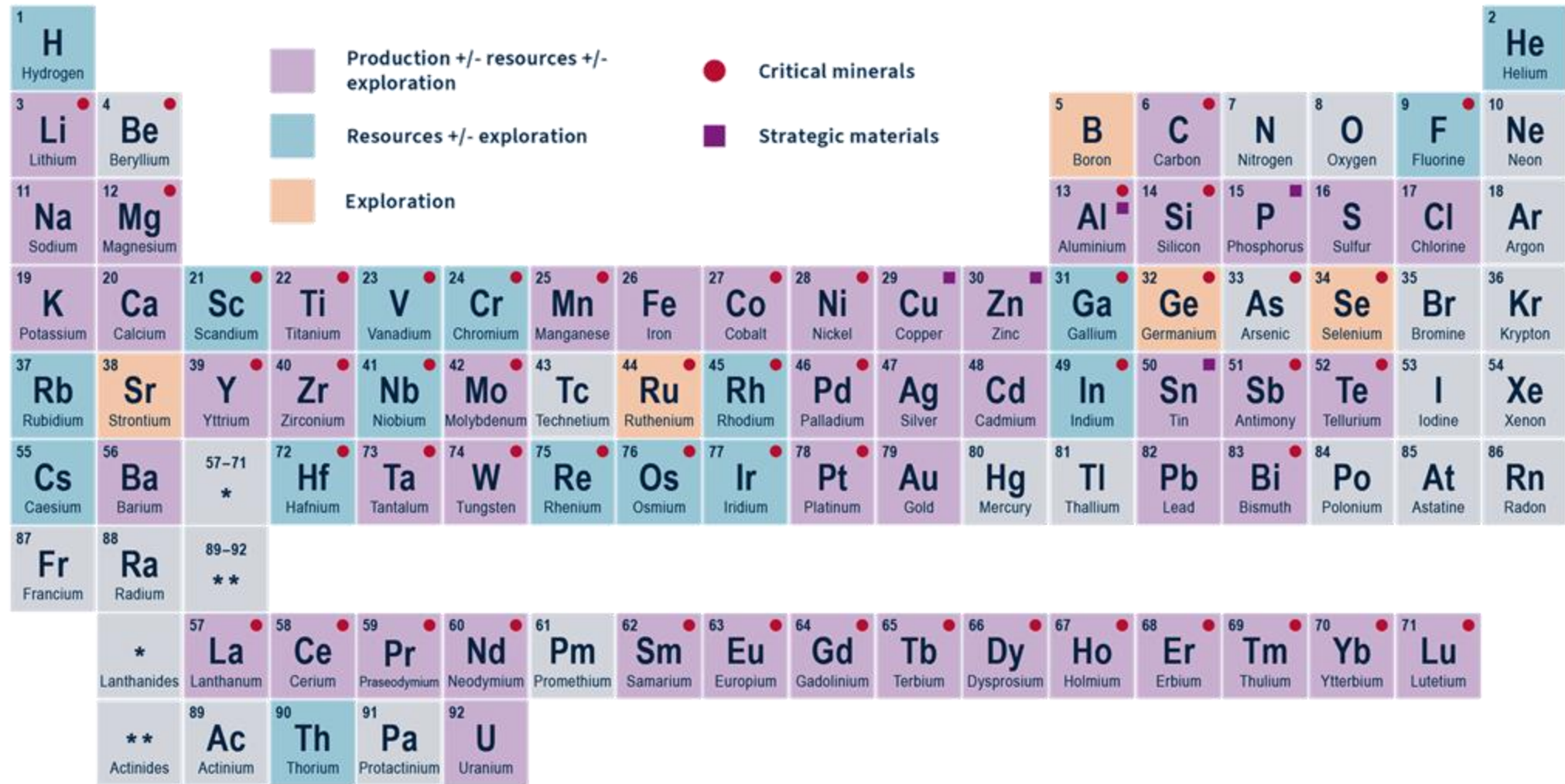


**9 MILLION TONNES OF CO2 STORED\*** WHICH ROUGHLY EQUATES TO 1 MILLION CARS OFF THE ROAD  
\*CUMULATIVE STORAGE SINCE 2019



[ga.gov.au/aecr2024](https://ga.gov.au/aecr2024)

# Australia: a wealth of resources

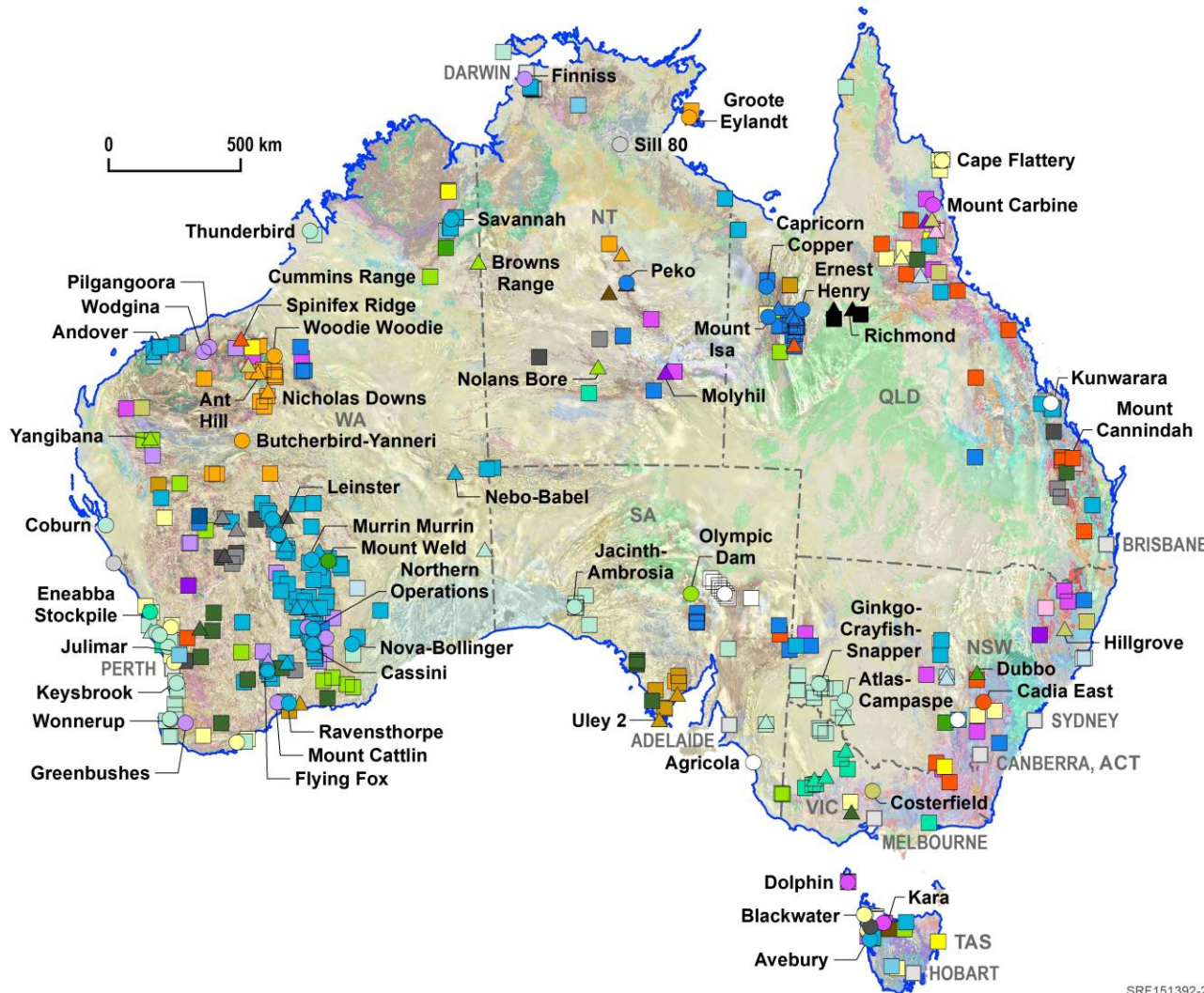




# Australia's critical mineral resources

## 477 deposits with a critical mineral resource

- 62 operating mines
- 32 under development
- 23 on care and maintenance
- 75% undeveloped



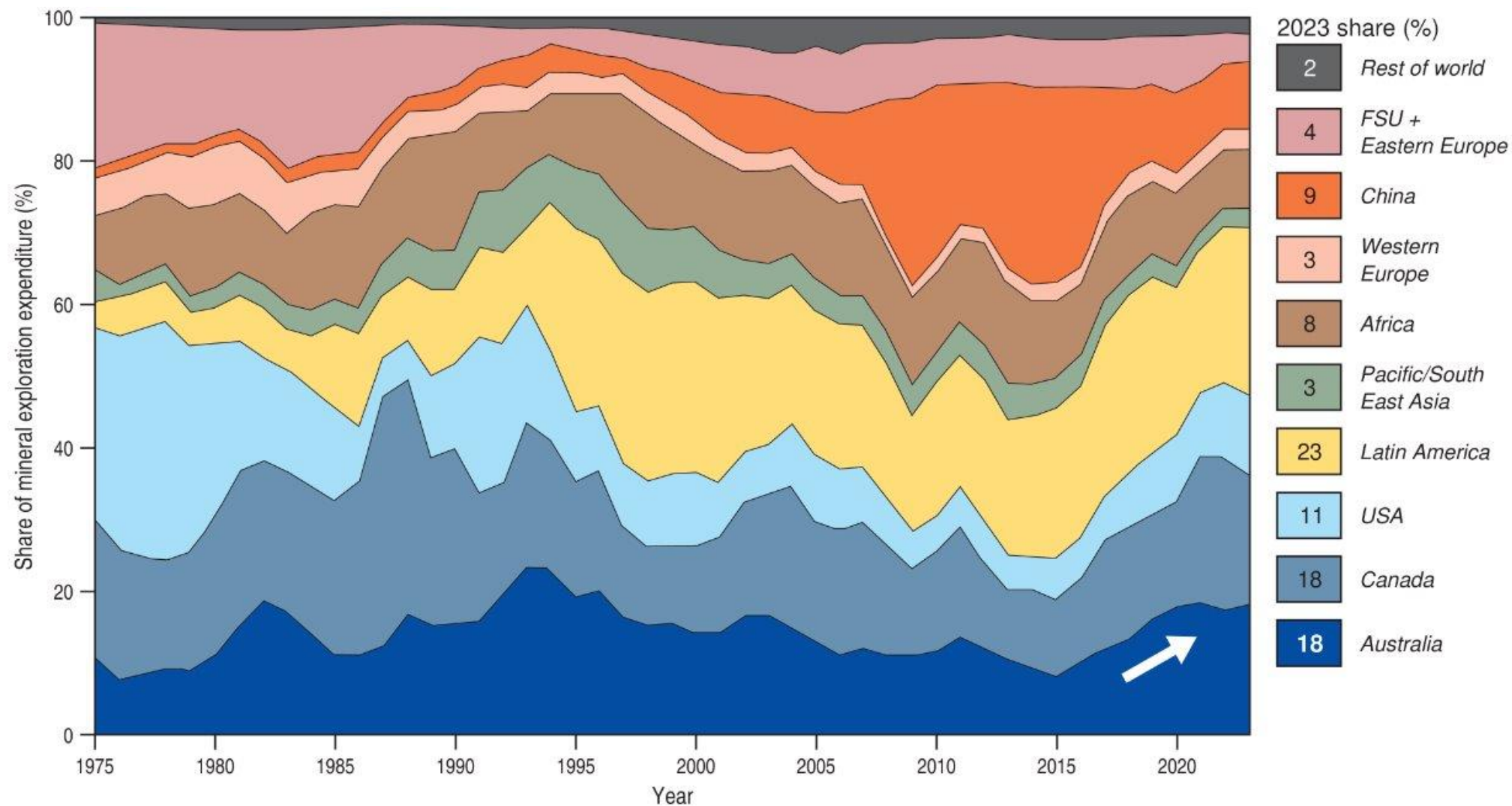
80% of land mass covered by younger sediments

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

SRF151392-2

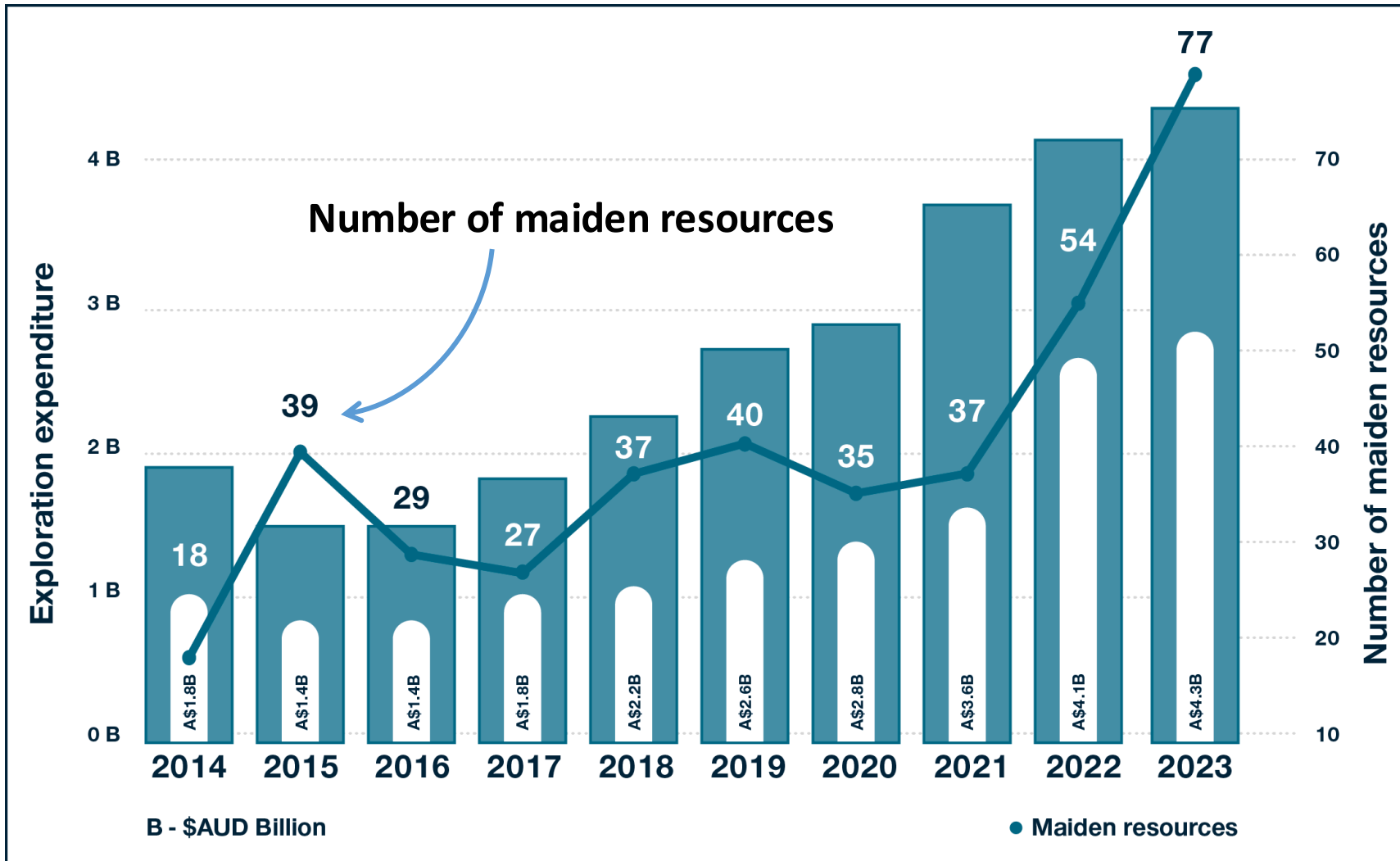


# Share of mineral exploration expenditure by region: 1975-2023



**Note:** Includes spend on Bulk Minerals "Rest of World" refers to Mongolia, Middle East and South West Asia (including India and Pakistan).  
**Source:** MinEx Consulting estimates © July 2024, based on data from ABS, NRCAN, MLR (China), IAEA and S&P.

# Exploration expenditure and maiden resources 2014 – 2024



## In 2023:

- 77 new deposits
- 36 with critical minerals
- 21 with strategic materials



# Exploring for the Future



<https://www.eftf.ga.gov.au>



<https://portal.ga.gov.au/persona/eftf>

## 2024 Showcase Recordings



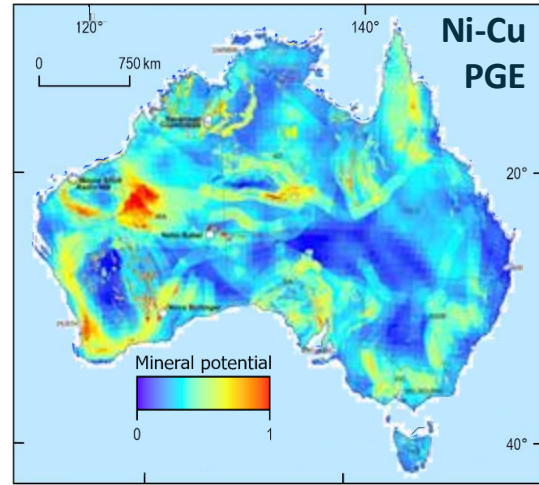
<https://www.eftf.ga.gov.au/2024-showcase/>



# National resource potential assessments

- Multi-criteria resource potential assessments of Australia
- Economic mapping
- Green metals
- Mine waste

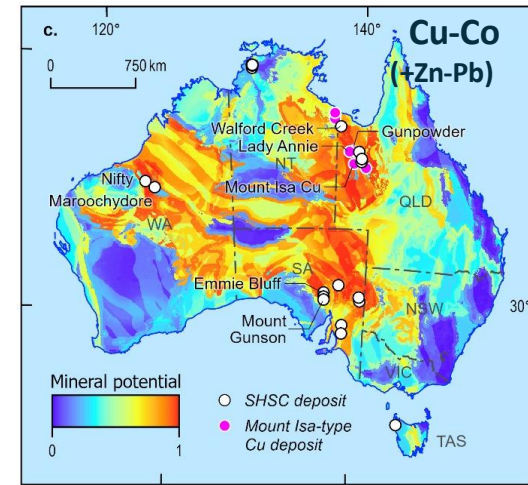
## Tholeiitic magmatic



Dulfer et al. (2016)

<http://dx.doi.org/10.11636/Record.2016.001>

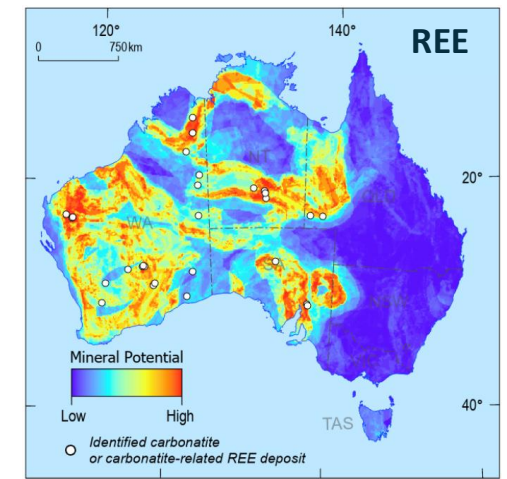
## Sediment-hosted



Cloutier et al. (2023)

<https://dx.doi.org/10.26186/147539>

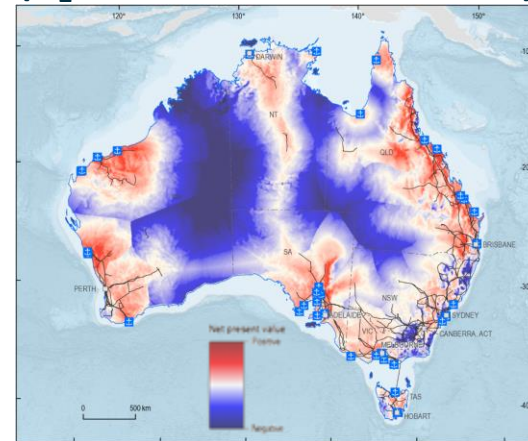
## Carbonatite-related



Ford et al. (2023)

<https://dx.doi.org/10.26186/147865>

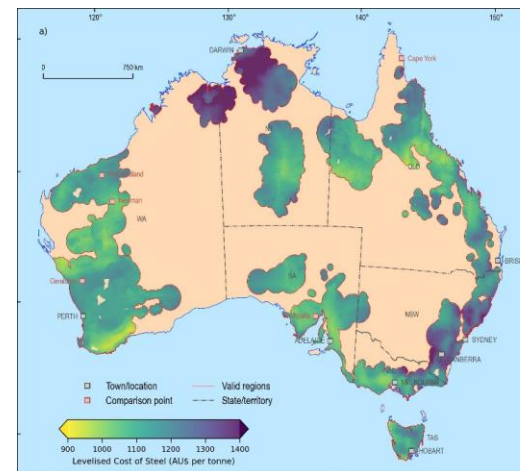
## Economic Fairways (H<sub>2</sub>, Cu, Ni, Au, Pb, Zn, P, CCS)



Haynes et al. (2023)

<https://www.eftf.ga.gov.au/economic-fairways>

## Levelized cost of green steel



Wang et al. (2023)

<https://doi.org/10.1016/j.ijhydene.2023.05.041>

## Atlas of Australian Mine Waste



Thorne et al. (2023)

<https://portal.ga.gov.au/persona/minewaste>

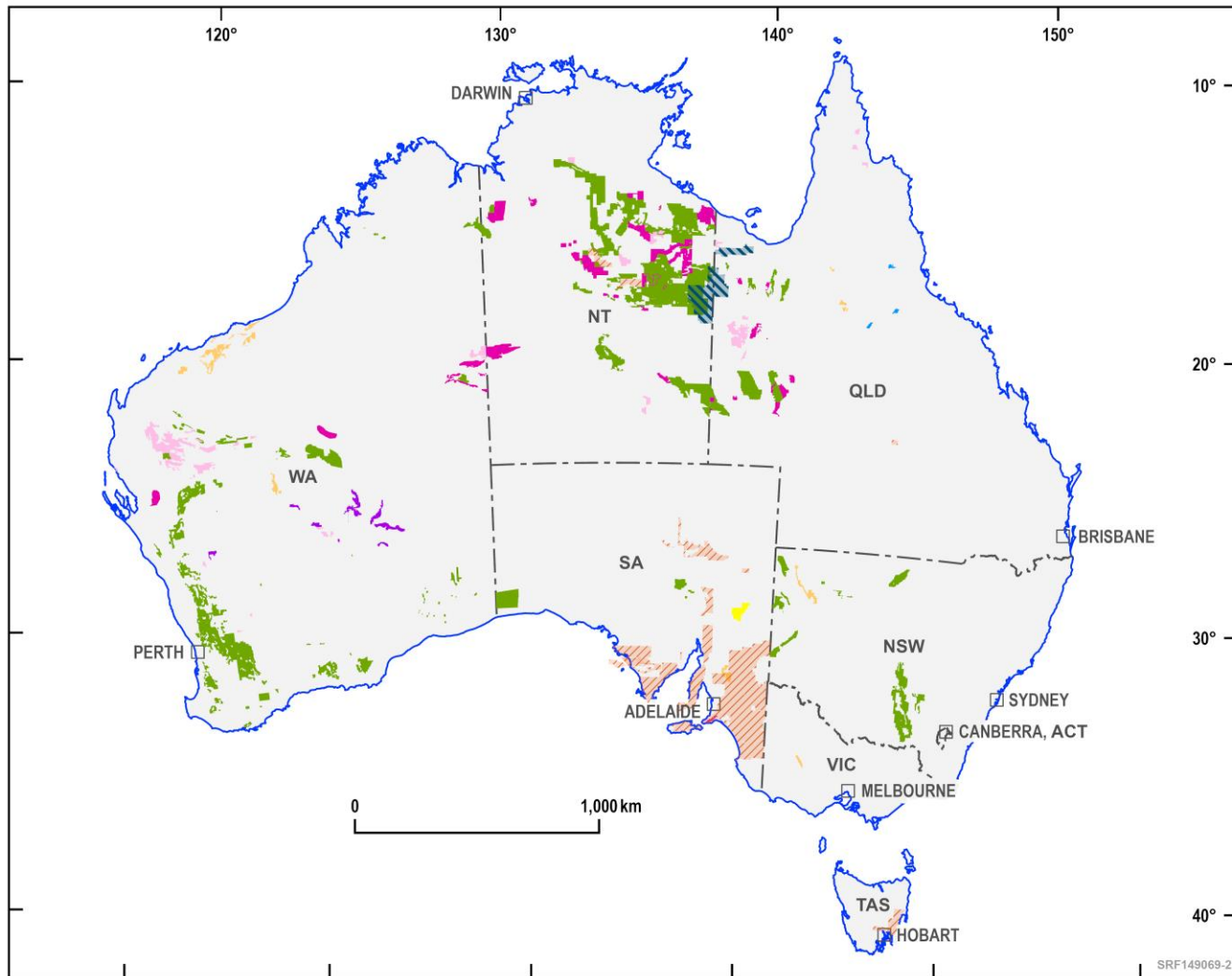
# Australian Critical Minerals Research and Development Hub

## Four work streams

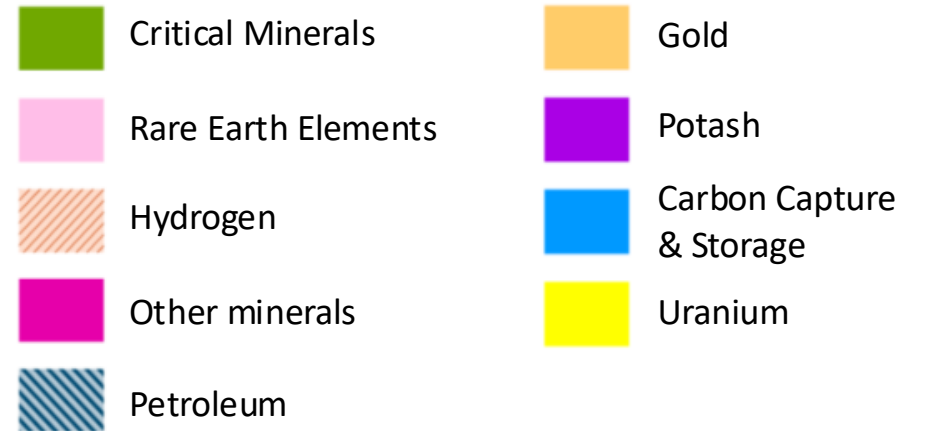


Australian Government  
Geoscience Australia

# Impact of government geoscience on exploration in Australia since 2016



Tenements taken up or reinvigorated by government geoscience since 2016 (as at January 2024)



- 168 companies
- 1,283 tenements
- 532,000 km<sup>2</sup>



# Environment, Social, Governance (ESG) in Australia



- Commitment to net zero
- State & federal environmental laws
- Land and water management
- Community development
- Regional benefits
- Strong and mature legislation
- Health & safety laws and culture
- JORC Code
- Transparent taxation, regulated banks
- Standards development and traceability
- Circular economy and recycling



# Partnerships with First Nations peoples





# AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

## Thank you



**Marina Costelloe**  
Branch Head Mineral Systems  
Geoscience Australia

**Websites:** [www.australiaminerals.gov.au](http://www.australiaminerals.gov.au), [ga.gov.au](http://ga.gov.au)

**Data Discovery Portal:** <https://portal.ga.gov.au>

**Contacts:** [mineral.promotions@ga.gov.au](mailto:mineral.promotions@ga.gov.au), [rapinitiative@ga.gov.au](mailto:rapinitiative@ga.gov.au)



**Australian Government**  
**Geoscience Australia**



# AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

## South Australia

Minerals of Power: Leveraging Copper, Uranium, and  
Critical Resources for a Clean Energy Future

**Dr. Bronwyn Camac**  
Department for Energy and Mining  
Geological Survey of South Australia



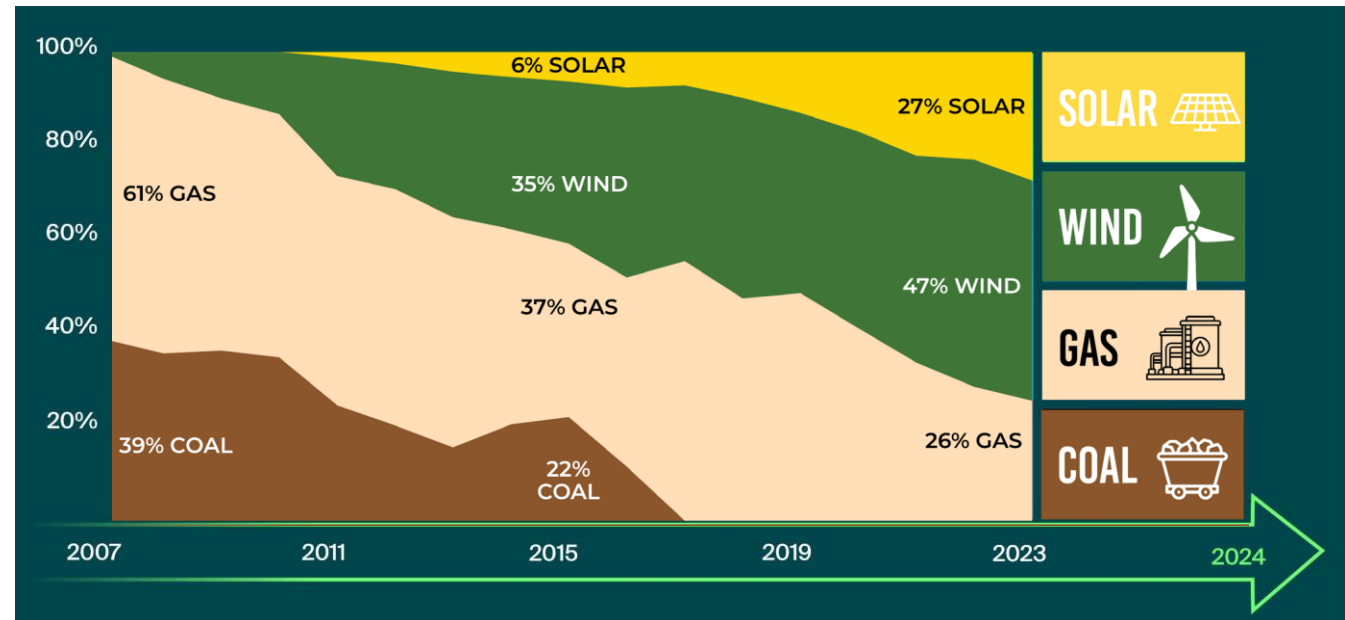
# South Australia: building from strong foundations

- ✓ Solar & Wind
- ✓ Strategic and Critical Minerals
- ✓ Smelters & Steelworks
- ✓ Infrastructure – Roads / Energy
- ✓ Northern Water
- ✓ Port Facilities
- ✓ Skilled Workforce



# South Australia: a global leader in renewable energy

- Grown from 1% renewable energy generation to nearly 74% in just over 16 years
- 487MW of grid-scale solar generation capacity across 8 commercial facilities
- 2849MW in 24 operating wind facilities
- Network of grid scale batteries, firming supply
- Strong government relationships with network and transmission providers





# Northern Water Infrastructure Project

the framework for strategic development in South Australia

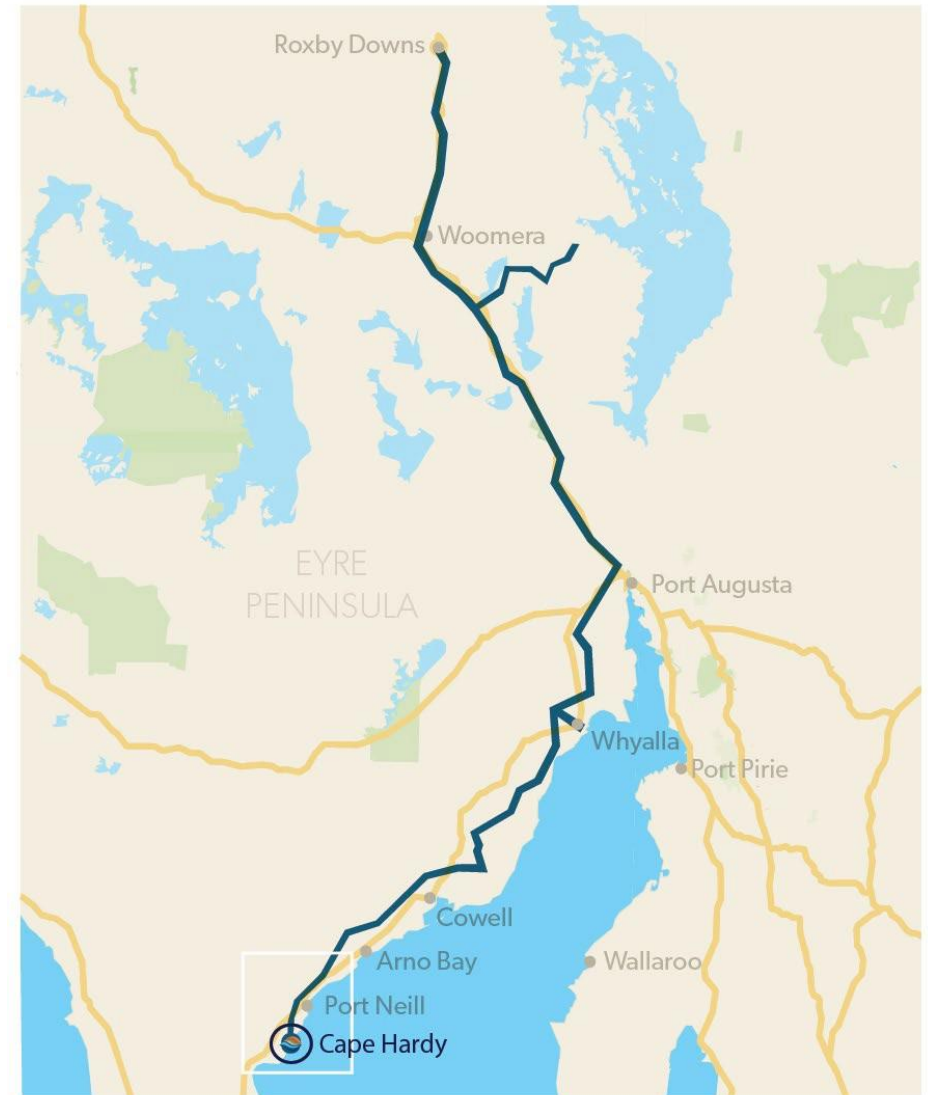
**3<sup>rd</sup> largest** seawater desalination plant in Australia (at capacity)

**Longest** fresh water supply pipeline in Australia

**Initial stage**  
~\$5 billion capital investment

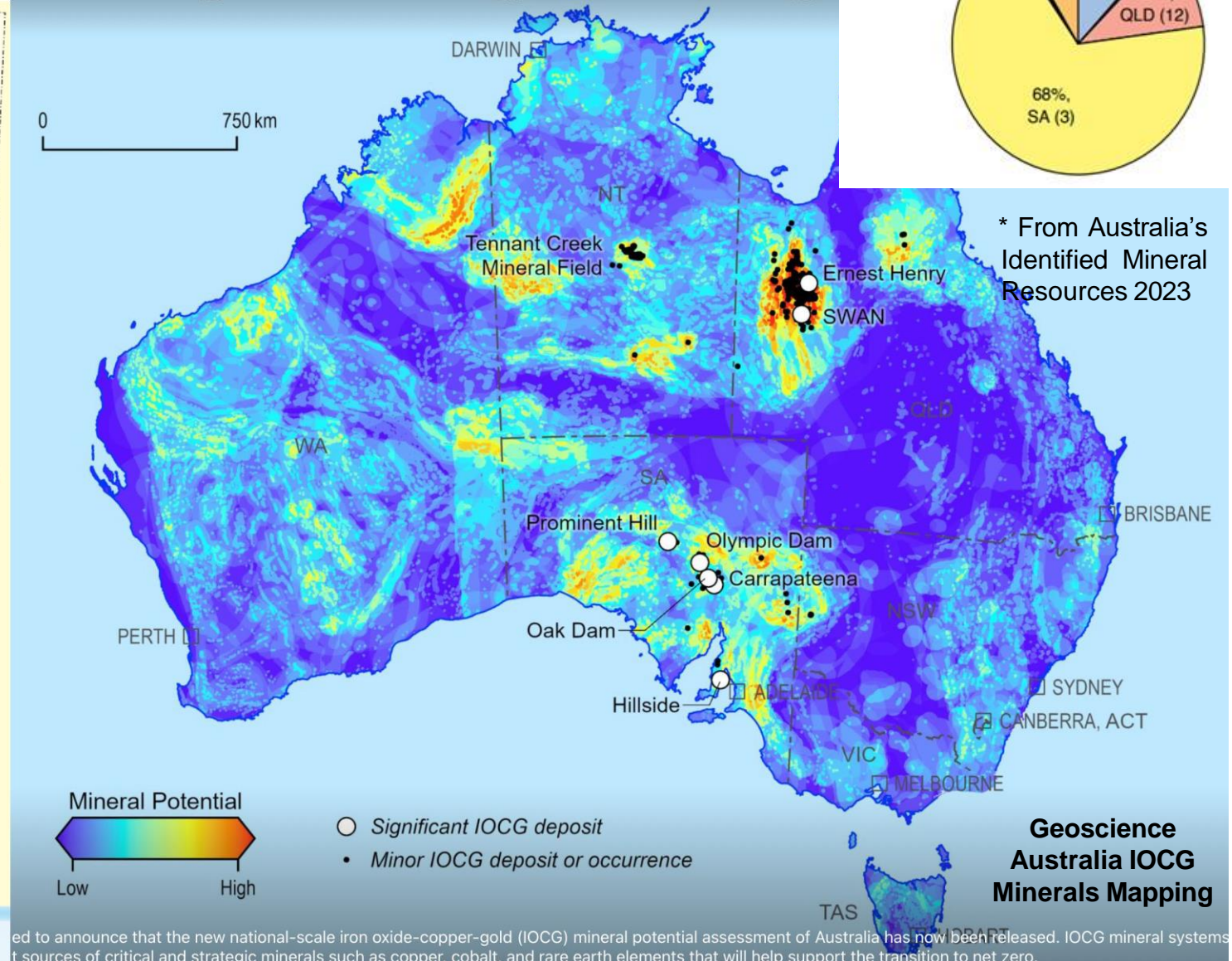
## Project timeline

### OVERALL PROJECT TIMELINE PHASES



Information and data on this figure is an artist impression and is not to be used as a detailed design

# Copper: integral to the global energy transition

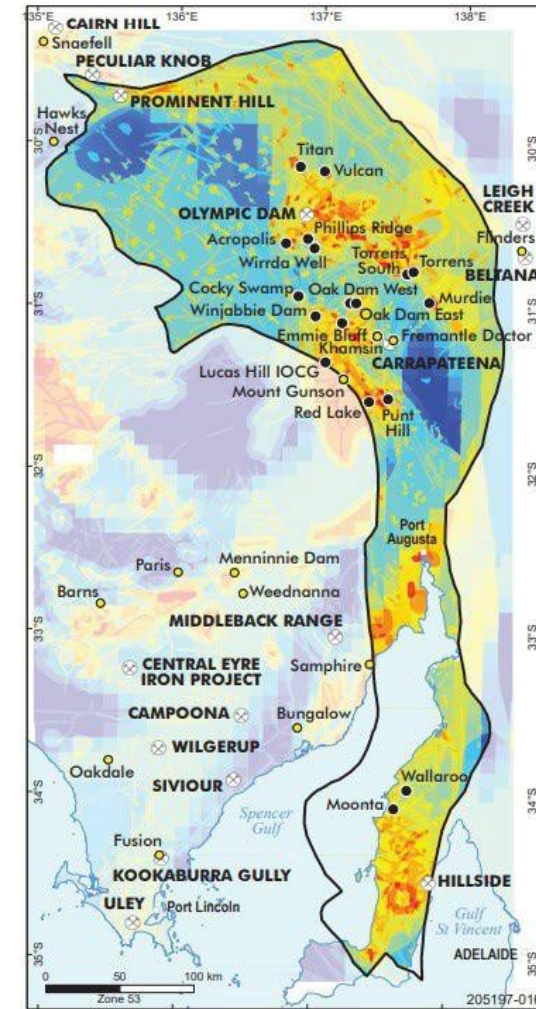
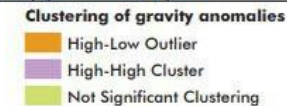
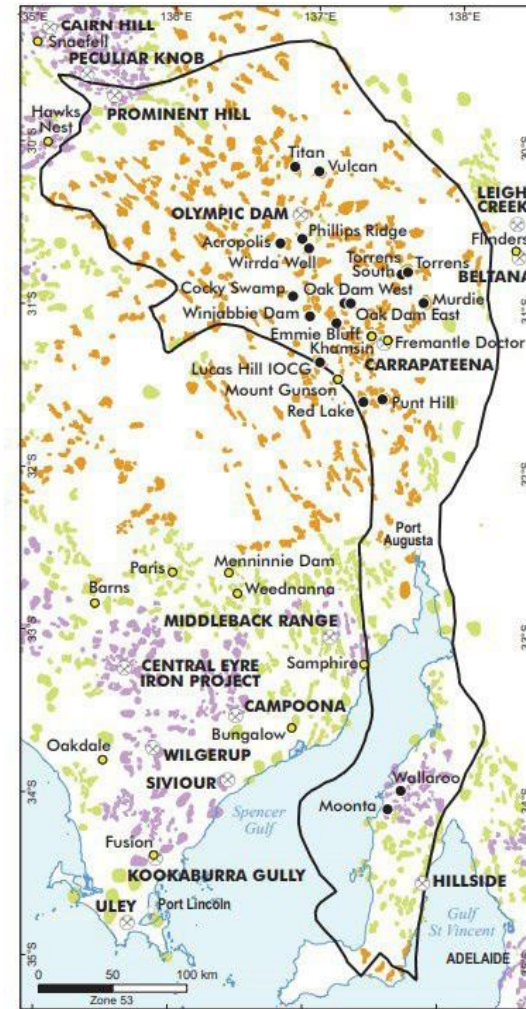
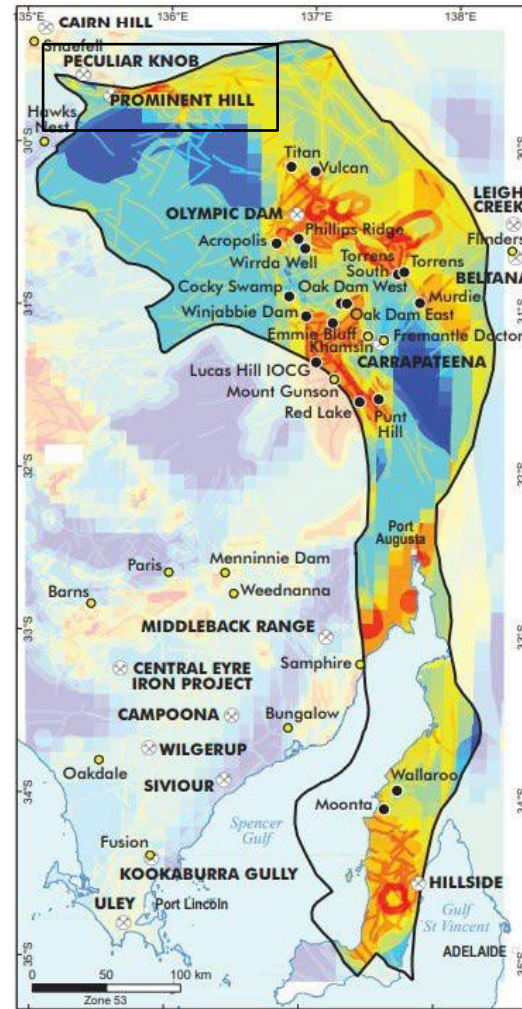


ed to announce that the new national-scale iron oxide-copper-gold (IOCG) mineral potential assessment of Australia has now been released. IOCG mineral systems t sources of critical and strategic minerals such as copper, cobalt, and rare earth elements that will help support the transition to net zero.



# Future copper prospectivity: Olympic Cu-Au province along the Northern Water Supply

- Prospectivity analysis highlights the potential for undiscovered resources in the eastern Gawler Craton.
- Transforming key geological and geophysical criteria for IOCG deposit formation and preservation allows evidence layers to be summed, and relative potential to be mapped.
- Existing deposits are correctly identified by this methodology as well as un-tested targets with similar characteristics.





# Critical Minerals associated with polymetallic deposits & mine waste opportunities



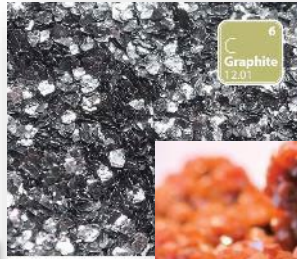
## Secondary prospectivity of South Australia's mine waste: Brukunga

Laura Jackson, Le Xi King and Anita Parbhakar-Fox



## Secondary prospectivity of South Australia's mine waste: review

Laura Jackson, Alex Corrick, Zhengdong Han, Annah Moyo and Anita Parbhakar-Fox



## GRAPHITE Critical mineral potential of South Australia

Alicia Caruso, Carmen Krapf and Adrian Fabris



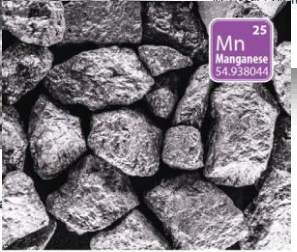
## VANADIUM Critical mineral potential of South Australia

Alicia Caruso, Carmen Krapf and Adrian Fabris



## MAGNESIUM Critical mineral potential of South Australia

Peter Keller, Carmen Krapf and Alicia Caruso



## MANGANESE Critical mineral potential of South Australia

Peter Keller, Carmen Krapf, Adrian Fabris and Alicia Caruso



## LITHIUM Critical mineral potential of South Australia

Peter Keller, Alexander Corrick, Le Xi King, Adrian Fabris, Carmen Krapf and Alicia Caruso



## HIGH PURITY ALUMINA Critical mineral potential of South Australia

Peter Keller, Alexander Corrick, Carmen Krapf and Alicia Caruso



## COBALT Critical mineral potential of South Australia

Peter Keller, Alexander Corrick and Alicia Caruso



## RARE EARTH ELEMENTS Critical mineral potential of South Australia

Critical Minerals South Australia



## Economic study for the sustainable development of critical minerals sector and value chain in South Australia

The South Australian Centre for Economic Studies, University of Adelaide



**South Australia's strategic critical minerals**

Total projects: 33, Total major mines: 17, Total developing projects: 16

Project name	Project	Commodity	Company	Company link	Status	Mineral deposit link
Arcoflex	Mining Projects	Copper (Cu), Gold (Au)	Thor Energy Pty Ltd	JORC Resource	Approved	
Anglo	Major Mines	Iron Ore, Lead (Pb), Silver (Ag), Zinc (Zn)	Iron Resources Australia Pty Ltd	JORC Resource	Care and Maintenance	
Avonlea	Mining Projects	Uranium (U)	Uranium Resources Australia Pty Ltd	JORC Resource	Approved	
Clear Hill	Major Mines	Uranium (U)	Uranium Resources Australia Pty Ltd	JORC Resource	Care and Maintenance	
Compassion	Major Mines	Copper (Cu)	Compassion Resources Pty Ltd	JORC Resource	Operating	
Cooper	Major Mines	Copper (Cu), Gold (Au)	Cooper Resources Pty Ltd	JORC Resource	Operating	
Cooper Creek	Mining Projects	Copper (Cu), Gold (Au)	Cooper Resources Pty Ltd	JORC Resource	Operating	
Flinders Ranges	Mining Projects	Uranium (U)	Uranium Resources Australia Pty Ltd	JORC Resource	Approved	
Greenbushes	Major Mines	Lithium (Li), Potassium (K)	Greenbushes Lithium Pty Ltd	JORC Resource	Operating	
Hamersley	Mining Projects	Iron Ore	Hamersley Iron Pty Ltd	JORC Resource	Operating	
Iluka	Major Mines	Copper (Cu), Gold (Au)	Iluka Resources Pty Ltd	JORC Resource	Operating	
Ironbark	Major Mines	Iron Ore	Ironbark Resources Pty Ltd	JORC Resource	Operating	

Filters: Project name, Company, Status

Location: Map of South Australia showing project locations

Status: Donut chart showing project status distribution

**South Australia's strategic critical minerals**

**Magnesium**

Reserve and resources: 146Mt Reserve contained product by tonnes, 12 Number of mineral occurrences

Mineral occurrence filters: Deposit name, Deposit type, Deposit status

Mineral occurrence deposit status: Donut chart showing deposit status distribution

Name	Mineral Deposit Link	Resource type	Resource class	One Resource	One Resource Unit	Resource grade average
Hamersley	Non-JORC	Estimated	10000000 tonnes			
Cooper Creek	Non-JORC	Estimated	5000000 tonnes			
Uranium Resources Australia	Non-JORC	Estimated	2000000 tonnes			
Clear Hill	Non-JORC	Estimated	1000000 tonnes			
Hamersley	Non-JORC	Estimated	1000000 tonnes			

Using geochemistry to assess the untapped critical minerals potential of South Australia's deposits

## Sediment-hosted copper deposits of the Mount Gunson district

Mirella Terrones, Adrian Fabris and Carmen Krapf

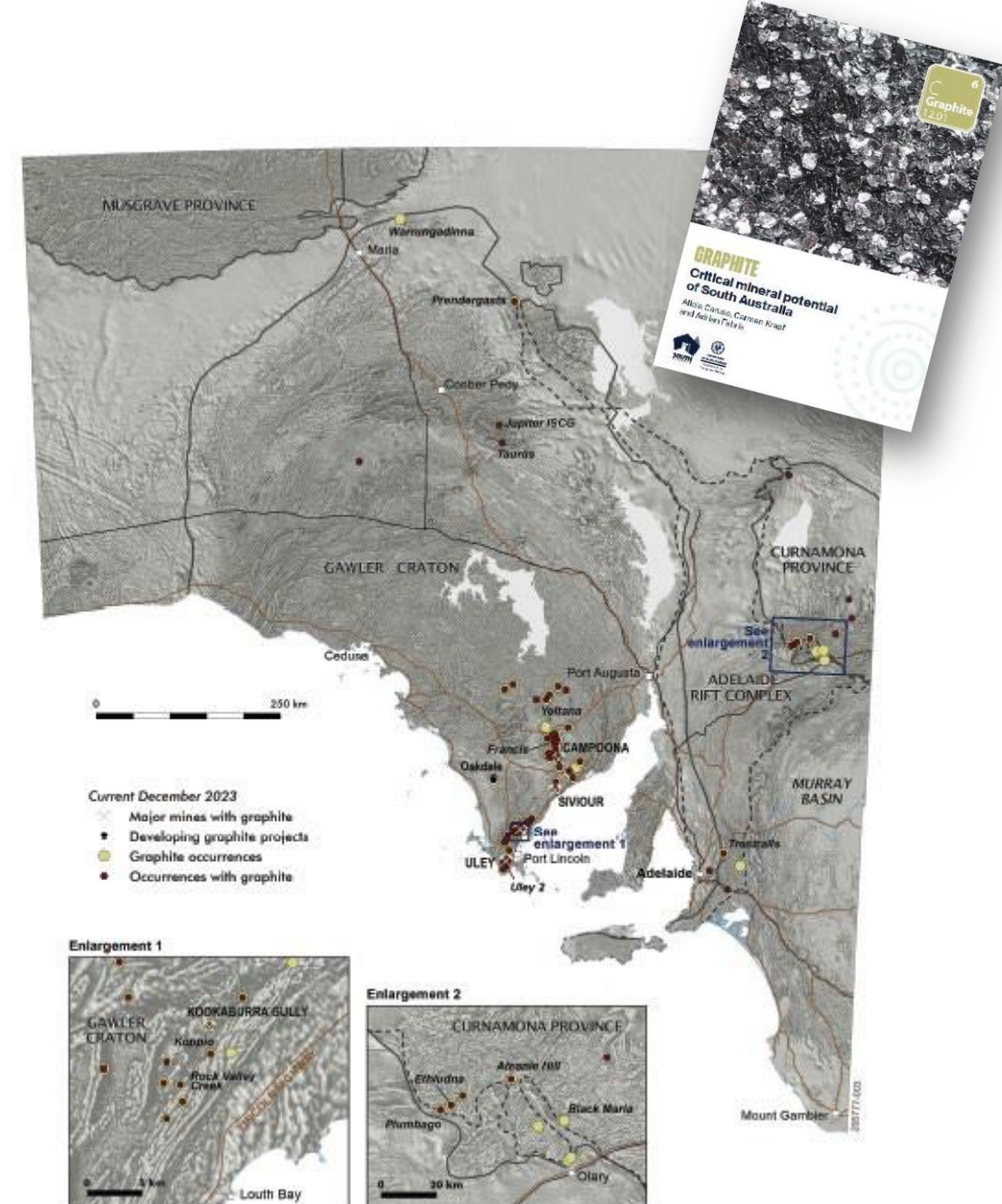


NEW REPORT BOOK AND DATA PACKAGE OUT NOW!



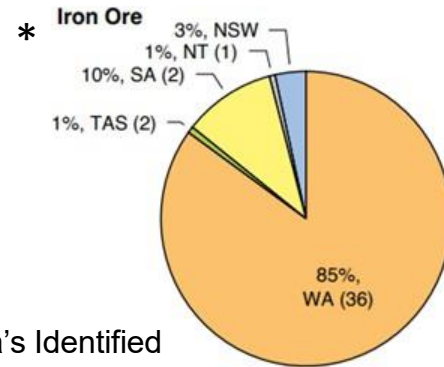
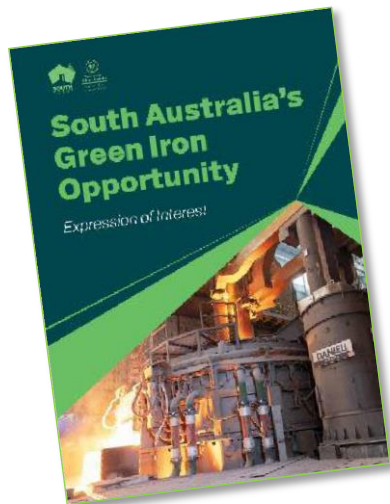
# Graphite: essential for BAM production

- 75 graphite occurrences recorded across South Australia
- 8 deposits; nearly all on the Eyre Peninsula
- The largest is the Siviour deposit 123.6 Mt @ 6.9% TGC (Total Graphitic Carbon) (Renascor Resources 2023).
- Uley 2 has 6.3 Mt @ 11.1% TGC at Uley 2 (Quantum Graphite 2022),
- Campoona Shaft 2.232 Mt @ 12.1% TGC (Uranium SA Limited 2021),
- Koppio with 2.08 Mt @ 10.47 % TGC; and
- Kookaburra Gully with 2.03 Mt @ 15.2% TGC
- A major exploration target at Yeltana is reported at 24.5 – 59 Mt @ 5.5 – 10.2% TGC (Alliance Resources Limited 2018). Other drill intersections include 15 m @ 20.7% TGC from 14 – 29 m at Francis and Rock Valley Creek where a grab sample of ore material was 9 – 12% flake graphite @ 80 – 88% TGC.
- Several occurrences are known from the Olary region of the Curnamona Province, commonly associated with the Saltbush Group of the Willyama Supergroup.



# Magnetite: co-located iron ore and renewable energy resources

- Australia's second largest iron ore reserves
- 74% net renewable electricity grid
- Transmission lines covering 200,000km<sup>2</sup>
- Northern Water Supply
- Export pathways – ports and supporting infrastructure



\* From Australia's Identified Mineral Resources 2023

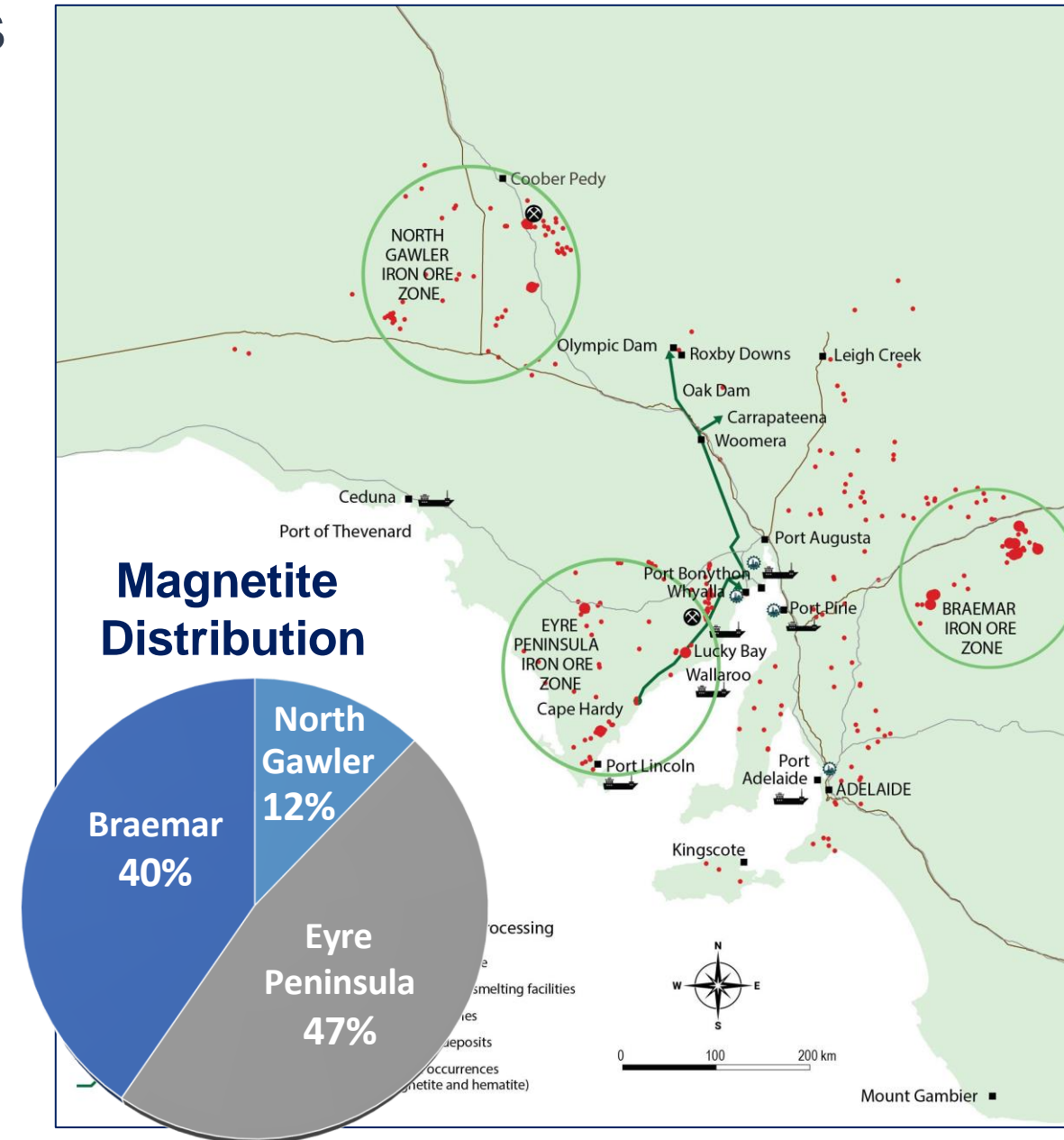
## South Australia's green iron and steel ecosystem



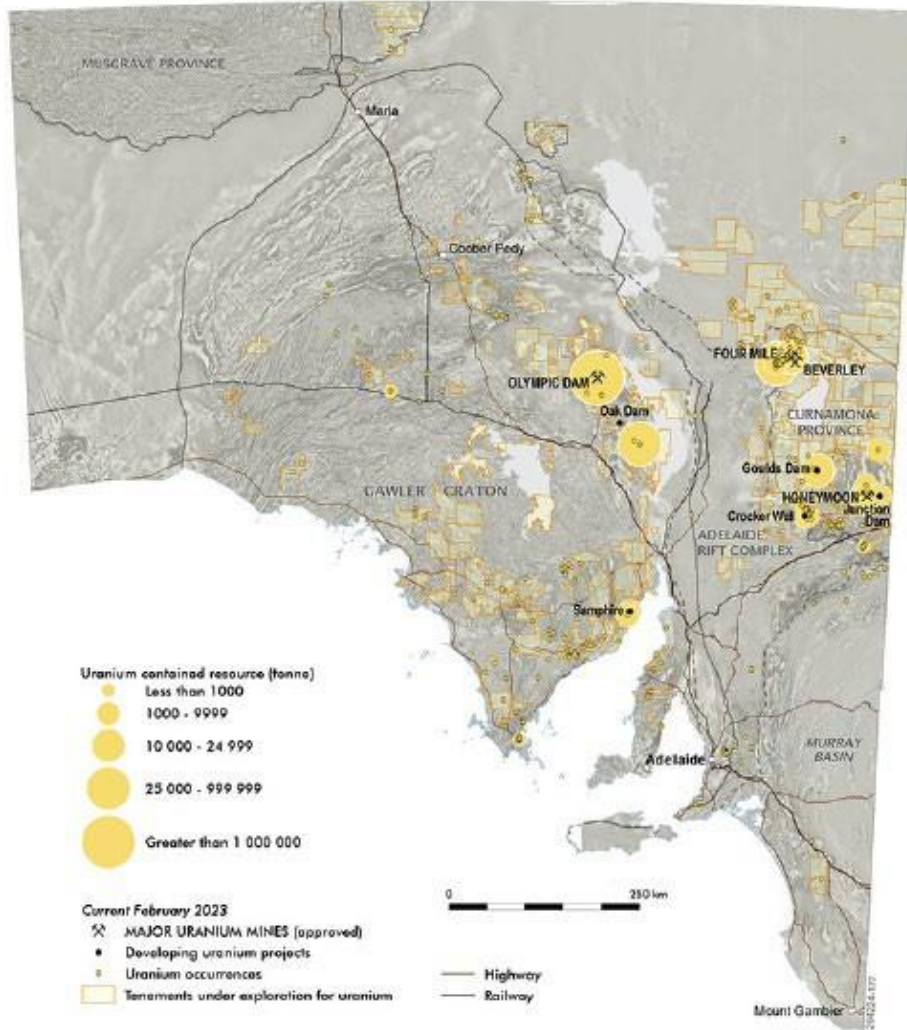


# South Australia's Magnetite Resources

- South Australia has **18.6 billion tonnes** of magnetite ore (JORC Resources)
  - 7.4 Bt of Economic Demonstrated Resources
- Total magnetite resources are up 15% from 2018
  - Largely attributed to Middleback Ranges, Razorback and Hawks Nest projects
- Capacity for significant growth of magnetite resources
  - Most deposits are open laterally and/or at depth
  - Many near mine/deposit targets are still largely un- tested



# Uranium: Supplying the world's clean energy



## • Mines and Projects

- **Olympic Dam:** BHP (1988)
- **Beverley:** Heathgate Resources (2001)
- **Beverley North:** Heathgate Resources (2010)
- **Honeymoon:** Boss Energy (2011 & 2023)
- **Four-Mile:** Quasar Resources (2014 & 2018)

## • SA URANIUM PROJECTS

- **Samphire:** Alligator Energy
- **Gould's Dam:** Boss Energy
- **Jasons:** Boss Energy
- **Junction Dam:** Marmota Energy
- **Crocker Well:** Sinosteel

## • SA URANIUM PROSPECTS

- Big Lake
- Oak Dam
- Acropolis
- Wirrda Well

79%

South Australia's  
share of  
Australia's  
resources



**URANIUM**  
Critical mineral potential  
of South Australia  
Geological Survey of South Australia





# Strong Regulatory Foundations



**Best-in-class regulation**

One window to government approach.

---

World-first, dedicated hydrogen and renewables legislation – the *Hydrogen and Renewable Energy Act 2023* to coordinate developments, including competitive land release to support gigawatt scale renewable energy.

---

Coupled with the *Mining Act 1971*, a clear licencing framework is in place for the concurrent development of renewable energy, hydrogen, mining and green iron projects.

[Regulatory services | Energy & Mining \(energymining.sa.gov.au\)](https://energymining.sa.gov.au)

One window to  
Government



# Hand in Hand with our First Nations People

<https://www.energymining.sa.gov.au/industry/minerals-and-mining/communities-and-land-access/native-title-and-aboriginal-land#legislative-framework>

**RELATIONSHIPS:** Engaging with and building relationships with First Nations Peoples will strengthen our capacity to work collaboratively towards improved outcomes.

**RESPECT:** Recognising the contribution of First Nations Peoples to Australia will enable DEM to achieve more culturally inclusive outcomes and actively cultivate behaviours that enhance our workplace and guide the development and delivery of services.

**OPPORTUNITIES:** Creating opportunities for First Nations Peoples and increasing First Nations economic participation and equity.

**GOVERNANCE:** Providing strategic and operational resources to ensure the delivery of our RAP commitments, in accordance with our internal corporate governance standards and practices

AUSTRALIA  MINERALS | SOUTH AUSTRALIA





# SARIG



SARIG map

Delivering geological, geospatial data and GIS tools

REVIVE



SARIG explore

Visualise, interrogate to gain data-driven insights

IMPROVE



SARIG catalogue

Connect to geoscience data packages, 3D models and publication APIs

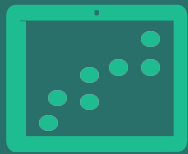
DELIVER



SARIG core

Digital access and visual intelligence to SA's physical geoscience footprint

EVOLVE



SARIG core

Digital access and visual intelligence to SA's physical geoscience footprint

## Digital Core Project

- Core library “Scanning-to-digitise” program – core photography and key datasets
- Virtual Digital Core Library – accessible to global explorers
- Standard ingestion of data into SA Geodata (SA's Geoscience Database)
- Project consists of 6 Pillars - Funding for 1, 2 and commence Pillar 3



# AUSTRALIA MINERALS

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## Thank you

**Dr. Bronwyn Camac**  
Geological Survey South Australia  
Department for Energy and Mining





# AUSTRALIA MINERALS

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## Critical minerals projects and opportunities in the Northern Territory

**Dorothy Close**

Director Regional Geoscience  
Northern Territory Geological Survey



# Northern Territory's trading relations and resources sector

- The Northern Territory is Australia's closest jurisdiction to SE Asia
- Japan is the Territory's largest export market: 10% of Japan's LNG sourced from Darwin
- The Northern Territory – major producer of **manganese, bauxite, lead-zinc-silver and gold**
- Production of **lithium** currently suspended
- Near-term production planned for **rare earths, phosphate and copper**
- 18 projects in the approvals or financing process, primarily for **critical minerals, copper and gold**





# Critical minerals in the Northern Territory

- The Northern Territory has mineral resources in 17 critical minerals as defined by key trading partners
- 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 (Japanese language version)



### 希土類元素

60 Nd 49 Pr

アラルレアアース社 (Aralura Rare Earths Ltd.) ASX:ARU  
www.arultd.com

アラルレアアース社はノーランズプロジェクトは世界的に重要であり、世界のNd/Pr供給量の約44%を占める可能性があります。

同社は、採掘からオンサイトでの加工までの分岐、4,440 tpaのNd/Pr最終製品を470 tpaの統合中間加工（SEG-HPF）酸化剤（REO）を生産するためのすべての設備を取得しています。また、原料グレードのリン酸（50% P<sub>2</sub>O<sub>5</sub>）を14,000 tpa生産する計画があり、必要設備工事は2023年に完了し、最大20 tpaのNd/Pr酸化剤の生産力がある。プロジェクトは、Hyundai、三菱、住友、シーメンス、富士（Siemens Gamesa）とパートナーシップを結ぶ。このプロジェクトは、Northern Territory Infrastructure Australia、Northern Territory Infrastructure Fund、Northern Territory Infrastructure Fund から26億1,100万豪ドルの債務保証のシナジーが2024年3月に獲得されています。

名称	総JORC 鉱物資源	REO 含有率 (t/t)	会社
Nolans	55,800 tpa REO (1,190 tpa)	44.5%	Aralura Rare Earths Ltd.
Trinity	2,000 tpa REO (400 tpa) (Trinity Peak 20%)	4%	Trinity Resources Ltd.
Trinity Creek	330 tpa REO (66 tpa) (Trinity Peak 20%)	23.1%	Trinity Resources Ltd.
合計		1773.5	

### ケーススタディ：ノーランズ (Nolans)

北部準州で提案済みの希土類生産：  
- 世界での約10%、原料を2023年2月15日に開始。  
- オーストラリア産の採掘・加工のNd/Pr供給量をノーランズに集中。

# 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
- Approvals in place, targeting FID late 2024, enabling construction works completed in 2023



## Advanced exploration

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





# Pipeline of critical minerals projects: Lithium

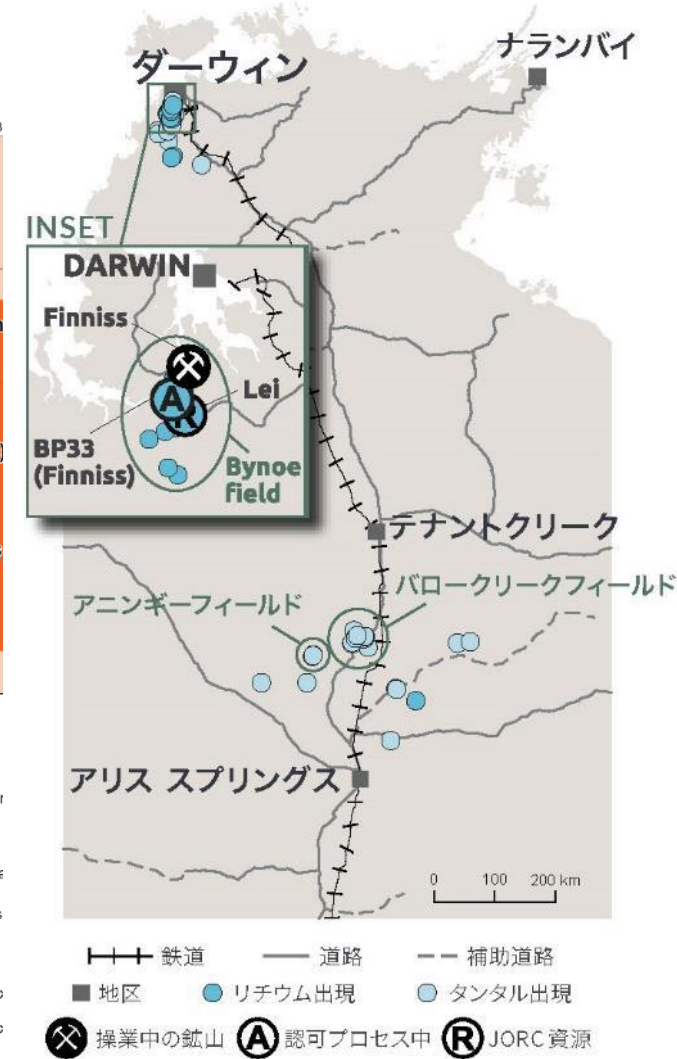
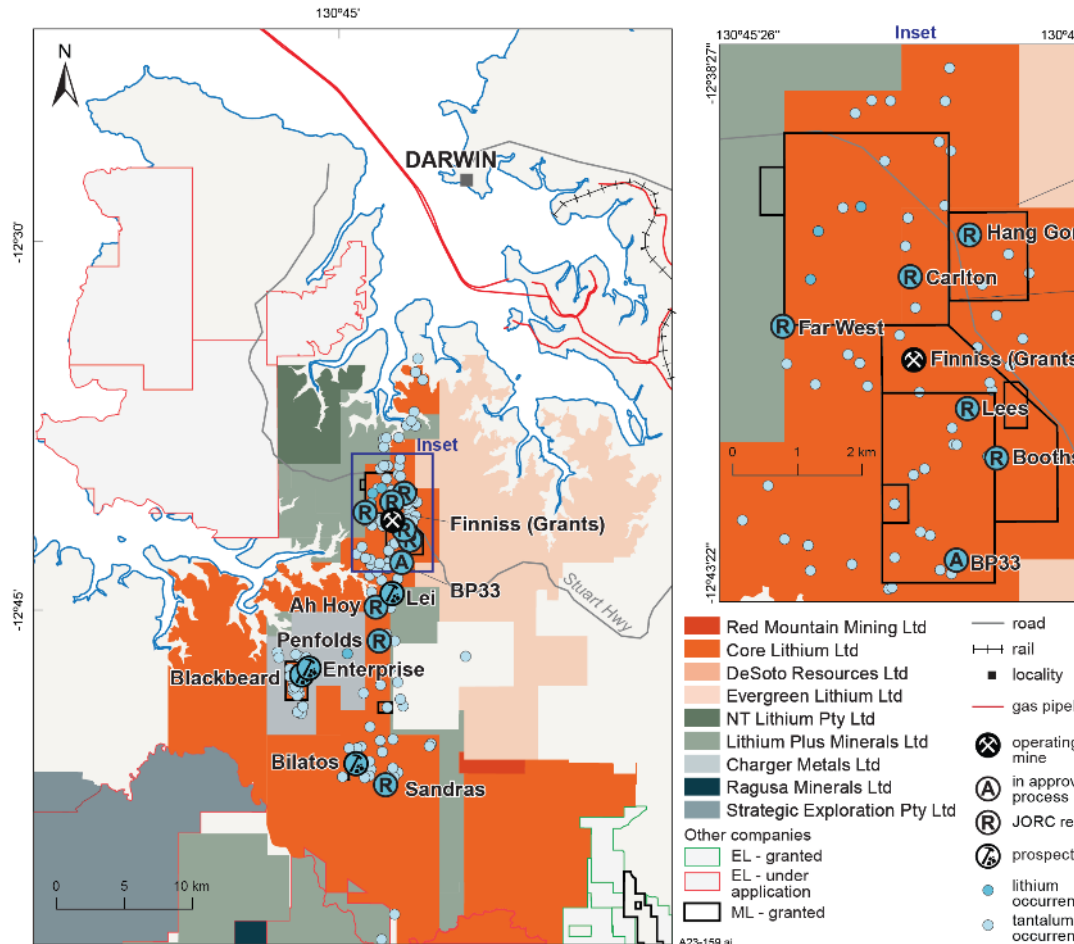
## Advanced development

### Core Lithium- Finnis

- Currently suspended mining operations – pending lithium price

## Advanced exploration

- Ongoing exploration by various companies has increased total lithium resource in the Bynoe Field by 84% in 2023

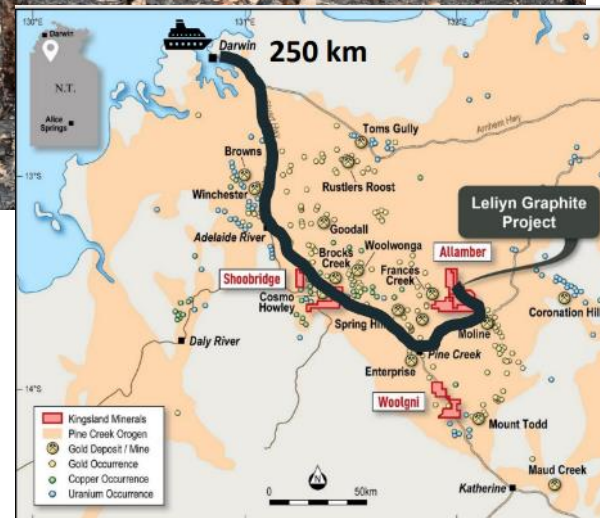
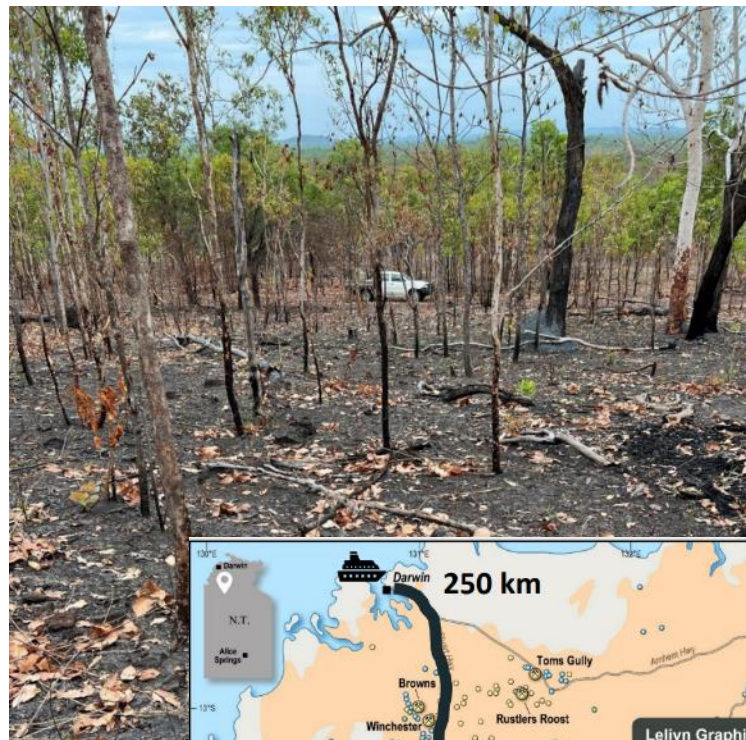


# Pipeline of critical minerals projects: Graphite

## Advanced exploration

### Leliyn – Australia’s largest graphite deposit

- 20-kilometre-long graphitic schist
- Exploration Target 700-1100 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





# Northern Territory Government support – minerals 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 development

## 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](http://www.resourcingtheterritory.nt.gov.au)

### **Geoscience data and products**

[gemis.nt.gov.au](http://gemis.nt.gov.au)

or email: [geoscience.info@nt.gov.au](mailto:geoscience.info@nt.gov.au)

### **Geoscience and titles web mapping**

[strike.nt.gov.au](http://strike.nt.gov.au)





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## Thank you

**Dorothy Close**

Director Regional Geoscience  
Northern Territory Geological Survey



# AUSTRALIA MINERALS

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## Tasmania

Investment setting and opportunities

**Dr Andrew McNeill**

Chief Government Geologist  
Mineral Resources Tasmania



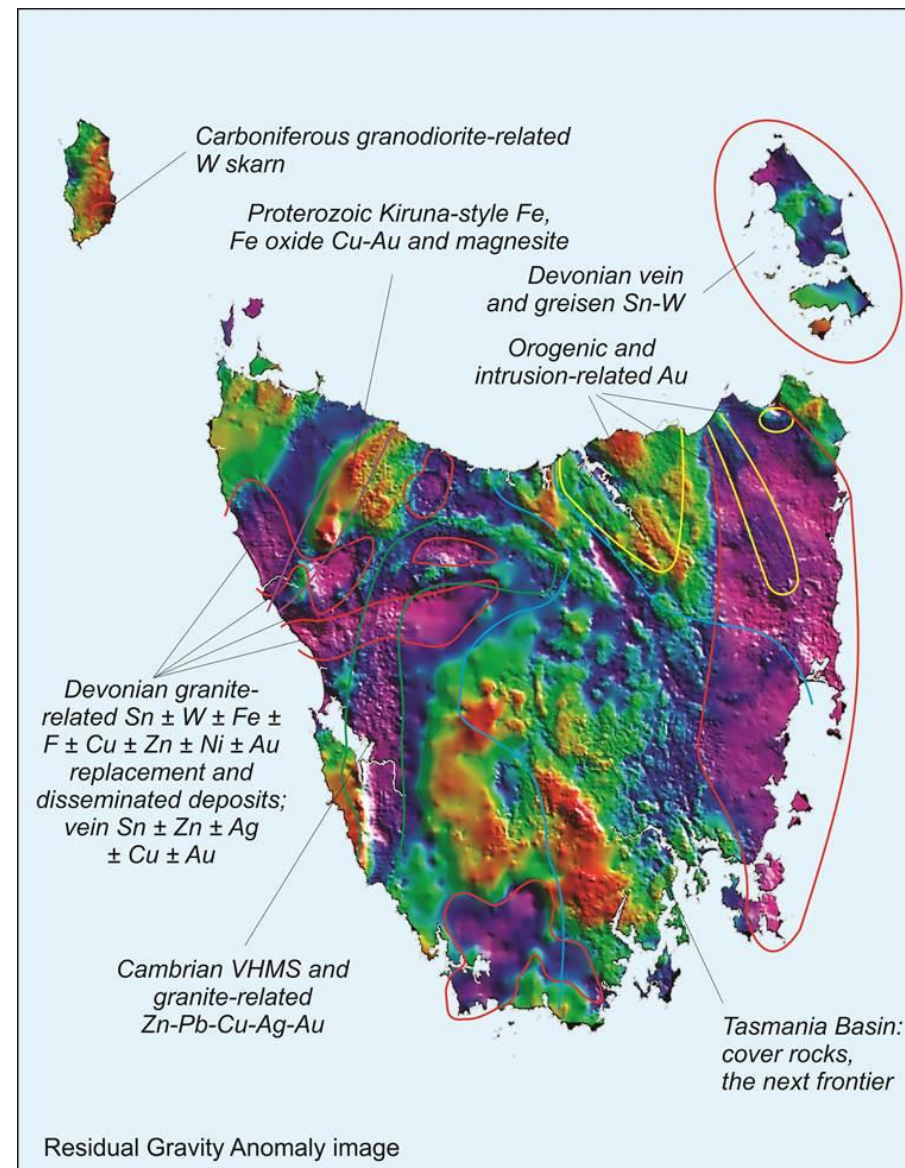


# Why Tasmania?

## Mineral endowment

Current **production** of, and projects for, diverse commodities:

- **Cu, Zn, Pb, Sb**
- **Au, Ag**
- **Sn, W**
- Ni, Co, Li
- REE
- **Fe (magnetite, hematite), Mg**
- **Al (bauxite)**
- **Si (silica flour)**
- **Heavy mineral sands**
- **Coal, oil, geothermal, hydrogen**
- **Limestone, dolomite**







# Setting – Infrastructure

- Capacity upgrades to rail and ports—funded by government
- Marinus Link – stage 1 (750 Mw) in approvals process.
- Marinus opens potential for energy and processing projects at Hampshire



# Setting – First Nations

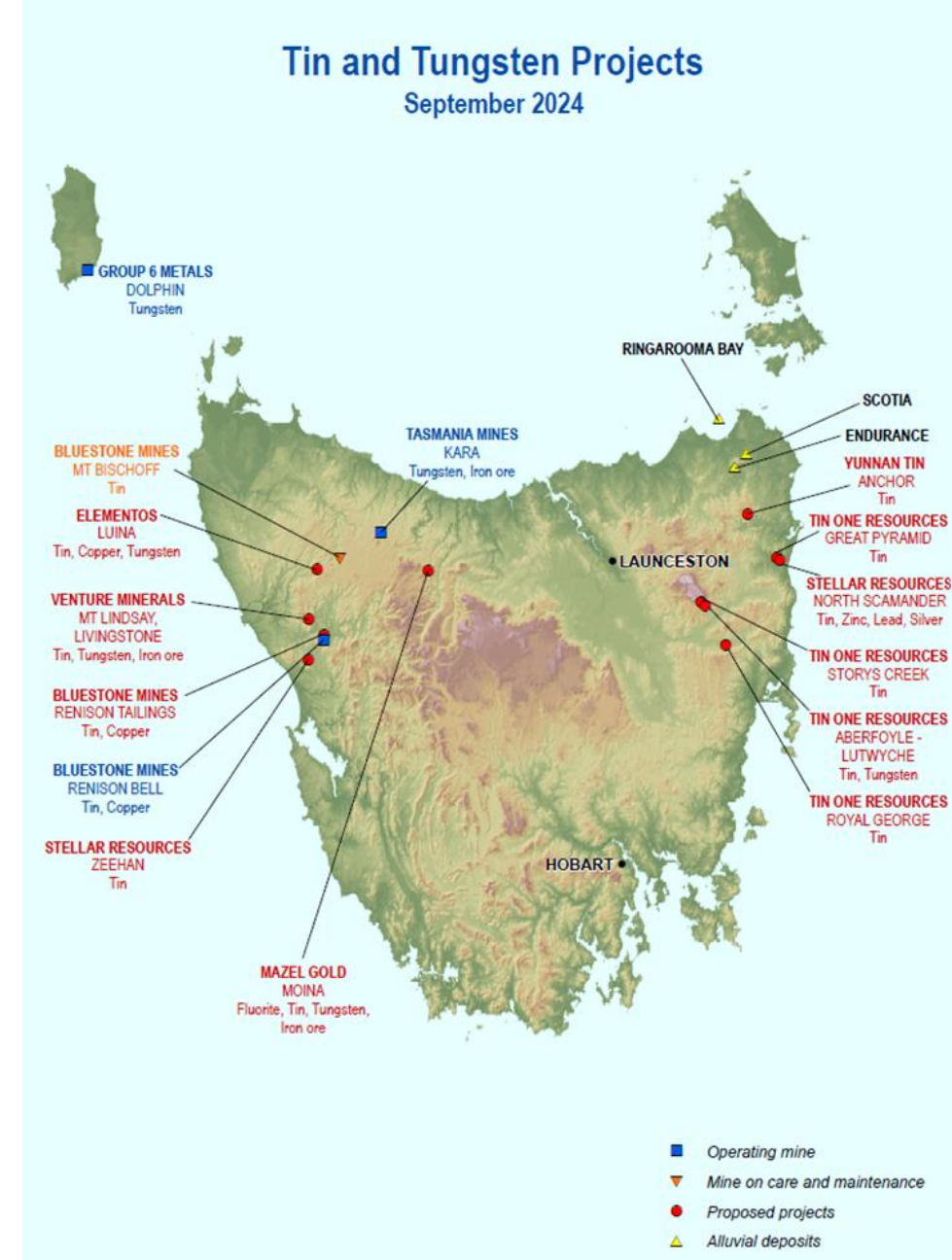
- Tasmania has a complex history with respect to first nations peoples.
- As a result of early colonisation actions, there is no recognised Native Title in Tasmania.
- Some land ownership has been transferred back to Tasmanian first nations people.
- Currently 1.64% of the state is Aboriginal Land, with majority being on Clarke and truwana / Cape Barren islands.
- The Government is working on further land returns.
- Once land is under Aboriginal ownership, approvals must be provided by the Aboriginal Land Council prior to the grant of mineral tenements.
- As part of tenement processes, Mineral Resources Tasmania seek input from Aboriginal Heritage Tasmania to ensure that Aboriginal heritage items are identified and appropriately managed.



# Investment opportunities

## Tin and tungsten

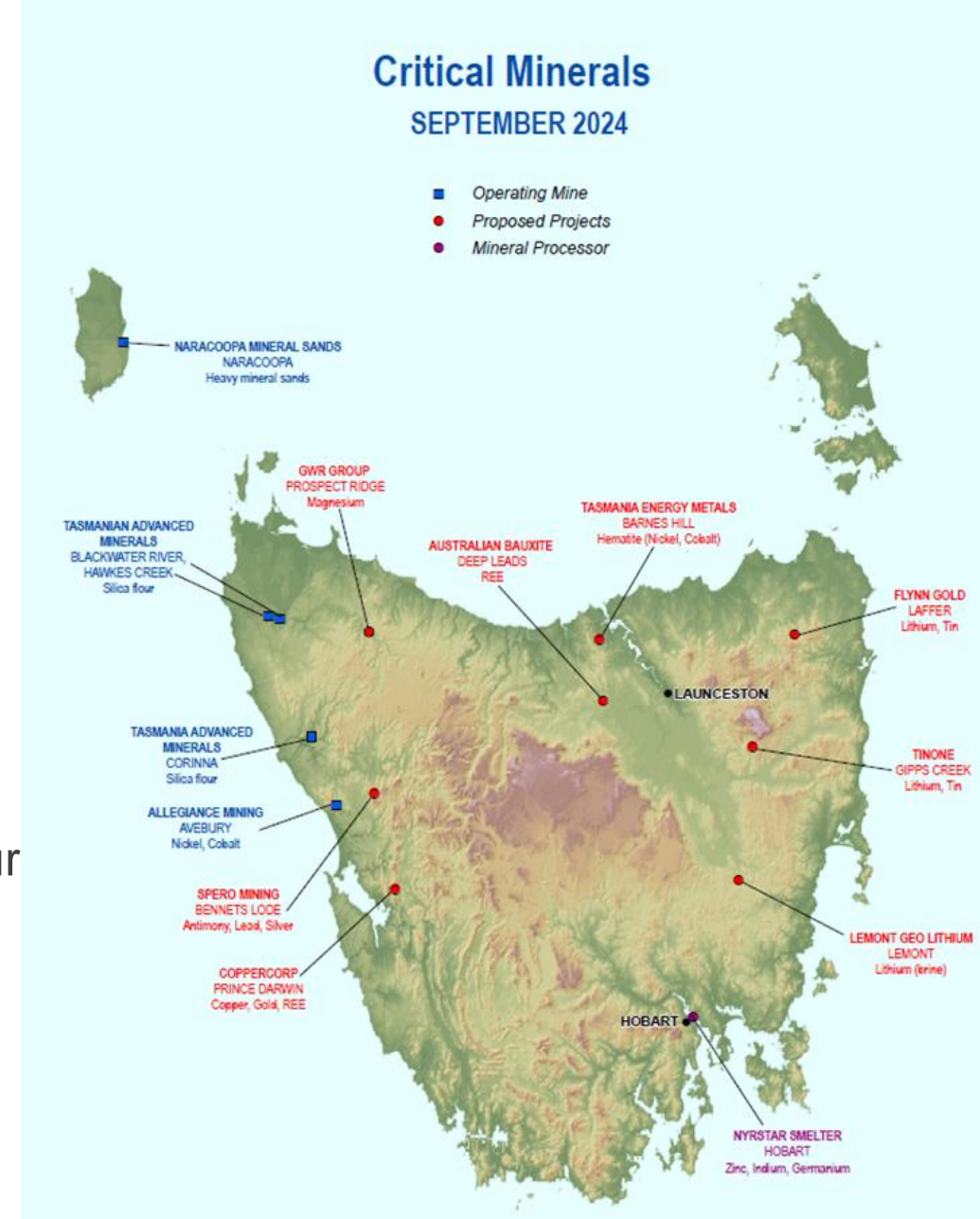
- 80% and 20% of EDR, respectively
- Defined resources:
  - 540,000 t contained Sn (35% at Renison)
  - 183,000 t contained  $WO_3$  (52% on King Island)
- Mining at Dolphin has commenced
- Opportunities:
  - North Scamander Polymetallic (Tarcoola Iron)
  - (5 m @ 1.04% Sn, 495 g/t Ag, 5.2% Zn, 7.1% Pb)
  - Great Pyramid (TinOne): 8.9 Mt @ 0.17% Sn
  - Downstream processing (W)
  - Secondary prospectivity



# Investment opportunities

## Other critical minerals

- Lithium in brine – new exploration target for state
  - Based on previously defined geothermal anomalies/resources
  - Drilling to commence in November 2024
- Lithium in mica (Zinnwaldite) – in greisens
  - Recognised in 2022
  - First round drilling completed
- Antimony – in Jamesonite veins
  - Bennetts lode – drilling completed but no JORC resource
  - Intersections to 4.9 m @ 10.5% Sb, 13.8% Pb, 1,010 g/t Ag
  - Mining Lease application permitting in progress
  - Likely to be small resource(s)

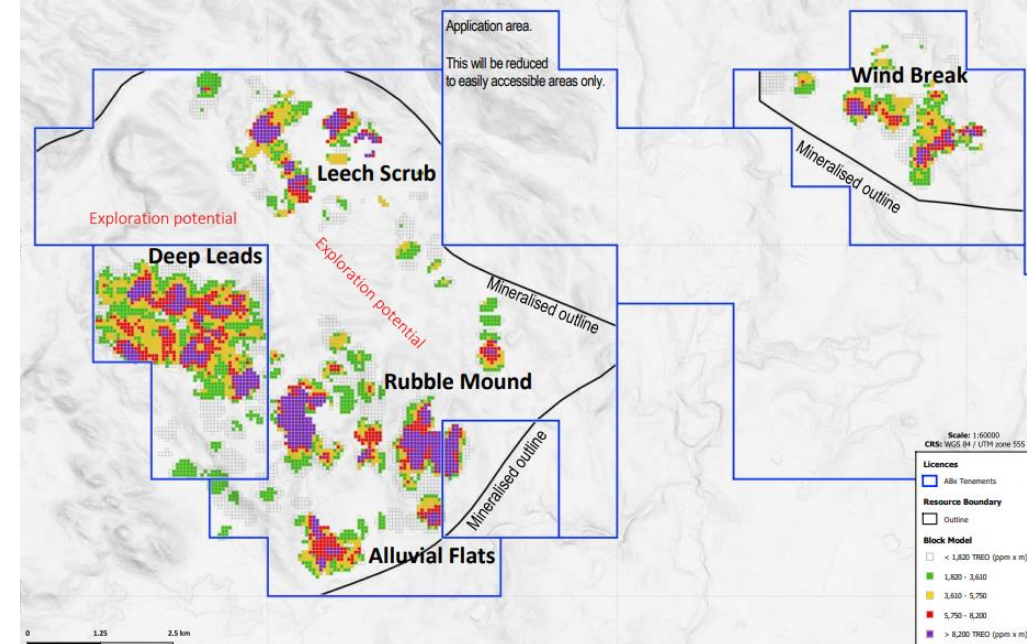




# Investment opportunities

## Rare earth elements

- Ionic adsorption Clay (IAC) type
- Associated with bauxite on Jurassic dolerite
- Drilling program in northern Tasmania by ABx (with Government co-funding)
- 56.4 Mt inferred, Indicated, and measured resource
- 1,010 ppm TREO; Low U and Th (6.2 & 1.8 ppm)
- Initial test work indicates good recovery by leaching
- Drilling ongoing



# Summary

- Diverse mineralisation with long-life (>100 years) mining operations
- 100 percent self-sufficient in renewable energy
- Aiming for 200 percent renewable energy supply by 2040
- Products of mining and mineral processing constitute >60 per cent of mercantile exports
- Highly supportive government with policies and legislation to reduce sovereign risk
- High quality, freely available geoscience data sets to de-risk exploration
- Battery and new technology minerals including tin, tungsten, antimony, and REE, and potentially Lithium



For further information



**Andrew McNeill**

[andrew.mcneill@stategrowth.tas.gov.au](mailto:andrew.mcneill@stategrowth.tas.gov.au)

+61 439 357 387

**Mineral Resources Tasmania team**

[info@mrt.tas.gov.au](mailto:info@mrt.tas.gov.au)

+61 3 6165 4800

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## Thank you

**Dr. Andrew McNeill**

Chief Government Geologist  
Mineral Resources Tasmania





# AUSTRALIA MINERALS

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## The Critical Mineral Powerhouse

Current state and potential in Western Australia

**Dr Charlotte Hall**

General Manager Investment

Department of Energy, Mines, Industry Regulation and Safety

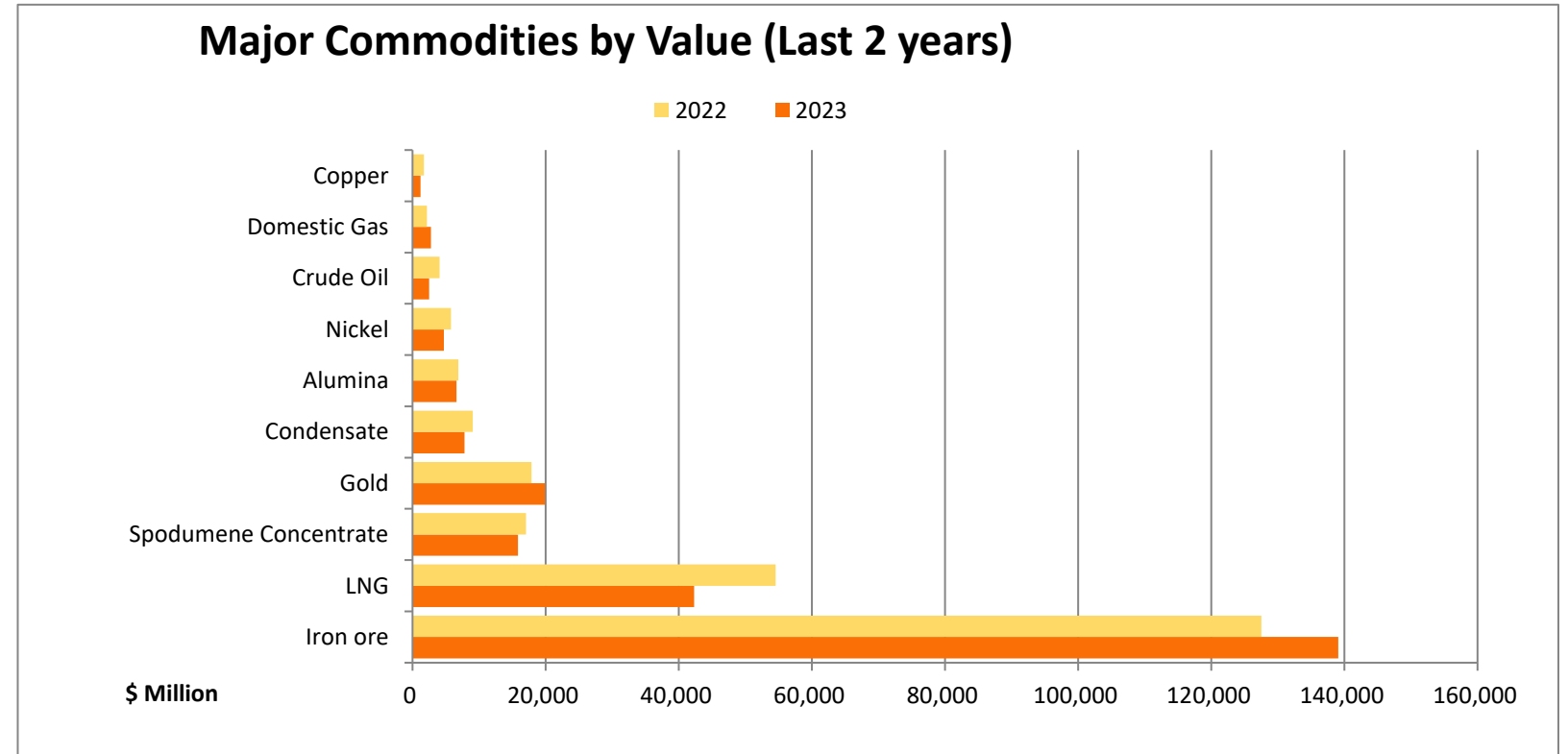


GOVERNMENT OF  
WESTERN AUSTRALIA  
Department of  
Mines, Industry Regulation  
and Safety

# Western Australia's mineral production

## 2023 Key highlights

- ✓ \$192B in sales
- ✓ Iron ore: 860M Mt  
2<sup>nd</sup> highest year
- ✓ Spodumene con:  
3.3M Mt  
Record year
- ✓ Gold: 6.8M oz



Source: DEMIRS, EnergyQuest, Woodside, Santos



# Western Australia Global production share 2023



1st  
Production  
world ranking



1st  
Production  
world ranking



2nd  
Production  
world ranking



3rd  
Production  
world ranking



4th  
Production  
World ranking



6th Production  
World ranking



Source: DEMIRS, EnergyQuest, OoCE, USGS, BP

# Principal projects in Western Australia 2022-23

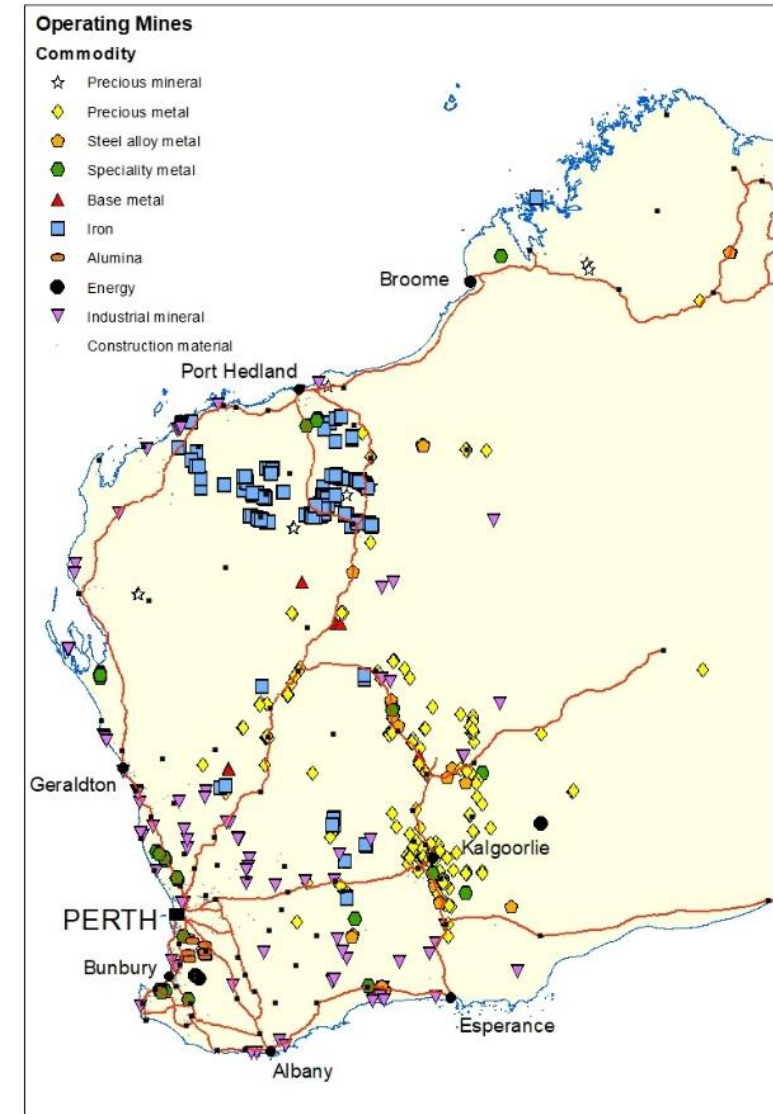
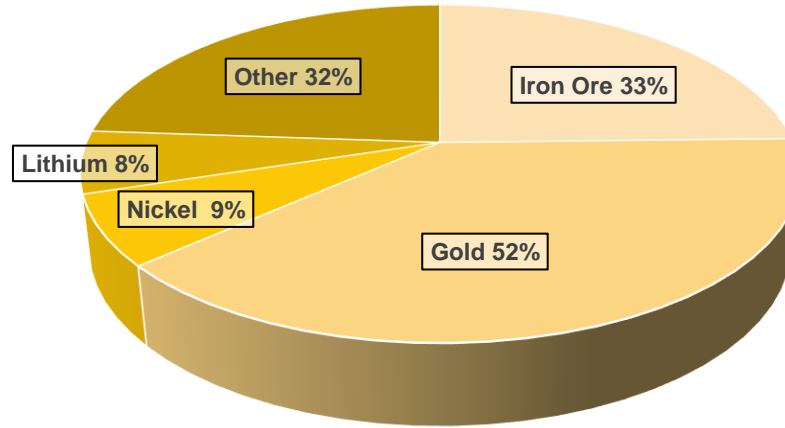
**134 mining projects**

**15 major processing Operations**

- ✓ Bauxite to alumina
- ✓ Ni con to matte, powder, briquette and sulphate
- ✓ Rutile to TiO2 pigment
- ✓ Zircon to fused zirconia
- ✓ Silica sand to silica metal
- ✓ Spodumene to LiOH

**19 principal petroleum projects**

High value export oriented mining projects



# MINERAL RESOURCE POTENTIAL IN WESTERN AUSTRALIA

MINERAL RESOURCE POTENTIAL IN WESTERN AUSTRALIA																	
1 <b>H</b> Hydrogen 1.01																	XVIII 2 <b>He</b> Helium 4.00
3 <b>Li</b> Lithium 6.94	4 <b>Be</b> Beryllium 9.01																
11 <b>Na</b> Sodium 22.99	12 <b>Mg</b> Magnesium 24.31																
19 <b>K</b> Potassium 39.10	20 <b>Ca</b> Calcium 40.08	21 <b>Sc</b> Scandium 44.96	22 <b>Ti</b> Titanium 47.88	23 <b>V</b> Vanadium 50.94	24 <b>Cr</b> Chromium 51.99	25 <b>Mn</b> Manganese 54.94	26 <b>Fe</b> Iron 55.85	27 <b>Co</b> Cobalt 58.93	28 <b>Ni</b> Nickel 58.69	29 <b>Cu</b> Copper 63.55	30 <b>Zn</b> Zinc 65.38	31 <b>Ga</b> Gallium 69.72	32 <b>Ge</b> Germanium 72.63	33 <b>As</b> Arsenic 74.92	34 <b>Se</b> Selenium 78.97	35 <b>Br</b> Bromine 79.90	36 <b>Kr</b> Krypton 84.80
37 <b>Rb</b> Rubidium 85.47	38 <b>Sr</b> Strontium 87.62	39 <b>Y</b> Yttrium 88.91	40 <b>Zr</b> Zirconium 91.22	41 <b>Nb</b> Niobium 92.91	42 <b>Mo</b> Molybdenum 95.95	43 <b>Tc</b> Technetium 98.91	44 <b>Ru</b> Ruthenium 101.07	45 <b>Rh</b> Rhodium 102.91	46 <b>Pd</b> Palladium 106.42	47 <b>Ag</b> Silver 107.87	48 <b>Cd</b> Cadmium 112.41	49 <b>In</b> Indium 114.82	50 <b>Sn</b> Tin 118.71	51 <b>Sb</b> Antimony 121.76	52 <b>Te</b> Tellurium 127.6	53 <b>I</b> Iodine 126.90	54 <b>Xe</b> Xenon 131.29
55 <b>Cs</b> Cesium 132.91	56 <b>Ba</b> Barium 137.33	57-71 Lanthanides	72 <b>Hf</b> Hafnium 178.49	74 <b>Ta</b> Tantalum 180.95	74 <b>W</b> Tungsten 183.85	75 <b>Re</b> Rhenium 186.21	76 <b>Os</b> Osmium 190.23	77 <b>Ir</b> Iridium 192.22	78 <b>Pt</b> Platinum 195.08	79 <b>Au</b> Gold 196.97	80 <b>Hg</b> Mercury 200.59	81 <b>Tl</b> Thallium 204.38	82 <b>Pb</b> Lead 207.20	83 <b>Bi</b> Bismuth 208.98	84 <b>Po</b> Polonium [208.98]	85 <b>At</b> Astatine 209.98	86 <b>Rn</b> Radon 222.02
87 <b>Fr</b> Francium 223.02	88 <b>Ra</b> Radium 226.03	89-103 Actinides	104 <b>Rf</b> Rutherfordium [261]	105 <b>Db</b> Dubnium [262]	106 <b>Sg</b> Seaborgium [266]	107 <b>Bh</b> Bohrium [264]	108 <b>Hs</b> Hassium [269]	109 <b>Mt</b> Meitnerium [278]	110 <b>Ds</b> Darmstadtium [281]	111 <b>Rg</b> Roentgenium [280]	112 <b>Cn</b> Copernicium [285]	113 <b>Nh</b> Nehonium [286]	114 <b>Fl</b> Flerovium [289]	115 <b>Mc</b> Moscovium [289]	116 <b>Lv</b> Livermorium [293]	117 <b>Ts</b> Tennessine [294]	118 <b>Og</b> Oganesson [294]
57 <b>La</b> Lanthanum 138.91	58 <b>Ce</b> Cerium 140.12	59 <b>Pr</b> Praseodymium 140.91	60 <b>Nd</b> Neodymium 144.24	61 <b>Pm</b> Promethium 144.91	62 <b>Sm</b> Samarium 150.36	63 <b>Eu</b> Europium 151.96	64 <b>Gd</b> Gadolinium 157.25	65 <b>Tb</b> Terbium 158.93	66 <b>Dy</b> Dysprosium 162.50	67 <b>Ho</b> Holmium 164.93	68 <b>Er</b> Erbium 167.26	69 <b>Tm</b> Thulium 168.93	70 <b>Yb</b> Ytterbium 173.06	71 <b>Lu</b> Lutetium 174.97			
89 <b>Ac</b> Actinium 227.03	90 <b>Th</b> Thorium 232.04	91 <b>Pa</b> Protactinium 231.04	92 <b>U</b> Uranium 238.03	93 <b>Np</b> Neptunium 237.05	94 <b>Pu</b> Plutonium 244.06	95 <b>Am</b> Americium 243.06	96 <b>Cm</b> Curium 247.07	97 <b>Bk</b> Berkelium 247.07	98 <b>Cf</b> Californium 251.08	99 <b>Es</b> Einsteinium [254]	100 <b>Fm</b> Fermium 257.10	101 <b>Md</b> Mendelevium 258.10	102 <b>No</b> Nobelium 259.10	103 <b>Lr</b> Lawrencium [262]			

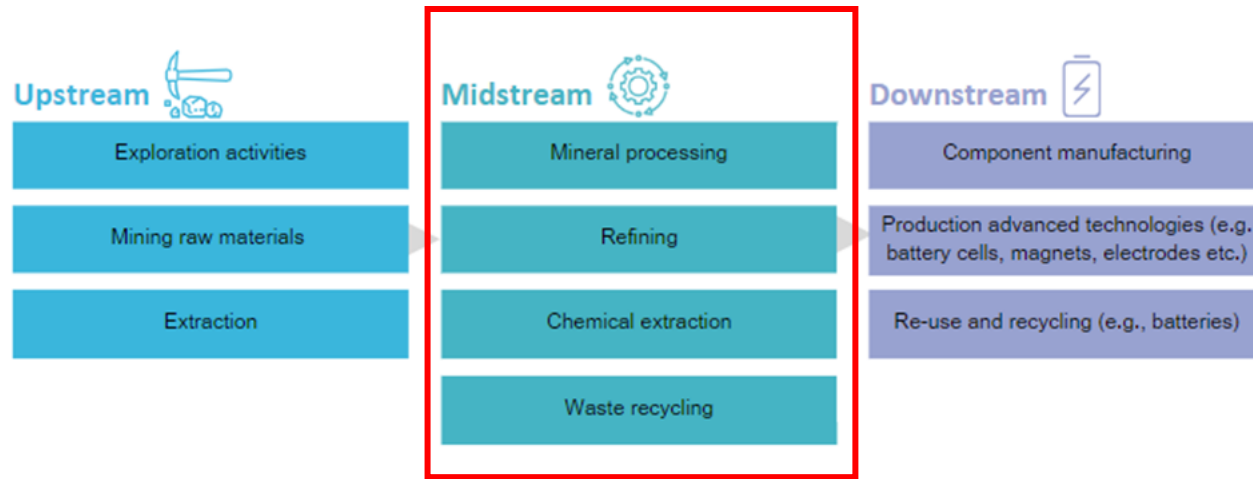
- Critical mineral
- Mined currently
- Potential resource (including by- or co-product)

[modified from original obtained from [https://sciencenotes.org/printable-periodic table/](https://sciencenotes.org/printable-periodic-table/)]



# Increasing Western Australia's Midstream Sector

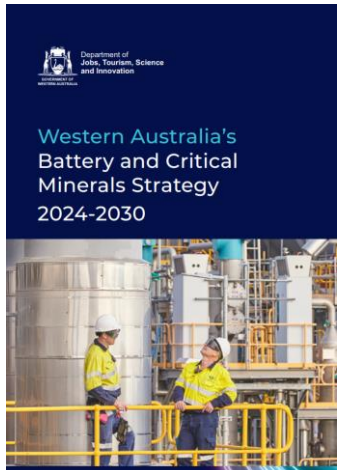
**Advanced** critical mineral processing capabilities



Manufacturing battery chemicals and separated rare earth oxides in Western Australia  
**= \$9 billion invested since 2015**







## May 2024: Western Australia 2024-2030 Battery and Mineral Strategy Goals

- Destination of choice for mineral mining, processing and manufacturing
- Decarbonise global economies by supplying Critical Minerals
- Create job and positive outcomes for Aboriginal people



# Midstream processing success stories & potential opportunities

## Selected advanced projects\*

		Rarex, Northen Minerals, Victory Metals
		Global Lithium- Spodumene concentrate
		Pilbara Mining - Lithium Hydroxide project
		Neometals – Ti-V mining project
		Antimony explorers progressing at pace

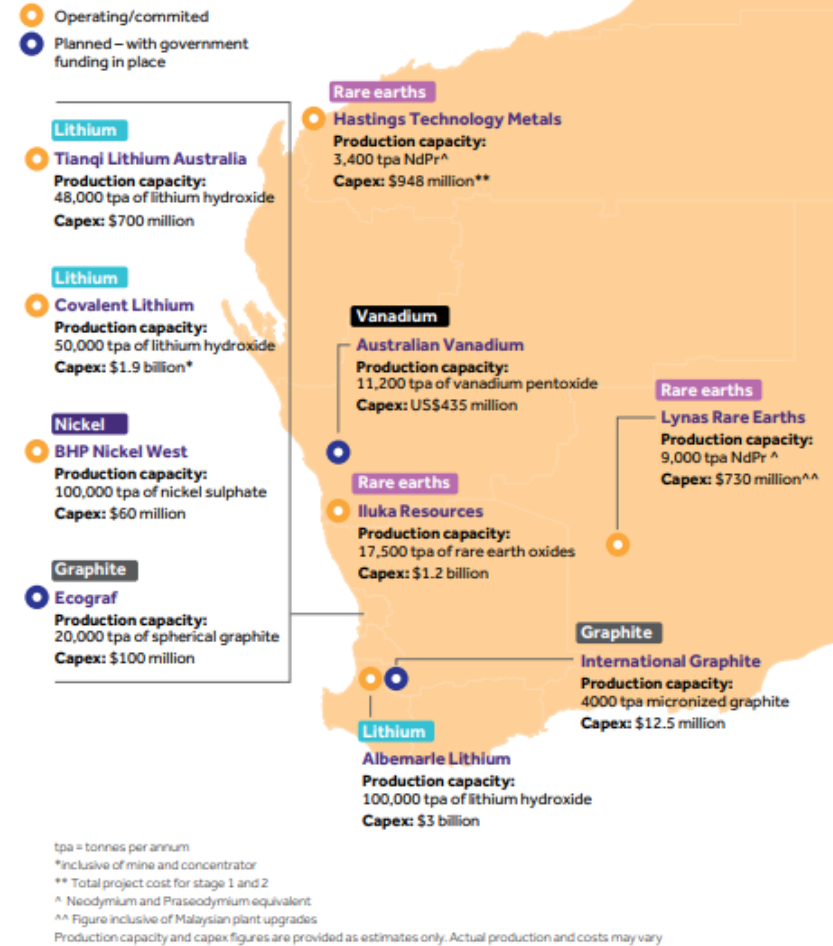
## Project selection process –example

Step	Filter	Count: lithium	Count: cobalt
1. Identify project universe		79	197
2. Develop the long list	Project stage (resource/reserve defined but not reached FID)	72	39
3. Develop the short list	Offtake available on a 3-to-5-year time frame to first production and acceptable project economics	16	23
4. Develop the priority list	Evaluate the short list against technical, ownership, project and commercial factors, financials, ESG and regulatory	5	3

Source: Closing the gap between Australia's vast mineral endowment and its investable critical mineral projects, PwC 2024

\* Projects listed based on recent company disclosures. It does not constitute an endorsement by Geoscience Australia

## Western Australia's key midstream investments



# Integration with Renewable Energy & Infrastructure

## Existing capacity

15 operating wind farms with a capacity of more than 1GW

2 solar farms with a capacity of 192MW

Rooftop solar capacity of 1.35GW

## New capacity

500MW - solar under construction

26MW – Australian Renewable Energy Hub

11GW - 4,000km<sup>2</sup> offshore wind zone

Albany M4 Wave Energy Demonstration Project

## Infrastructure investments

CMAA –\$200M Critical Minerals Common User Facility

Collie battery storage system – 500MW

\$374M port infrastructure funding





# Exploration, Innovation and Research Development

## Research & Innovation Initiatives

Cooperative Research Centres



Mineral Research Institute of Western Australia - MRIWA

Education programs, Ph.D. funding

Existing projects: DLE, electrometallurgy, use of tailings

More than 400 completed projects



## Universities

Edith Cowan University – Mineral Recovery Research Centre

University of Western Australia – Centre for Exploration Targeting

Curtin University – WA School of Mines

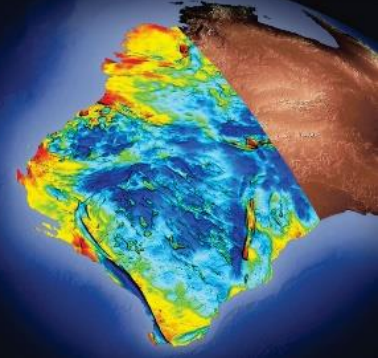


# Exploration, Innovation and Research Development

**Program initiated 2009 –Awarded \$215M since inception**

- ✓ Stimulate greenfield exploration
- ✓ Increase knowledge
- ✓ New discoveries

**E**XPLORATION  
**I**NCENTIVE  
**S**HEME

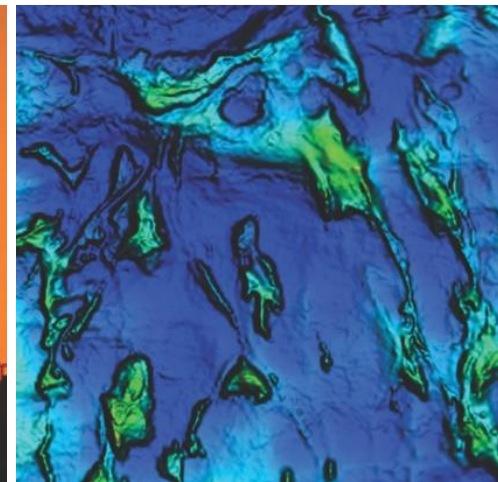


Co-funding scheme  
50% refund (capped values)  
3 programs  
Competitive process

Exploration drilling



Geophysics



Energy Analysis

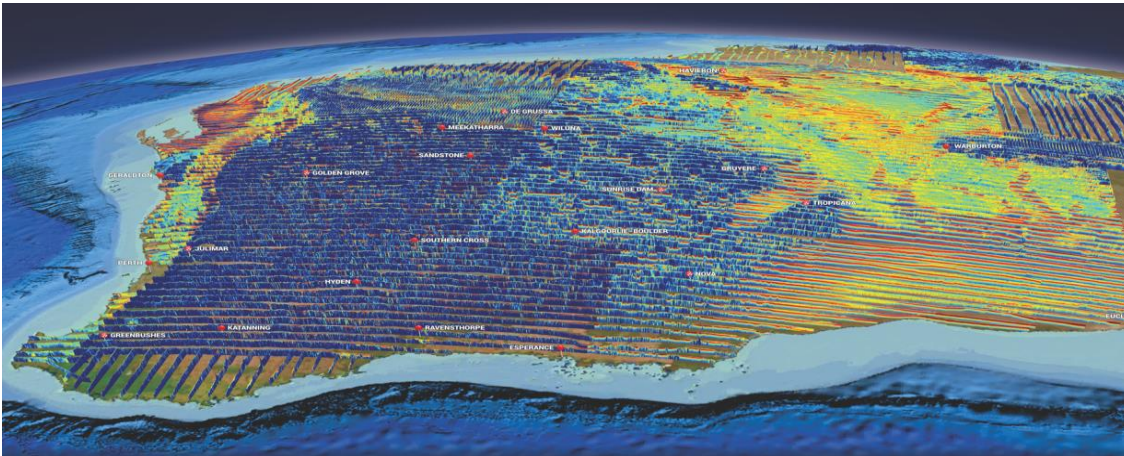


# Government and industry collaboration

Feedback from industry is essential to develop an efficient government agencies

## what we heard

- Delayed approvals
- Security of Tenure
- Better infrastructure
- More data



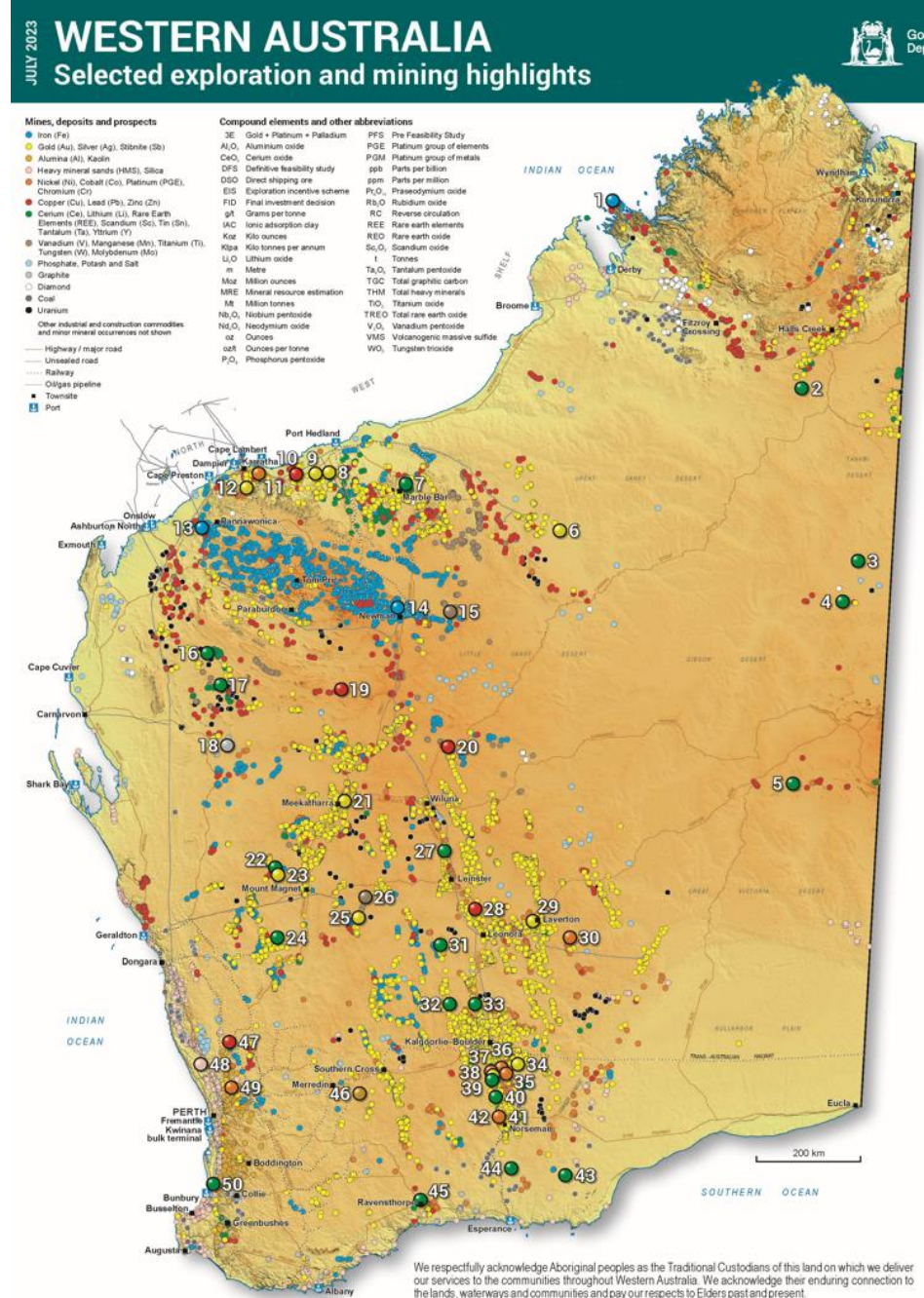
## What we are doing

- ✓ Environmental Protection Act Amendment Bill 2024 introduced to Parliament
- ✓ Expedite mining approvals: Wait times for Program of Work applications cut by more than 50 per cent
- ✓ Draft mining legislation to ensure security of mining tenure and address key industry issues
- ✓ Major investments in port infrastructures
- ✓ Ongoing pre-competitive data sharing
- ✓ Significant funding support from the Federal government for critical mineral projects



# The Western Australia advantage

- ✓ Resource-rich state
- ✓ Our resource sector success is underpinned by
  - ✓ the provision of world class geoscience data
  - ✓ a robust regulatory and tenure system
  - ✓ low sovereign risk
  - ✓ a highly skilled workforce
  - ✓ An emerging mid-stream processing industry
  - ✓ Strong government support at both state and federal levels



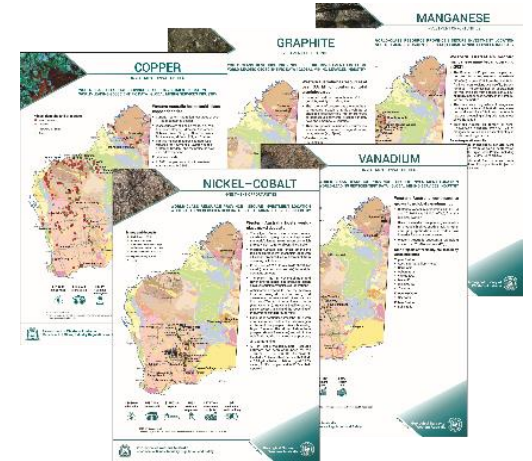
# Questions?

- Contact us:
  - [www.demirs.wa.gov.au](http://www.demirs.wa.gov.au)
  - [Minerals.Investor@demirs.wa.gov.au](mailto:Minerals.Investor@demirs.wa.gov.au)
- Contact person:



- Dr. Charlotte Hall – General Manager Investment
- [Charlotte.HALL@demirs.wa.gov.au](mailto:Charlotte.HALL@demirs.wa.gov.au)
- +61 8 9222 3410

## Information on commodities



## Legislation and compliance



Icons by Freepik <https://www.freepik.com>





[DEMIRS.WA.GOV.AU](http://DEMIRS.WA.GOV.AU)

Thank you for listening, please look us up!



# AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

## Thank you

**Dr Charlotte Hall**  
General Manager Investment  
Department of Energy, Mines, Industry Regulation and Safety



Department of  
Mines, Industry Regulation  
and Safety

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# AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

## New South Wales Mining Investment Opportunities

Tomohito Tanase | Associate Director  
Investment NSW - North Asia



Japan—Australia Mineral Resources Investment Seminar | 27 Sep 2024 | #AustraliaMinerals

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# NSW Outline

- State Capital : Sydney
- Population : 8.5 million
- Land : 800,000 km<sup>2</sup>
- GST : approx. 700bil. A\$  
\*More than 30% of AUS GDP
- Main Industry : Energy, Mining, Banking etc
- Annual Export : 96bil. AU\$
- Annual Import : 164bil. AU\$  
\*Japan is the largest trading partner for NSW.
- The State's credit rating : AAA (Moody's)



***Biggest Population & Economy  
in Australia***

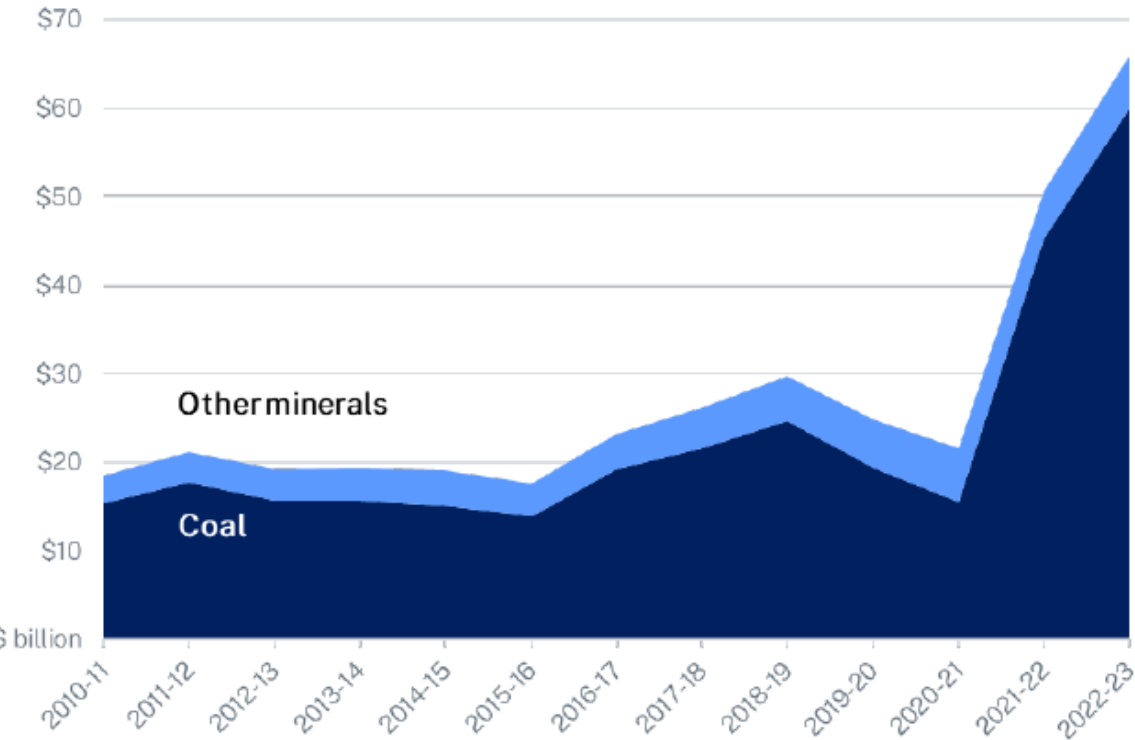


# Mining Industry in NSW

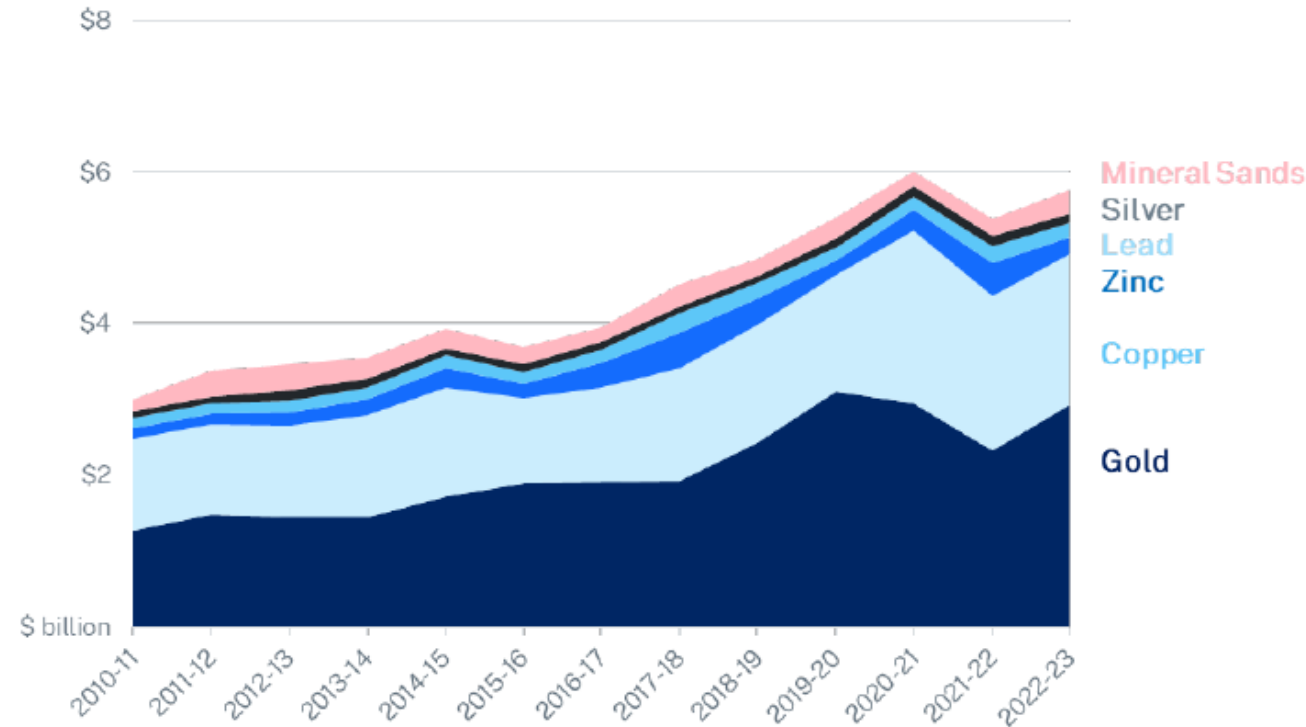
\* 70% of export value in NSW is coal

\* 50% of coal produced in NSW is exported to Japan

Value of NSW mining production

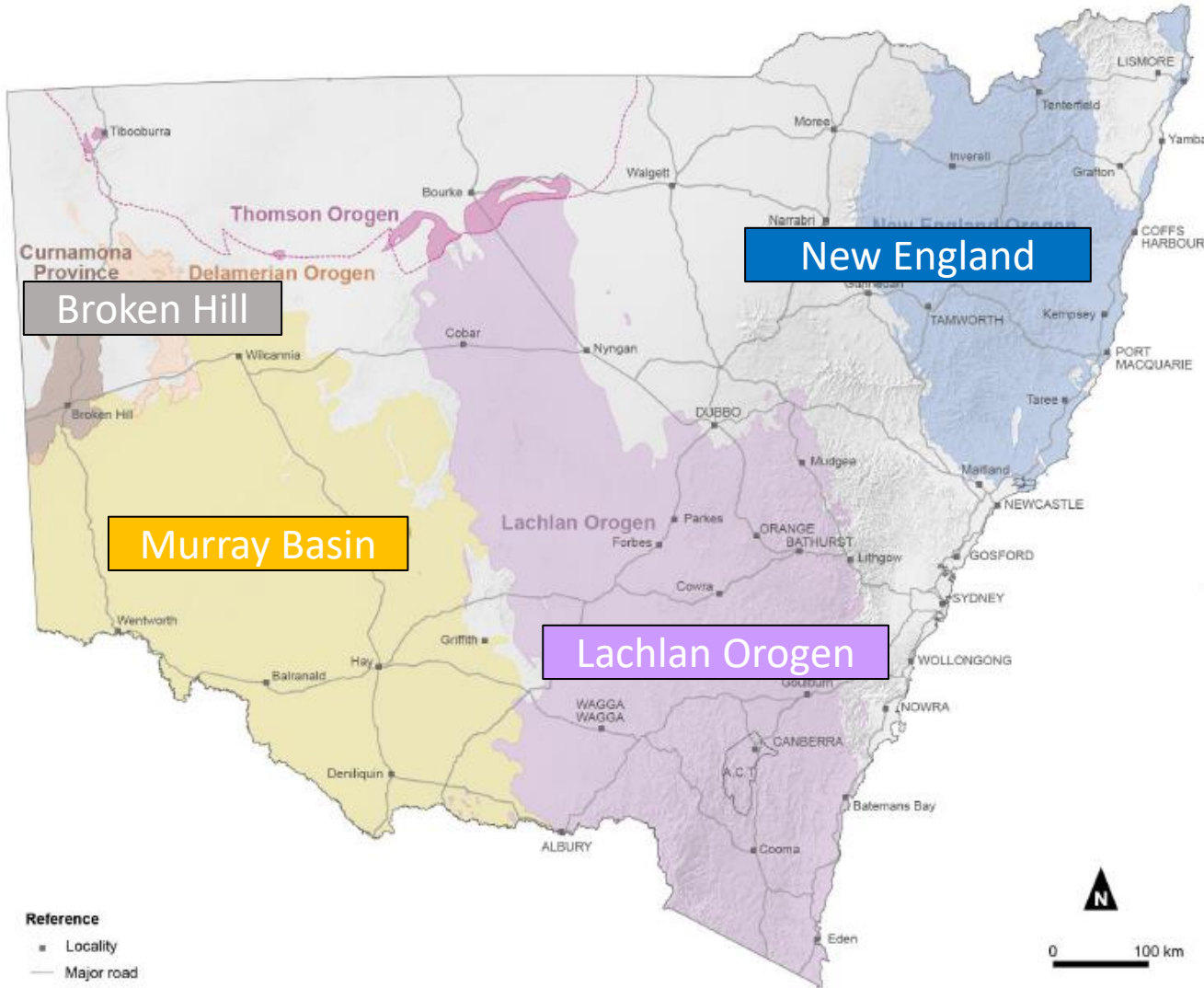


Non-coal minerals, top 6



**Coal** has the major proportion of mining production value in NSW. NSW government has been promoting the growth of **metal resources** including **critical minerals**.

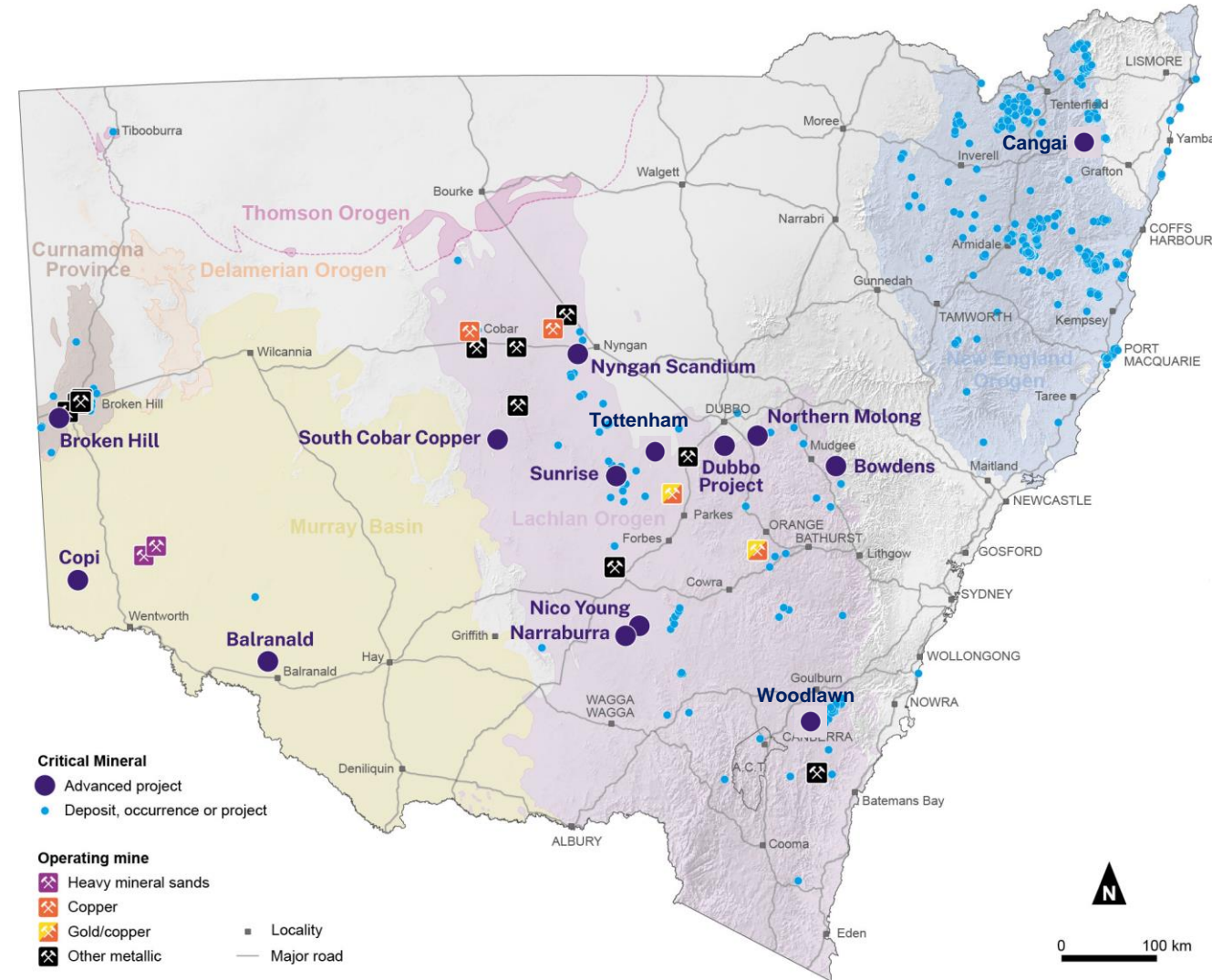
# Mining Regions in NSW



New England	Lachlan Orogen	Murray Basin	Broken Hill
Coal <u>Cobalt</u> Scandium Antimony Tungsten Indium PGE High-purity Alumina	<u>Nickel</u> <u>Cobalt</u> <u>Rare Earth</u> <u>Copper</u> Gold Silver Lead Zinc Molybdenum Niobium Hafnium Indium Bismuth Magnesium PGE Scandium Tantalum Tungsten Zirconium Alumina	Titanium Zirconium <u>Rare Earth</u>	<u>Cobalt</u> Tungsten PGE Silver Lead Zinc

# Approved and developing critical minerals and high-tech metals projects

Project	Company	Stage	Minerals
Sunrise Battery Materials	Sunrise Energy Metals	Approved	<u>Co</u> , <u>Ni</u> , Sc
NiCo Young	Jervois Resources	Advanced Exploration	<u>Co</u> , <u>Ni</u>
Broken Hill Cobalt	Cobalt Blue	DFS	<u>Co</u>
Dubbo Project	Australian Strategic Materials	Approved	<u>REE</u> , Zr, Nb, Hf, Ta
Narraburra	Godolphin Resources	Advanced Exploration	<u>REE</u>
Balranald	Iluka Resources	Approved	Ti, Zr, <u>REE</u>
Copi	RZ Resources	BFS	Ti, Zr, <u>REE</u>
Northern Molong	Alkane Resources	Advanced Exploration	<u>Cu</u> , Au
South Cobar Copper	Peel Mining	PFS	<u>Cu</u> , Au, Zn, Pb, Ag
Woodlawn	Develop Global	FS	<u>Cu</u> , Au, Zn, Pb, Ag
Tottenham Copper-Gold	Locksley Resources	Advanced Exploration	<u>Cu</u> , Au, Ag
Cangai Copper	Castillo Copper	Advanced Exploration	<u>Cu</u> , Au, Zn, Ag

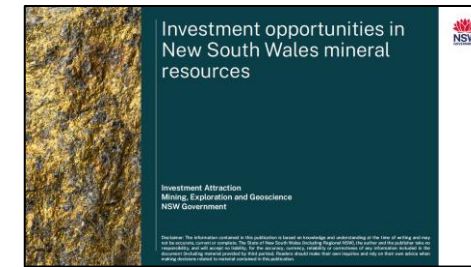




# Project List

\* Latest status of each project should be confirmed.

\* Please contact us if you are interested in any projects. We will confirm project details and investment/offtake opportunities.

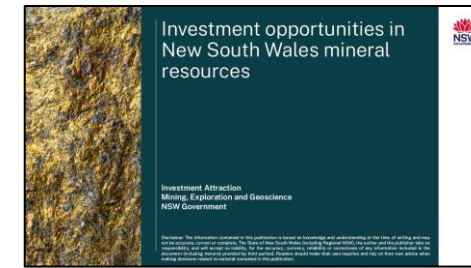


Company	Project	Listed	Project Status	Project Stage	Au	Cu	Ni	Co	REE	Ag	Zn	Pb	Zr	Mineral Sands	Others	Resource	Mining Method
Sunrise Energy Metals	Sunrise Battery Materials Complex	SRL	Approved Development	Seeking finance & offtake			☉ 935kt	○ 168kt							Pt 1,084koz Sc 24.7kt	177Mt	Open Cut
Jervois Global	NiCo Young	JRV	Advanced Exploration	Prepare for BFS			☉ 0.63%	○ 0.05%								93.3Mt	Open Cut
Cobalt Blue	Broken Hill Cobalt	COB	New or expansion project in development	- Seeking finance & offtake - Planning DFS			○ 15.7kt	☉ 81.1kt							S 8,968kt	118Mt	Open Cut
Australian Strategic Materials	Dubbo	ASM	Approved Development	Seeking finance & offtake					☉ 0.14% Y2O3 0.74% TREO				○ 1.89% (ZrO2)		0.04% (HfO2) 0.03% (Ta2O5) 0.44% (NbO5)	75.18Mt	Open Cut
Godolphin Resources	Narraburra REE	GRL	Advanced Exploration	Advanced Exploration					☉ 739ppm TREO							94.9Mt	-
Iluka Resources	Balranald Mineral Sands	ILU	Approved Development	DFS completed									☉ 11%	☉ HM 31.2% Ilmenite 63% Rutile 12%	Monozite Xenotime 0.9% (combined)	54Mt	Open Cut

# Project List

\* Latest status of each project should be confirmed.

\* Please contact us if you are interested in any projects. We will confirm project details and investment/offtake opportunities.



Company	Project	Listed	Project Status	Project Stage	Au	Cu	Ni	Co	REE	Ag	Zn	Pb	Zr	Mineral Sands	Others	Resource	Mining Method
RZ Resources	Copi Mineral Sands	Private	New or expansion project in development	- Seeking finance & offtake - Proceeding Approvals - DFS completed									☉ 15% (%HM)	☉ Ilmenite 45% Rutile 15% (%HM)	Monozite 1% Xenotime 0.1% Leucoxene 9% (%HM)	2,540Mt	Open cut wet dredge
Alkane Resources	Northern Molong Porphyry - Boda & Kaiser deposits	ALK	Advanced Exploration	Advanced Exploration	☉ 0.52g/t AuEq	○ 1.38Mt										894Mt	-
Peel Mining	South Cobar Copper: - Mallee Bull - Wirlong	PEX	Advanced Exploration	- Seeking finance & offtake - Advanced Exploration - Planning PFS	○ 0.22g/t	☉ 1.85%				○ 18g/t	○ 0.10%	○ 0.12%				10.64Mt	Underground
Develop Global	Woodlawn Copper-Zinc Mine	DVP	New or expansion project in development	- Care & Maintenance - Resume FS	○ 0.5g/t	☉ 1.8%				○ 46.0g/t	☉ 5.8%	○ 2.1%				11.3Mt	Underground & Open cut
Locksley Resources Limited	Tottenham Copper-Gold	LKY	Advanced Exploration	Advanced Exploration	☉ 0.22g/t	☉ 0.72%				○ 2g/t						9.86Mt	-
Castillo Copper	Cangai Copper	CCZ	Advanced Exploration	Advanced Exploration	○ 0.28g/t	☉ 2.45%				○ 14.9g/t	○ 0.6%				In -	4.6Mt	-

# NSW ambition in critical minerals



- The NSW Government is updating its Critical Minerals and High-Tech Metals Strategy in response to significant policy action nationally and internationally.
- New South Wales to be global supplier of sustained and secure critical minerals to strategic trade partners.
- The mining industry of New South Wales has been establishing long relationship with Japan in terms of resources such as coal. We aim to establish important relationship with Japan on critical minerals as well.



# NSW Government support

- Mine development proposals must obtain approval under NSW legislation\* before a mining lease can be granted to mine for mineral and coal resources in NSW
- All mine-related impacts need to be considered – economic, environmental, social, cultural
- Community consultation, including engagement with relevant Aboriginal/Indigenous groups is essential during the assessment process

## NSW Government support to mine development proponents (includes, but not limited to)

Dept. Planning, Housing & Infrastructure	NSW Resources (mines department)
<p>Coordinates a whole-of-government (State, Commonwealth, Local) assessment of the impacts of mining projects</p> <p>Provides comprehensive and clear guidelines for proponents to improve their environmental assessments:</p> <ul style="list-style-type: none"> <li>• Engagement Guidelines</li> <li>• Cumulative Impact Assessment Guidelines</li> <li>• Social Impact Assessment Guidelines</li> <li>• How to engage with Indigenous/Aboriginal community groups and landowners' guidelines</li> </ul>	<p><b>NSW Mining Concierge</b></p> <ul style="list-style-type: none"> <li>• Inform exploration and mining companies of the various project approvals requirements and processes in NSW</li> <li>• Facilitate connections with NSW Government agencies, and between all tiers of government in Australia to address water, transport, biodiversity, Native Title claims</li> </ul> <p><b>Assessment &amp; Titles</b></p> <ul style="list-style-type: none"> <li>• Assesses applications for exploration and mining permits – advising proponents on requirements</li> <li>• Specialised Native Title team – advises on land ownership and Right to Negotiate process</li> </ul>

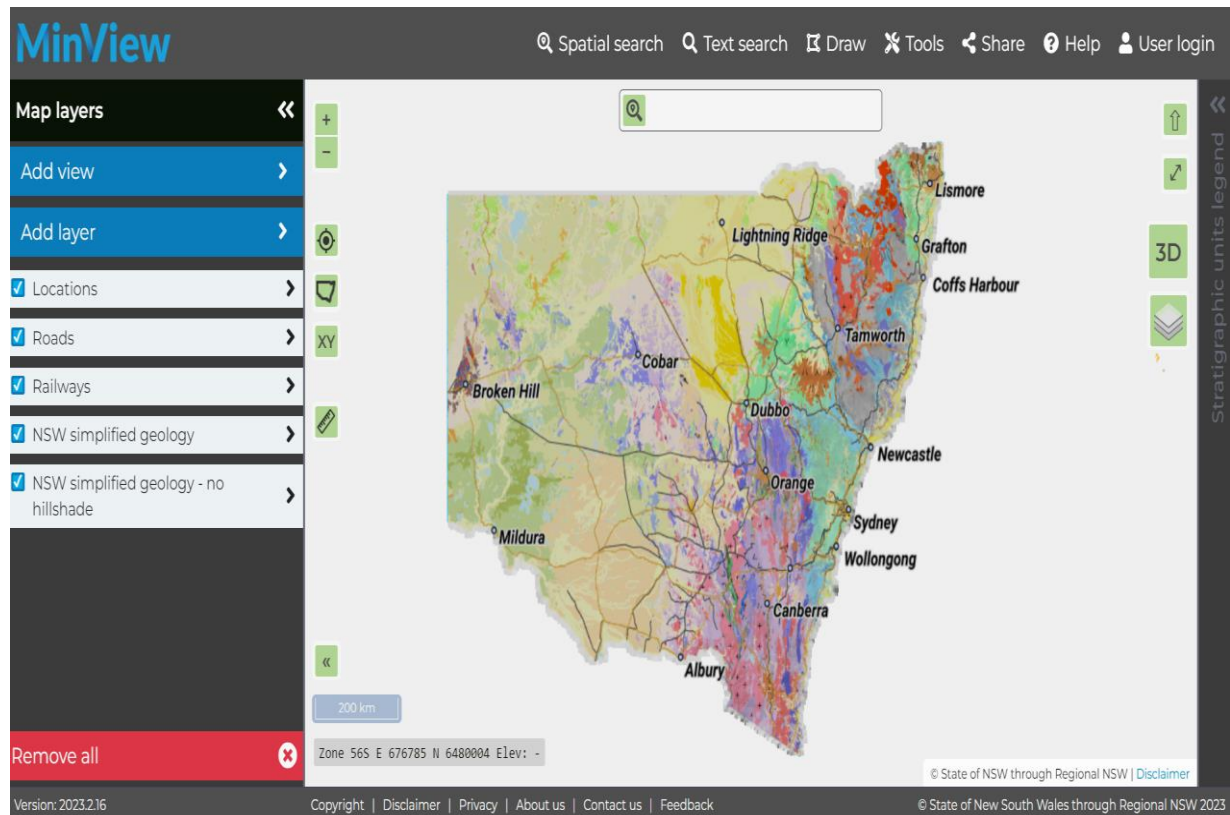
\* Mine proposals may also require Commonwealth Government or Local Government approvals (subject to project size, value, significance/importance)

# Promote Metal Resources Exploration

## MinView

<https://minview.geoscience.nsw.gov.au/#/?lon=148.5&lat=-32.5&z=7&l=>

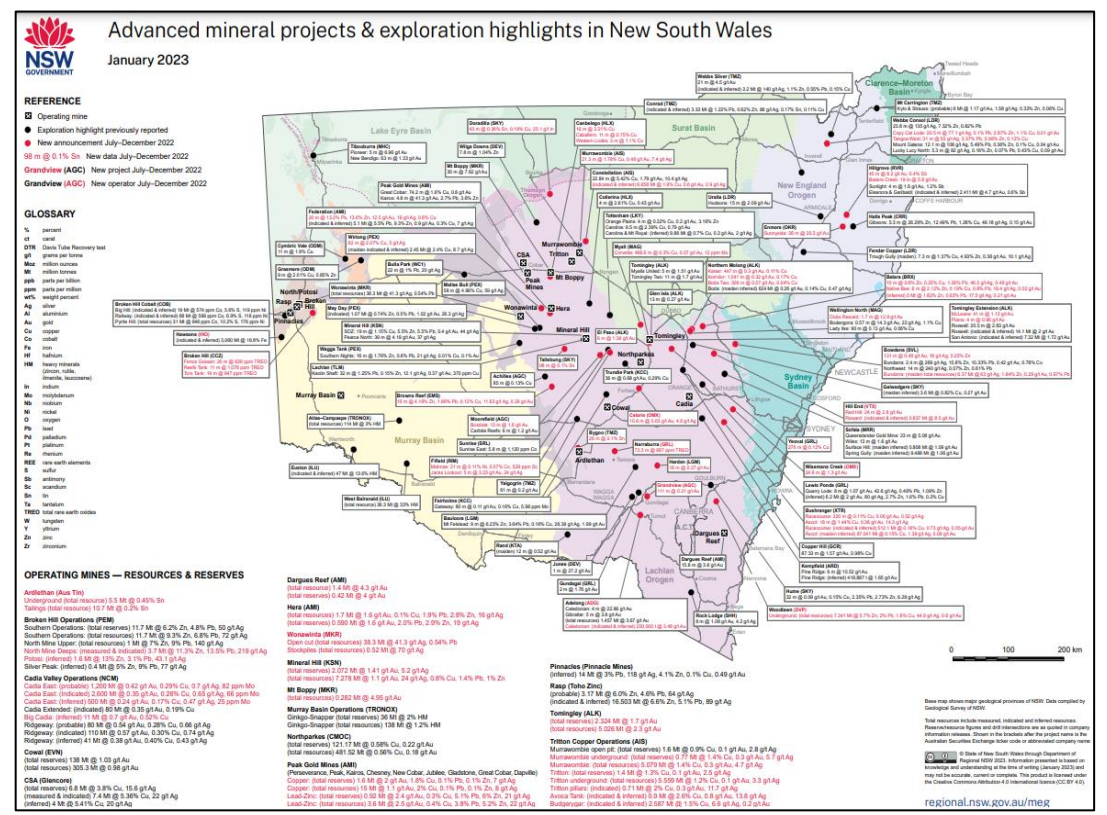
- ✓ Geoscientific data in NSW
- ✓ Infrastructure information (Road & Rail etc)



## DIGS

<https://search.geoscience.nsw.gov.au/>

- ✓ Geological document archives
- ✓ Update every 6 month (minerals, quantity etc)



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## For further information

### **Tomohito Tanase**

Associate Director

Investment NSW – North Asia

9F Kyobashi Trust Tower, 2-1-3 Kyobashi, Chuo-ku, Tokyo, 104-0031 JAPAN

E: [tomohito.tanase@investment.nsw.gov.au](mailto:tomohito.tanase@investment.nsw.gov.au)

<https://www.investment.nsw.gov.au/>

[www.regional.nsw.gov.au/meg](http://www.regional.nsw.gov.au/meg)



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## Thank you

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Investment NSW - North Asia



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