



**RESOURCING  
THE TERRITORY**

**Northern Territory Geological Survey**

Department of MINING AND ENERGY

# Diverse Critical Minerals Discoveries and Opportunities in the Northern Territory

**Ian Scrimgeour**

Senior Executive Director, NT Geological Survey

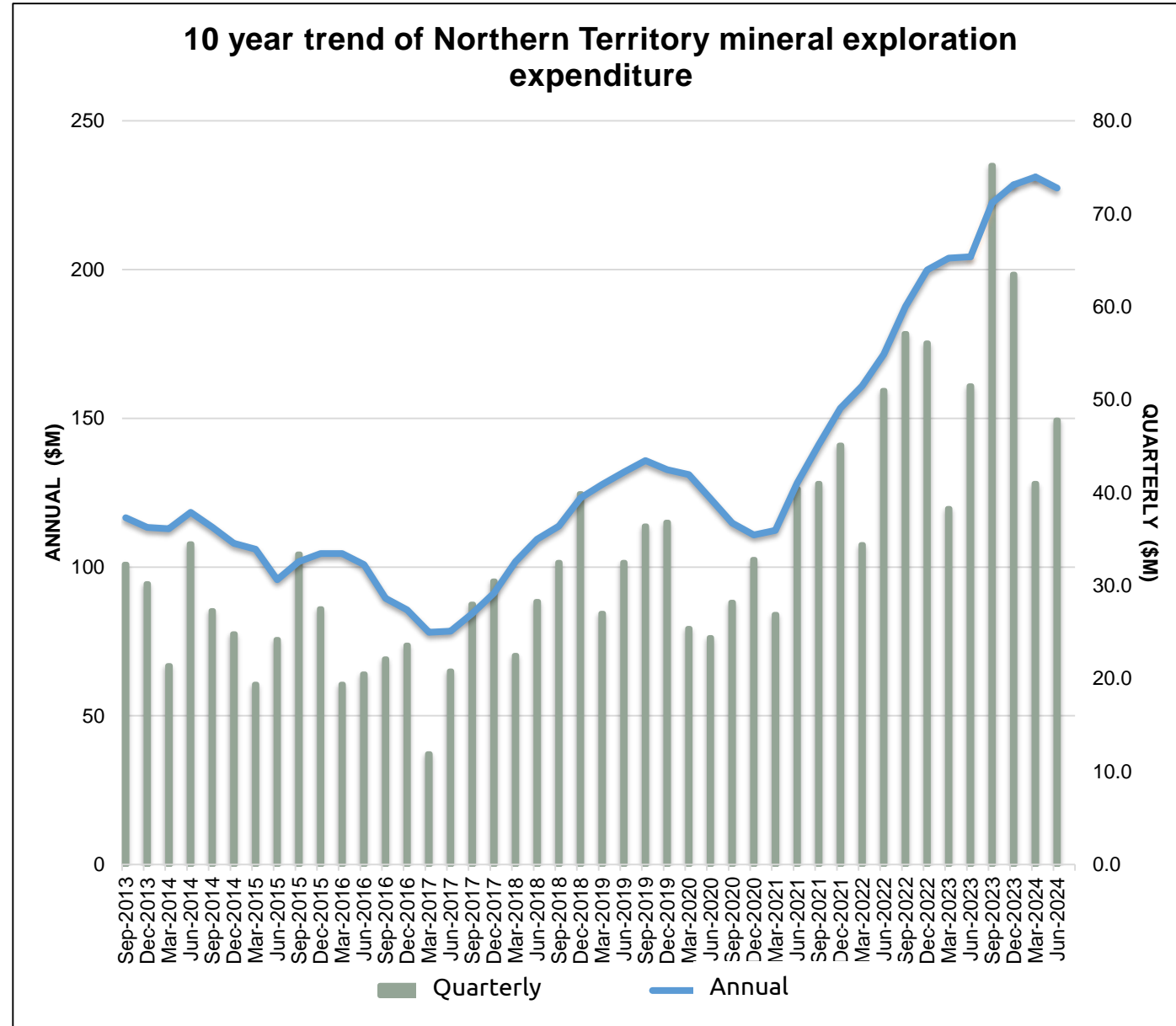
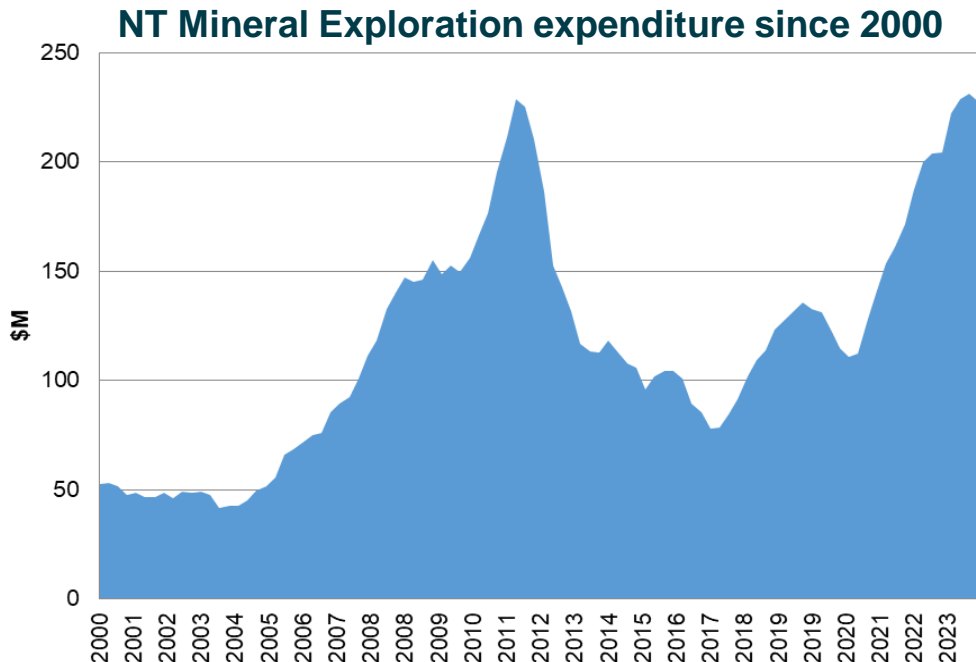
**IMARC**

**29 October 2024**

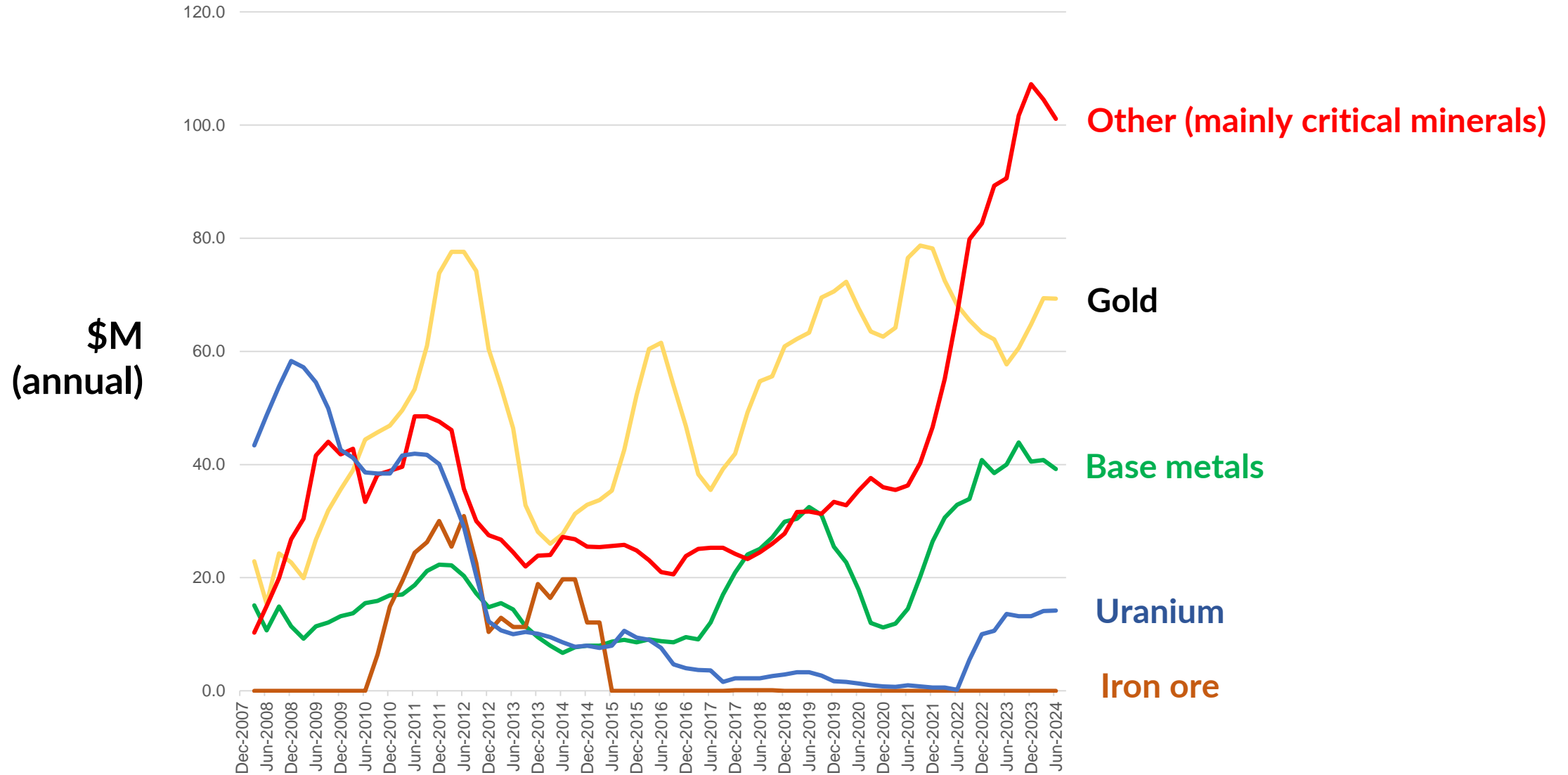


# NT mineral exploration expenditure

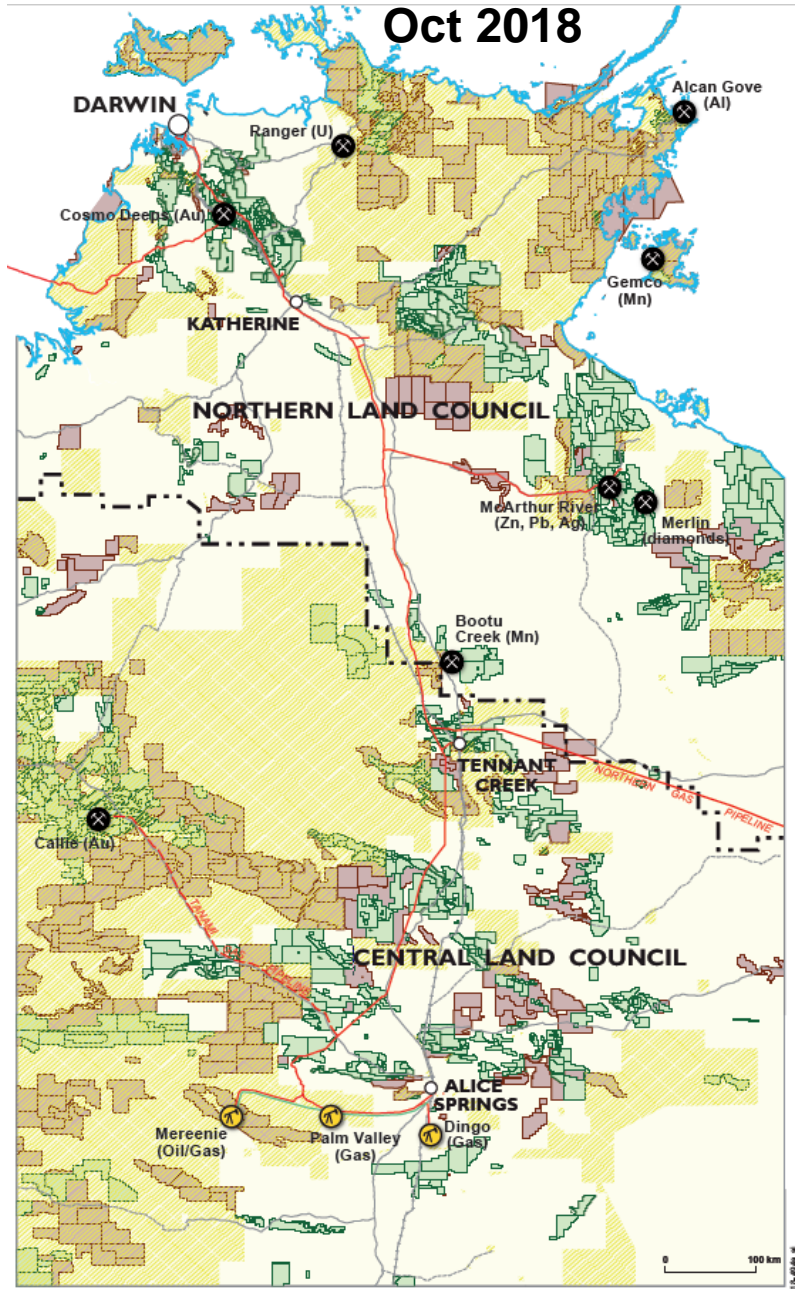
- Mineral exploration expenditure is at record levels
- \$227.4 million spent in 2023/24
- Growth led by critical minerals (lithium, rare earths), copper and uranium



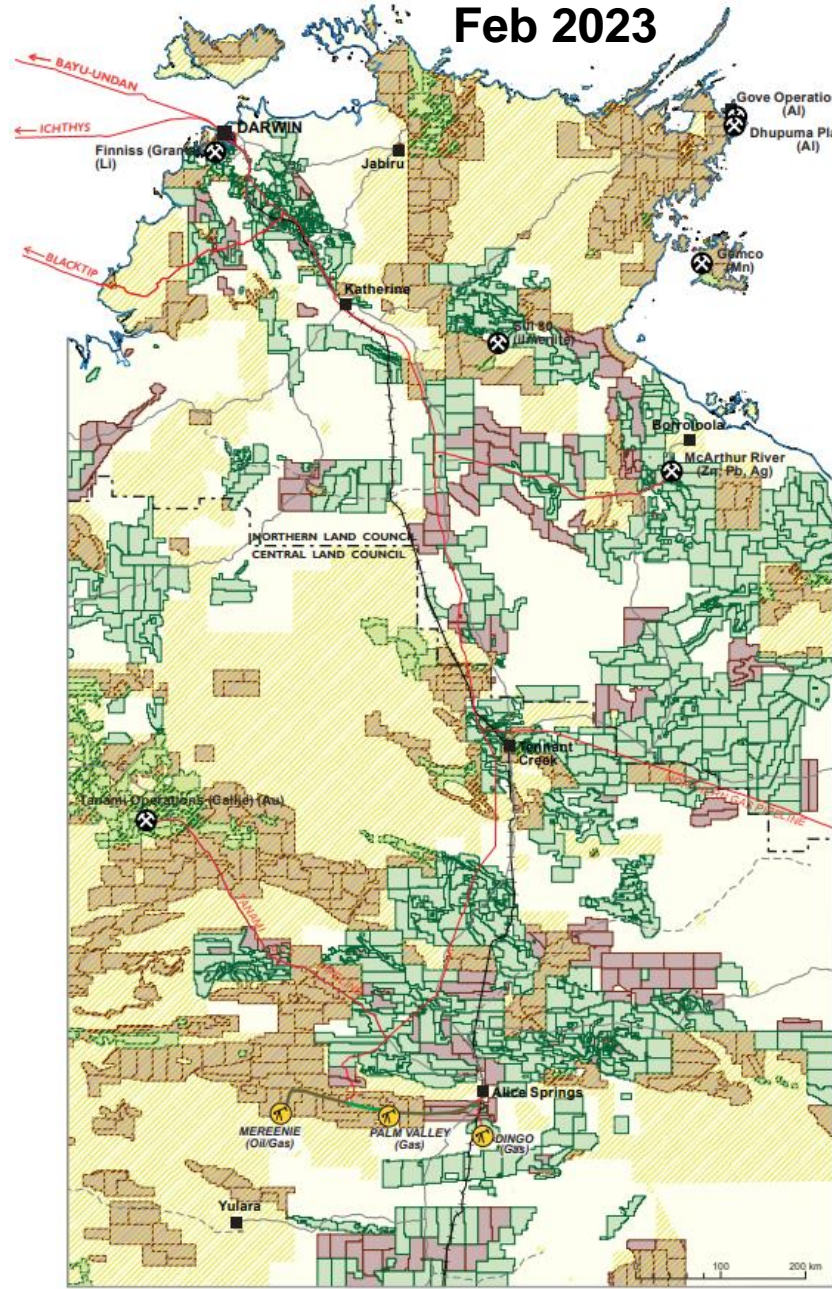
# NT mineral exploration by commodity since 2008



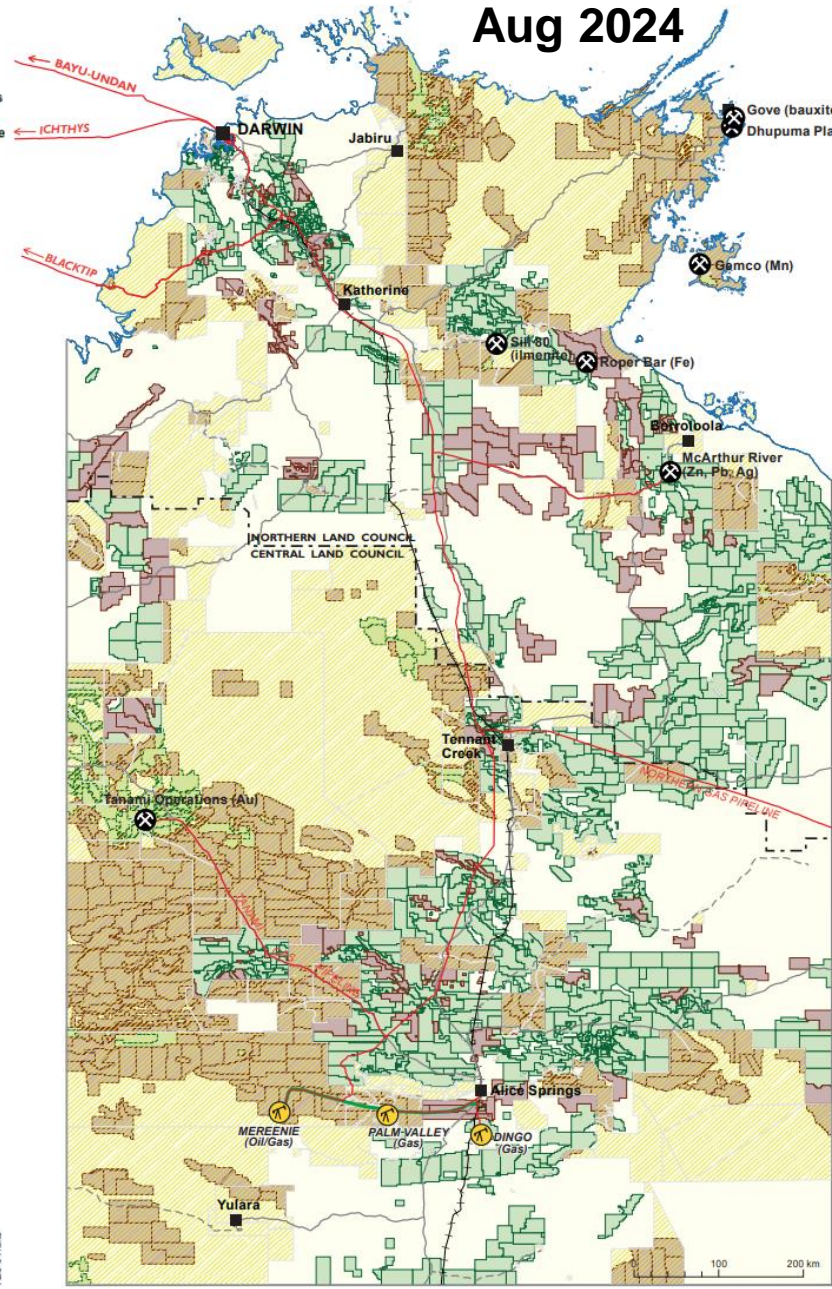
Oct 2018

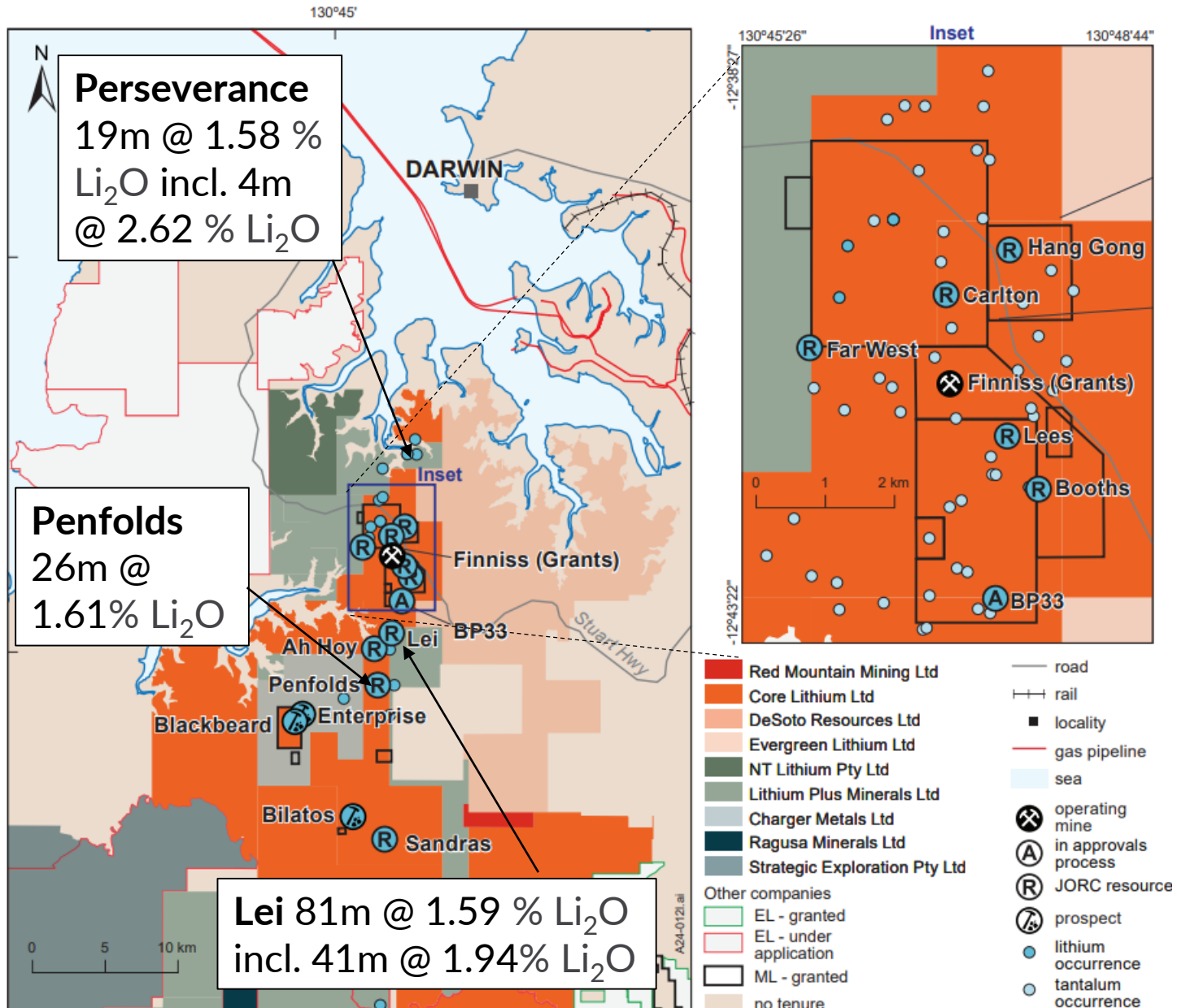


Feb 2023



Aug 2024





**Core Lithium Ltd – Finniss**

- Mining suspended following 85% fall in spodumene price – entered temporary care and maintenance in June 2024
- 250% increase in contained Li since start of 2023
- Combined Finniss Mineral Resource upgraded to **48.2 Mt @ 1.26% Li<sub>2</sub>O**
- BP33 upgraded to 10.5Mt @ 1.53% Li<sub>2</sub>O
- Lees-Booths now 14.5Mt @ 1.11% Li<sub>2</sub>O



**Lithium Plus Minerals Ltd – Lei**

New resource defined December 2023

**4.1 Mt @ 1.43% Li<sub>2</sub>O**

# Lithium PLUS MINERALS

High-grade resource defined at Lei



## Ragusa Minerals

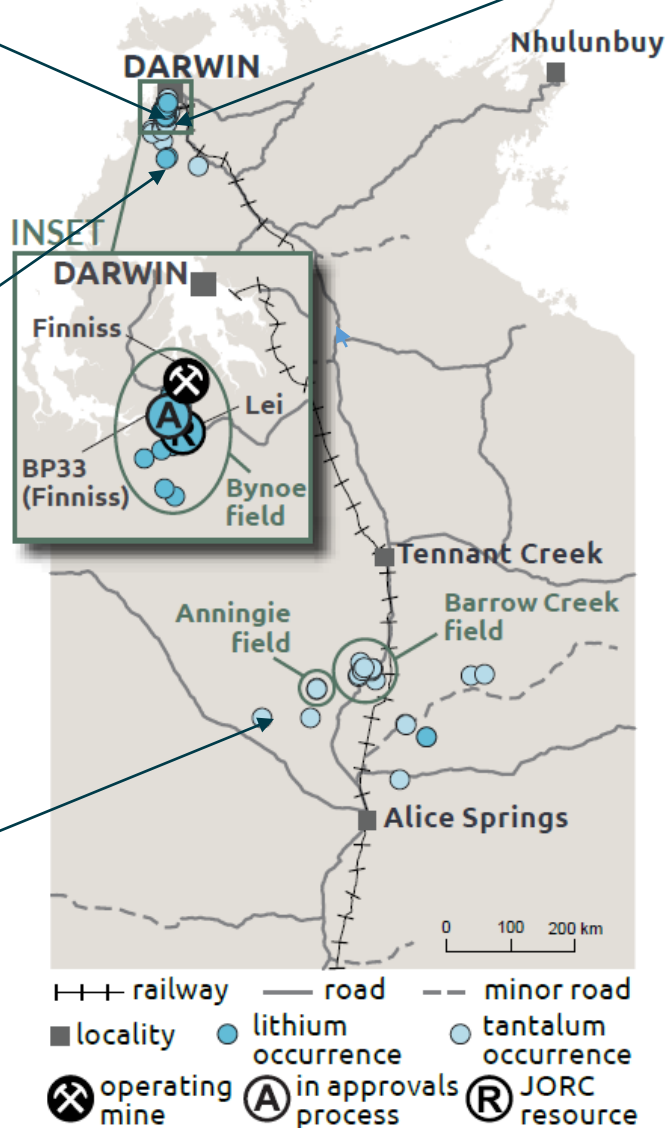
Drilling of pegmatites south of Daly River – up to 0.77% Li<sub>2</sub>O



ASX: ITM

Spodumene pegmatites discovered at Mt Stafford tin field

## Current lithium exploration



Drilled 12,000 m of Li exploration in 2023



Drilling of pegmatites underway in eastern Bynoe field



AUSTRALASIAN METALS



<sup>60</sup>  
Nd

<sup>59</sup>  
Pr

Rare earth elements

## Arafura Rare Earths - Nolans NdPr project

- World-class resource of magnet-feed rare earths (NdPr), 130 km N of Alice Springs
- On-site downstream processing to produce separated rare earths (including NdPr oxide)
- Binding offtakes with Siemens Gamesa, Hyundai Motor Co and Kia;
- Debt funding now secured –US\$1.05B debt package including debt facilities from Euler Hermes (Germany), KEXIM (South Korea), Export Development Canada, Northern Australia Infrastructure Facility and Export Finance Australia.
- Approvals in place, targeting FID late 2024, enabling construction works completed in 2023
- Preliminary study completed on Phase 2 expansion including processing of third party feedstocks



Other REE exploration in Aileron Province:

**Bubalus Resources Ltd** – Nolans East

**Metalsgove Mining Ltd** – Bruce and Plenty River

**Askari Metals Ltd** – Barrow Creek

# Emerging REE projects

## Western Aileron Province

REE in clay-rich saprolite overlying Southwark Granite

### **GSW Resources - Callista**

- 122 hole AC drilling program
- **18 m at 0.45% TREO** including 747 ppm NdPr oxide and 98 ppm DyTb oxide

### **URO Corp – Southwark Shear Zone**

- 21 hole AC drilling program
- 6m at 5229 ppm TREO with 20% NdPr
- Thick intervals of white kaolin clay

### **Energy Metals Ltd – Crystal Creek**

- 32 hole AC drilling program
- Thick intervals of white kaolinitic clay – assays pending

## Northern Barkly region

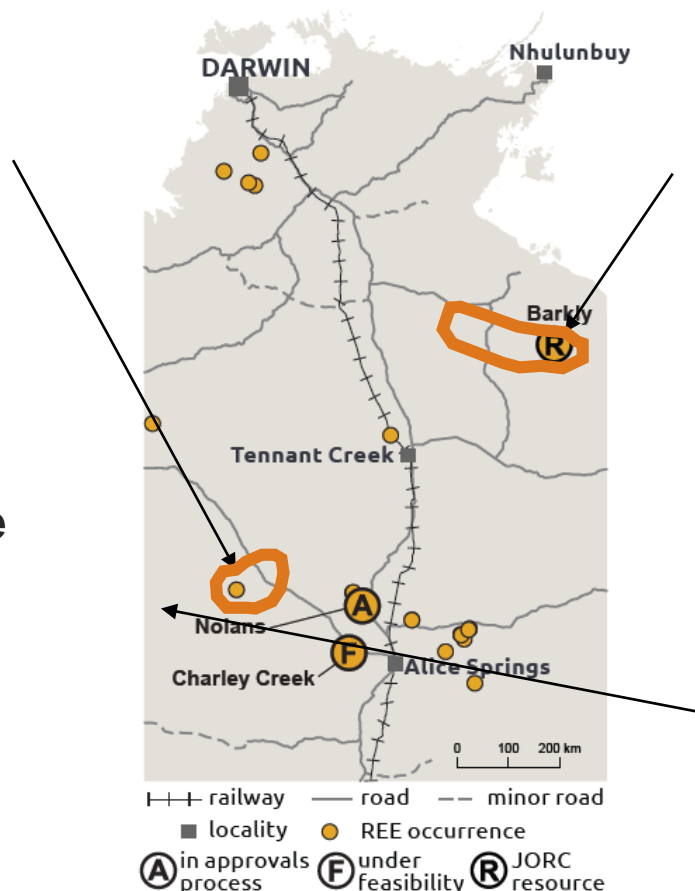
Rare-earths (+V-Ga) in regolith profile in Carpentaria Basin

### **Transition Minerals - Barkly**

- Newly discovered resource of NdPr-rich REE and V, Ga discovered through GDC co-funded drilling
- **40 Mt @ 0.21% TREO incl 690 ppm NdPr**
- **200 Mt @ 0.12% V<sub>2</sub>O<sub>5</sub>, 30ppm Ga**
- High recoveries of NdPr from metallurgical tests

### Carbonatite-hosted REE-Nb

Potential extensions of WA discoveries into western NT

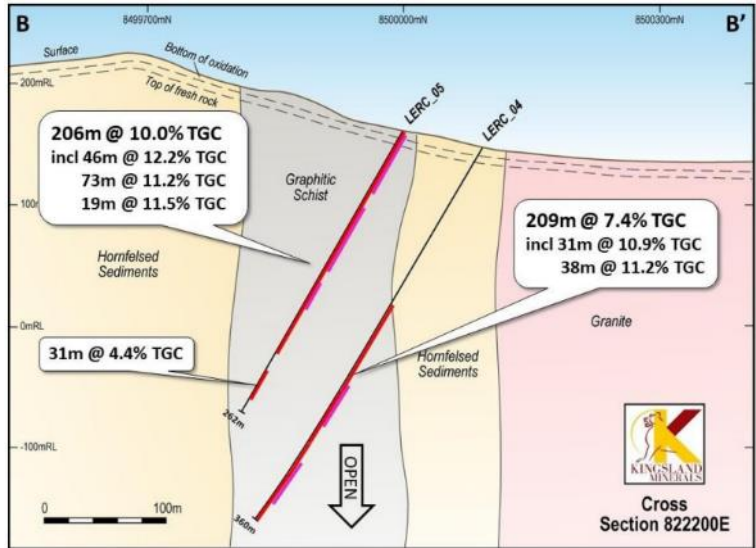


# Leliyn – Australia’s largest graphite deposit



- High grade graphite over substantial widths (eg 206m @ 10.0% TGC)
- Exploration Target 700-1100 Mt @ 7-8% TGC
- Flake size <150 microns, favourable for anode material
- Metallurgical testwork continuing

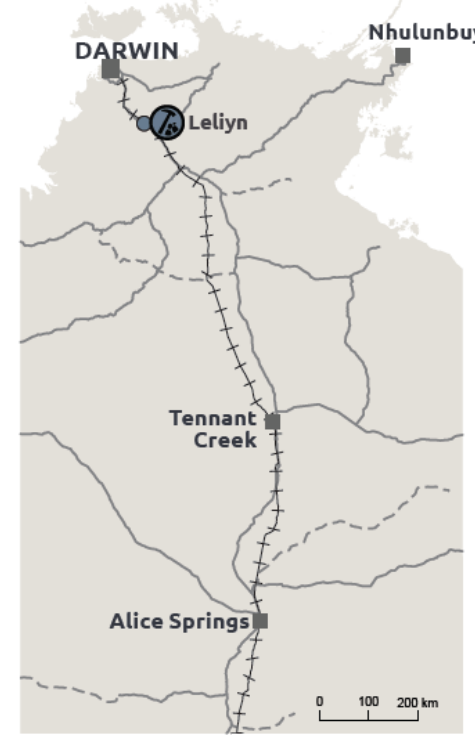
**Maiden Resource: 194.6 Mt @ 7.3% TGC**  
(14.2 Mt contained graphite)



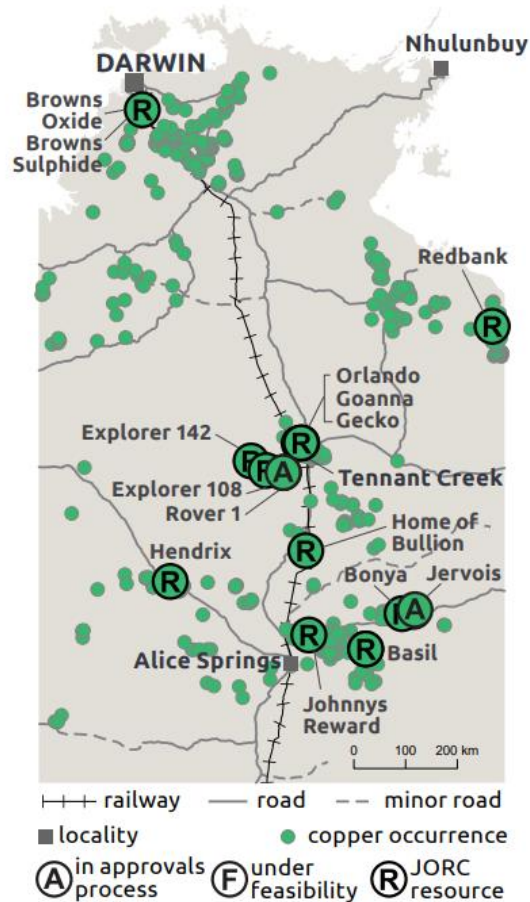
5 September 2023

**Bonanza intersection of 206m at 10% Graphite confirms Leliyn’s world-class potential**

Stunning result shows Leliyn boasts both scale and grade, positioning it to be a highly sought-after supplier to lithium battery industry



+++ railway    — road    - - - minor road  
 ■ locality    ● graphite occurrence  
 76 significant discovery

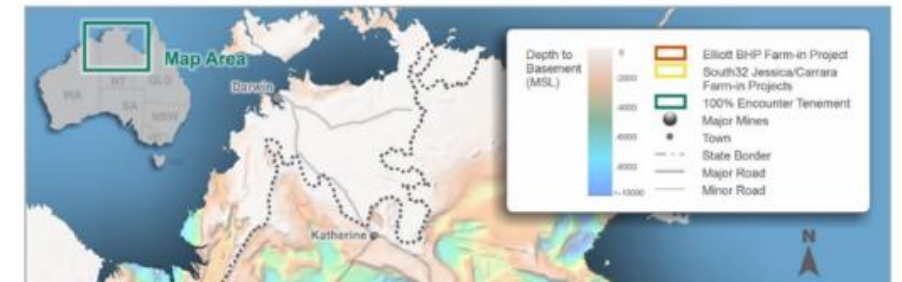


- Substantial emerging copper-gold-cobalt projects around Tennant Creek (**Castile Resources – Rover 1; Tennant Minerals – Bluebird**)
- Castile investigating option for copper-cobalt-gold plant at MASDP
- **KGL Resources** finalising revised BFS for **Jervois**; updated resource of 23.37 Mt @ 2.02% Cu, 26 g/t Ag, 0.26 g/t Au
- Substantial exploration ongoing in Barkly Tableland for sediment-hosted copper and iron-oxide copper-gold, including by **South32, Encounter Resources, Astute Metals, Middle Island Resources**

## Northern Territory: globally significant opportunity for copper

### Major exploration programs targeting Tier 1 discoveries in new areas

- New investment in pre-competitive Government data has transformed the exploration potential of the NT
- These new datasets are providing crucial early insights into areas prospective for sedimentary hosted copper deposits



# Other commodities



## Uranium

- Ongoing success for **DevEx Resources** at Nabarlek Nth
- **Alligator Energy, Deep Yellow** active in Arnhem Land
- **Patronus Resources** drilling *Thunderball*
- Exploration recommenced in central Australia



## Phosphate

- **Avenira Ltd** and **Verdant Minerals** progressing approvals for DSO operations in Barkly
- Avenira progressing planning for yellow phosphorus plant at **Wonarah**, and LFP cathode production at Middle Arm

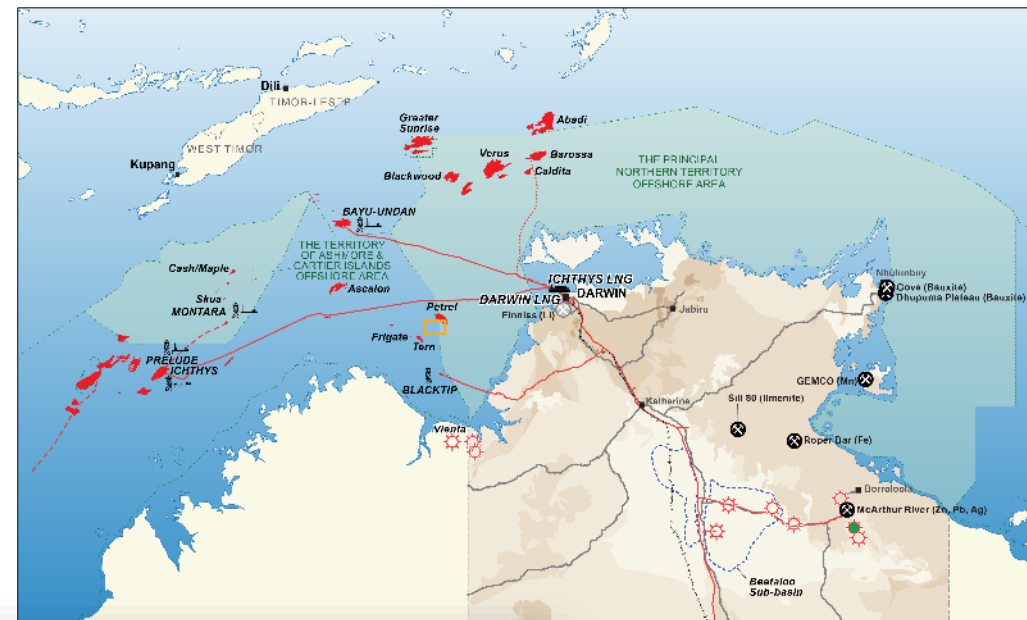


## Silica

- **Australasian Metals** reporting positive testwork for high purity silica (>99.9% SiO<sub>2</sub>) at **Dingo Hole** prospect in Barkly

# 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 – link to large-scale solar
- CCS from local/international sources; offshore geological storage



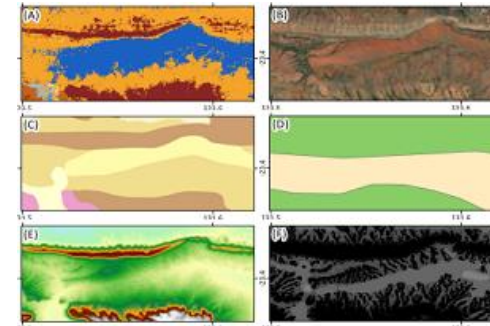
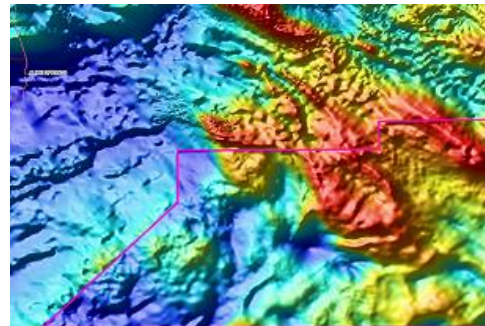
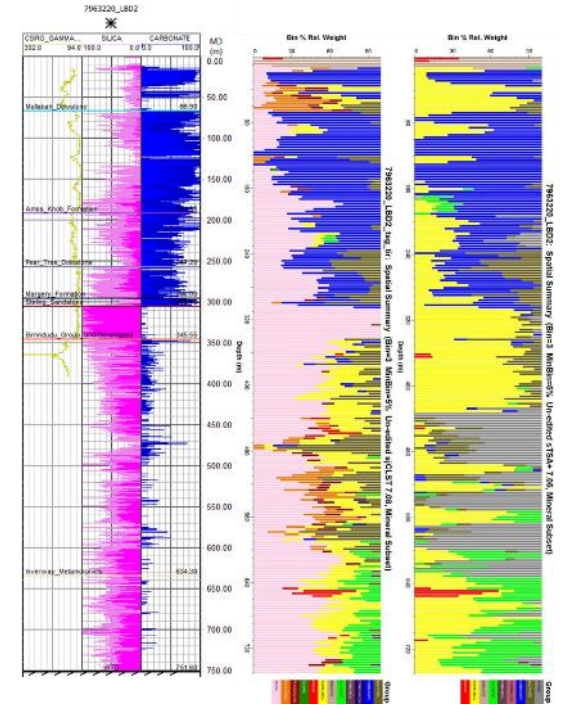
## Potential for

- Battery-grade thermal phosphoric acid and LFP cathode material (**Avenira Ltd**)
- Vanadium electrolyte facility and TIVAN™ plant (**Tivan Ltd**)
- Copper metal, cobalt sulphate and gold (**Castile Resources Ltd**)
- Other opportunities include spherical graphite, magnesium metal, lithium hydroxide/carbonate



### Strategic themes:

1. Providing competitive grants to stimulate exploration success
2. Accelerating resource development in known mineral provinces
3. Underpinning exploration success through enhanced geophysics
4. Attracting and supporting resource exploration in frontier areas
5. Applying geoscience to support a low emissions future
6. Modernising geoscience data to support a digitally enabled industry
7. Promoting the Territory's prospectivity and investment potential.



**SUCCESSFUL PROJECTS ROUND 17 (2024)**  
**GEOPHYSICS AND DRILLING COLLABORATIONS PROGRAM**

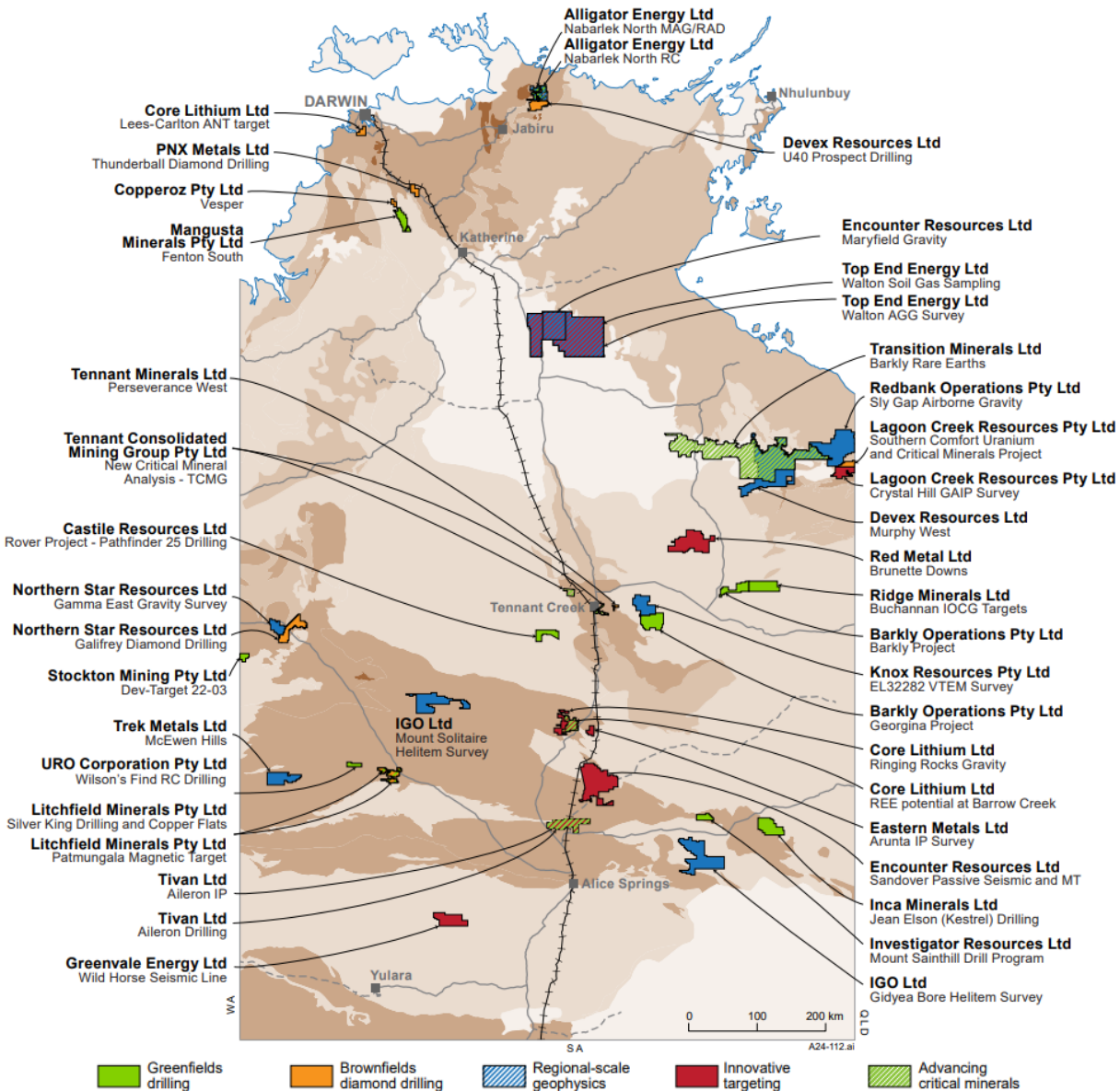
**RESOURCING  
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**Geophysics and Drilling Collaborations grants**

- Co-funds projects up to 50% of direct claimable project costs capped at specific amounts
- Largest allocation ever in 2024: 41 projects from 29 companies awarded exploration grants totalling \$4 million
- Program expanded to include early stage metallurgical testwork for critical minerals

**Round 18 (2025/26)**

- Applications open **26 Feb 2025**
- Closing date **28 April 2025**



Eligibility Categories	Capped co-funding amount
Greenfields drilling	\$200 000/\$150 000/\$100 000
Brownfields diamond drilling	\$150 000
Regional-scale geophysics	\$100 000/\$150 000
Innovative targeting	\$100 000
Advancing critical minerals	\$50 000

# 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](https://ages.nt.gov.au)

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**Supporting resource exploration in the Northern Territory**  
*Resourcing the Territory* is a \$9.5 million per annum ongoing program supporting mineral and petroleum exploration and development in the Territory through a range of geoscience and exploration stimulus programs.

Find out more

Latest news

- 3D dataset compilation across the Birrindudu Basin**  
12 Sep 2024  
NTGS has released Data Information Package (DIP) 043. It comprises open-file surface and
- NTGS will be at NT Resources Week**  
04 Sep 2024  
NTGS is presenting in the Mining the Territory program as part of NT Resources Week on 18 - 19 September at the Darwin
- Collaborative processed seismic data available in the underexplored western greater McArthur Basin**  
08 Jul 2024  
Geoscience Australia and the NT
- Record funding to boost exploration in the Territory**  
07 Jun 2024  
NTGS are pleased to announce the 41 successful projects for round 17 of the Geophysics and

Northern Territory Geological Survey  
Department of Industry, Tourism and Trade

**Critical Minerals in the Northern Territory 2024**

resourcingtheterritory.nt.gov.au

AUSTRALIA'S NORTHERN TERRITORY THE TERRITORY BOUNDLESS POSSIBLE

**RESOURCING THE TERRITORY**

Mining developments in the Northern Territory  
October 2024

Northern Territory Geological Survey  
Department of Mining and Energy

NORTHERN TERRITORY GOVERNMENT

**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)

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