



Australian Government  
Geoscience Australia

# Exploring for the Future

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Realising benefits  
for all Australians

Earth sciences for Australia's future | [ga.gov.au](http://ga.gov.au)



# About the program

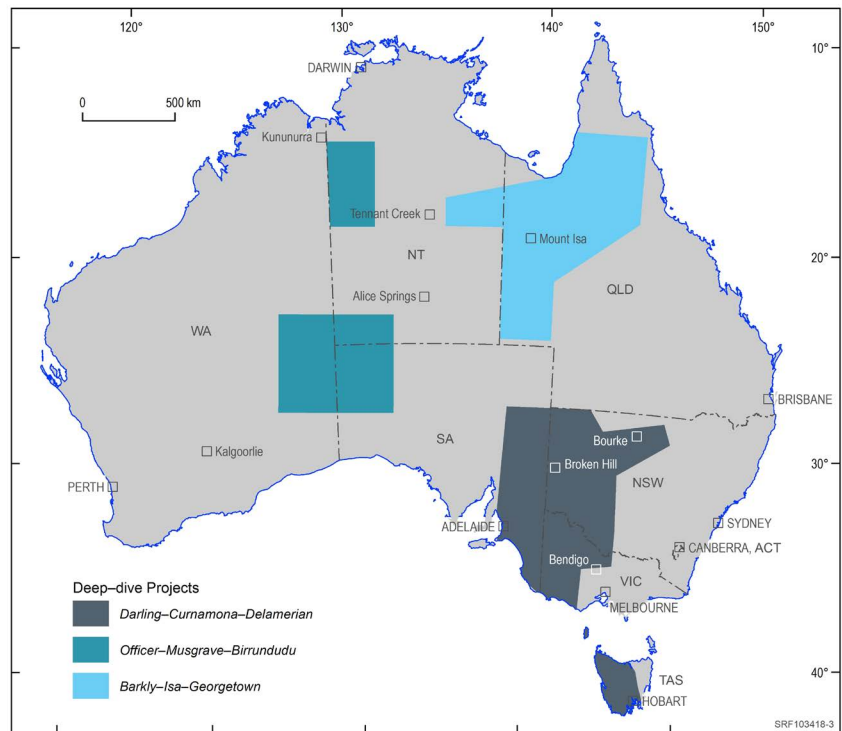
Geoscience Australia's \$225 million Exploring for the Future program (2016–2024) is delivering world-leading geoscience information to inform responsible management and harness the full potential of our energy, mineral and groundwater resources.

To support the transition to net zero, Australia and the world require substantial supplies of minerals, including critical minerals, and adoption of low emission technologies, such as carbon capture and storage, and hydrogen. Traditional energy resources and the responsible management of our groundwater resources also play key roles. Government geoscience information is vital for Australia's transition to net zero, a strong economy, resilient society and sustainable environment.

The Exploring for the Future program concludes in June 2024 with the delivery of eight interrelated projects.

The **Darling-Curnamona-Delamerian project** is acquiring, analysing and delivering new data and knowledge to assess the mineral resource potential of the Curnamona Province and Delamerian Orogen in south-east Australia. The project is also assessing groundwater resource and storage potential in the Darling River floodplain region of NSW. This knowledge is already informing exploration and investment decisions and supporting water management.

The **Officer-Musgrave-Birrindudu project** is investigating the groundwater and energy resource potential of the Officer and Birrindudu Basins and the Musgrave Province, covering parts of WA, SA and the NT. The project has reanalysed existing data and is collecting and analysing new data to improve the geological knowledge and constraints of these underexplored regions.



The **Barkly-Isa-Georgetown project** is building on the success of earlier work undertaken by the program to further assess resource potential in this underexplored region of the NT and Qld. This includes analysing new stratigraphic drill core and imaging deep geological features. Results from this project have already stimulated mineral and energy resource exploration activity.

**Australia's Resources Framework** is delivering a foundational understanding of Australia's geology from the surface to great depths. This project is delivering insights that underpin our understanding of the continent's mineral, energy and groundwater potential through national-scale data acquisition, analysis and interpretation, and decision-support tools such as Economic Fairways.

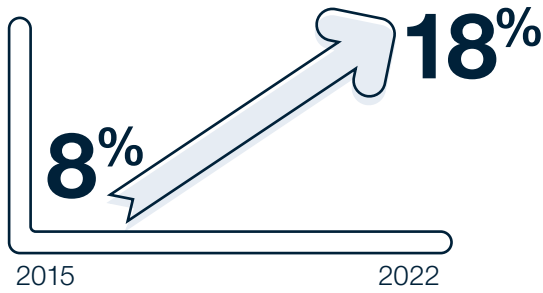
**National Groundwater Systems** is improving understanding of Australia's groundwater resources to better support responsible management and water security. The project is delivering a national inventory of groundwater systems, detailed studies in key basins, best practice groundwater geoscience guidelines and contributing to the enhancement of the National Aquifer Framework.

**Australia's Future Energy Resources** is evaluating the potential for new energy resource commodities hosted within underexplored sedimentary basins to support Australia's transition to net zero. The project is assessing the potential to unlock other energy resource commodities to support low emissions technologies, such as the production and geological storage of hydrogen, and enhanced oil recovery with associated storage of CO<sub>2</sub>.

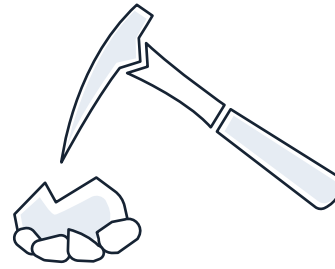
The **Enhanced Data Delivery and Geoscience Knowledge Sharing projects** are critical enablers for custodianship and delivery of geoscience data and information. This includes making it easier for users to find and understand the information they need. Through tailored education and outreach activities, and collaborative partnerships with First Nations communities, the program is also facilitating two-way knowledge transfer and building awareness, trust and social license.

[www.eftf.gov.au/projects](http://www.eftf.gov.au/projects)

# Australian Government geoscience — making a difference for the nation



ATTRACTING AN INCREASING SHARE OF GLOBAL MINERAL EXPLORATION EXPENDITURE<sup>1</sup>

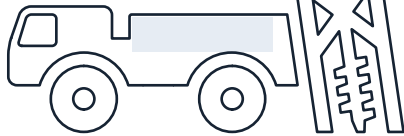


UNLOCKING NEW COMMODITIES

<b>H<sub>2</sub></b> Hydrogen	<b>Ni</b> Nickel
<b>Cu</b> Copper	<b>REE</b> Rare earth elements
<b>Co</b> Cobalt	<b>Ga</b> Gallium

## STIMULATING EXPLORATION ACTIVITY

110 COMPANIES



MORE THAN **825** NEW EXPLORATION TENEMENTS<sup>2</sup> COVERING MORE THAN **327,000** KM<sup>2</sup>

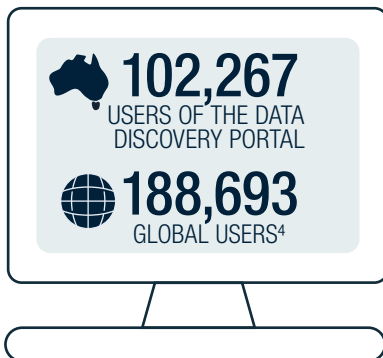


STATE AND TERRITORIES CO-INVESTING IN PRECOMPETITIVE GEOSCIENCE AND INDUSTRY EXPLORATION

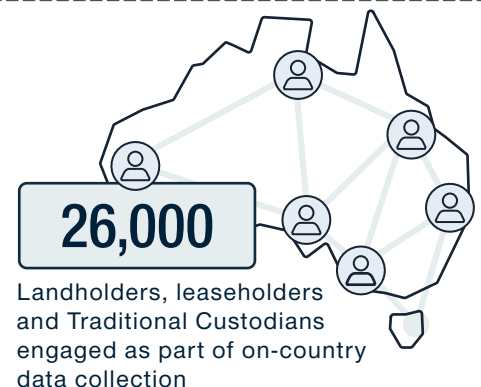
FROM 2017-2021 AUSTRALIA'S PRECOMPETITIVE GEOSCIENCE UNDERPINNED<sup>1</sup>



EVERY GOVERNMENT DOLLAR INVESTED IN PRECOMPETITIVE GEOSCIENCE RESULTS IN:



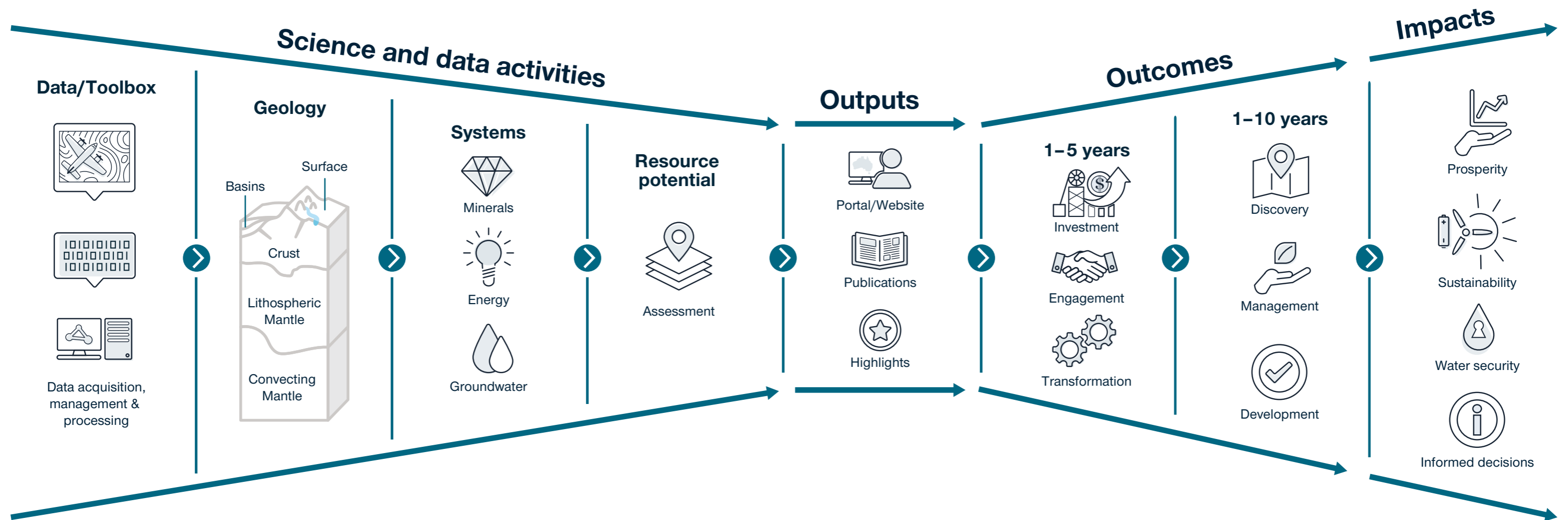
**4** PARTNERSHIPS with First Nations communities established



1. Source: MinEx Consulting 2023  
2. Geoscience Australia industry activity tracking to April 2023

3. Source: ACIL Allen Consulting, 2022  
4. Google analytics, May 2023

The program's vision is to support a strong economy, resilient society and sustainable environment for the benefit of Australians through an integrated geoscientific understanding of our mineral, energy and groundwater potential.



### Science and data activities

#### Data/Toolbox

- Data collection, quality control, standardisation and management for transparent science.
- Digital transformation and infrastructure.
- New tools for improved acquisition, robust analysis and data delivery.

#### Geology

An evolving multi-disciplinary and scale-integrated characterisation of the 3D/4D geology of Australia from the surface down to great depths. Critical for resource assessments and useful for soil, environmental and geohazard studies, the characterisation has an emphasis on southern Australia, especially the deep-dive project areas.

#### Systems

A growing, holistic, integrated and world-leading understanding of groundwater, energy and mineral systems within the context of Earth processes.

#### Resource Potential

Expanding national and regional, geological and economic assessments of Australia's mineral, energy and groundwater resource potential with an emphasis on driving resource discovery, critical minerals and the lower carbon economy.

### Outputs

- Online 2D and 3D data discovery and decision support tools.
- Scientific publications including data/code releases, reports, extended abstracts and journal publications.
- Executive reports and newsletters highlighting key program outputs and achievements.

### Outcomes

#### 1-5 years

- Increased investment in resource exploration/responsible agriculture planning, particularly in greenfield/remote areas.
- Improved international and local industry, government and public engagement with awareness of and access to precompetitive geoscience data and information.
- Adoption of innovations by the resources sector, government bodies, academia and communities.

#### 1-10 years

- Discovery of new minerals, energy and groundwater resources.
- Improved responsible management of natural resources and the environment, particularly in remote communities.
- Regional development resulting in jobs and growth.

### Impacts

- Growing economic prosperity and social well-being through resource development.
- Increased sustainability underpinned by thriving low emissions energy and critical minerals sectors.
- Improved intergenerational water security and community resilience.
- Better evidence-based decision-making between landholders, traditional owners, public, government and industry.



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GA SRF102566 | eCat 148595