Deep-dive Projects

Exploring for the Future is investigating the mineral resources potential of the Curnamona Province and Delamerian Orogen and improving information for the Murray-Darling Basin. The project will acquire and analyse new multidisciplinary multi-scale datasets to assess the under-cover mineral potential of the Delamerian Orogen within the context of Gondwana supercontinent geodynamics; develop new methodologies for exploration through covering the Curnamona Province on a national laboratory, and assess the hydrogeology along the upper Darling Flow system. The project is building a pipeline of resource and agricultural projects into the future, stimulating the creation of original business and employment opportunities, improve drought resilience in communities and contribute to an environmental baseline and support sustainable resource management. The project will commission the creation of best practice groundwater geoscience guidelines and grow an understanding of indigenous groundwater perspectives. The project will assess the optimal locations for green and blue hydrogen production, including mapping of potential hydrogen storage areas. The project will also provide a major contribution to the unlocking of new energy resources using innovative technologies to support Australia’s transition to a low carbon future.

Enhancing the national understanding of Australia’s mineral, energy and groundwater systems, it is primarily focused on assessing national mineral potential, including critical minerals. It includes extensive geological mapping accompanying geochemical and geophysical data acquisition and analysis of soil geochemistry and petrology, airborne electromagnetics at 20 km flight line spacing (AusAEM); and magnetotellurics at 50 km station spacing (AusMT); and a 200 km spaced seismometer array (AusAEM). The project will use the new national database to support all geological and geophysical data acquisition and analysis of soil geochemistry and petrology, airborne electromagnetics at 20 km flight line spacing (AusAEM); and magnetotellurics at 50 km station spacing (AusMT); and a 200 km spaced seismometer array (AusAEM). The project will use the new national database to support all geological and geophysical datasets essential for modern data analytics and faster decision-making. Geoscience Knowledge Sharing will undertake pilot education and outreach activities in two program field areas, developing relationships between local and indigenous communities and program staff. The project seeks to support engagement, share benefits and foster two-way transfer of knowledge.

Continental-scale projects

Australia’s Resources Framework brings together a wide range of geoscience disciplines to grow a predictive characterization of Australia’s geology from the surface down to great depth. Enhancing the national understanding of Australia’s mineral, energy and groundwater systems, it is primarily focused on assessing national mineral potential, including critical minerals. It includes extensive geological mapping accompanying geochemical and geophysical data acquisition and analysis of soil geochemistry and petrology, airborne electromagnetics at 20 km flight line spacing (AusAEM); and magnetotellurics at 50 km station spacing (AusMT); and a 200 km spaced seismometer array (AusAEM). The project will use the new national database to support all geological and geophysical datasets essential for modern data analytics and faster decision-making. Geoscience Knowledge Sharing will undertake pilot education and outreach activities in two program field areas, developing relationships between local and indigenous communities and program staff. The project seeks to support engagement, share benefits and foster two-way transfer of knowledge.

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Projects Overview
The 2020–24 Program Overview


All projects are aimed at improving our understanding of Australia’s mineral, energy, and groundwater potential. The development and management of which will benefit all Australians.

**Outputs**

- Program communication involving data management and science activities.
- New tools for improved data acquisition, robust analysis, and scale-integrated characterisation of the 3D/4D geology of Australia and geohazard studies, and the characterisation has an emphasis on southern Australia, potentially resource-rich corridors.

**Impacts**

- Improved intergenerational awareness of and access to data and information.
- Better evidence-based decision making between industry, owners, public, government, and communities.

**Vision:** 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.