

South Australia: Unlocking resource opportunities

Dr Bronwyn Camac

Department for Energy and Mining

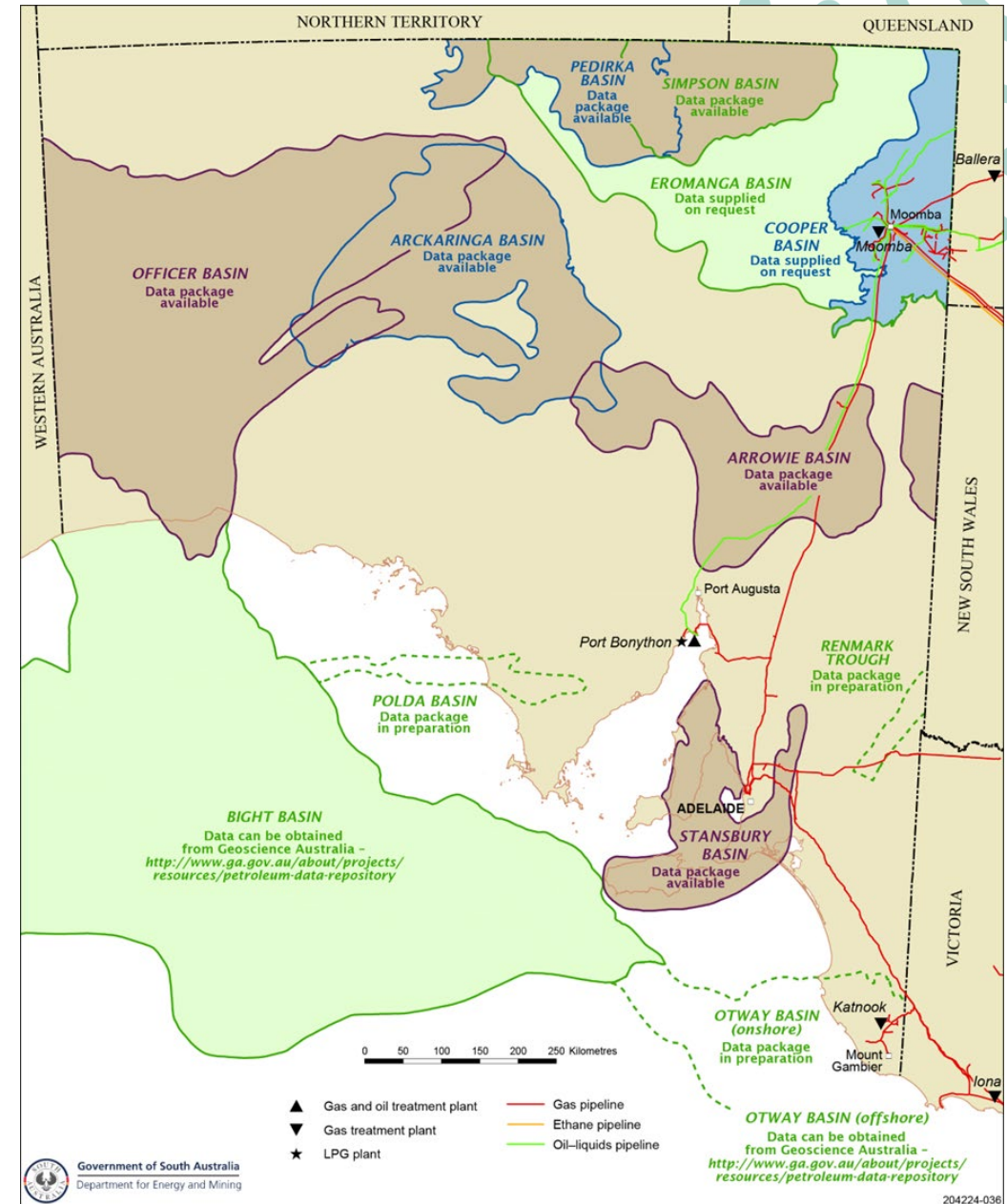


Government of South Australia
Department for Energy and Mining

ENERGY RESOURCES SUMMIT

South Australia: Proud history of natural gas delivery

- ✓ Moomba Gasfield first discovered in 1966
- ✓ Providing natural gas to South Australia since 1969
- ✓ Now poised to enter the “new age” of energy supply – enabled by the Moomba CCS project & emerging plays



Geological Survey SA

- Custodians of South Australian geological data and information – otherwise known as precompetitive geoscience.
- Conduct high-quality geoscientific data acquisition and investigations through our projects.
- Offer our world-class delivery service to our customers via SARIG, PEPS and the Drill Core Library.
- Work with exploration companies to provide insights, leading to discoveries.
- Attract exploration investment into SA.
- Collaborate with research partners and other government agencies
- Provide resource assessment and advice to our regulators



Timeline of Delivery: 2025



The onshore Otway Basin: a strategic opportunity



Petroleum system model (PSM)

Expulsion maps per interval



Stratigraphic framework – 80 wells

7965km seismic interpretation



772m of core interpreted

6 geology and play maps constrained

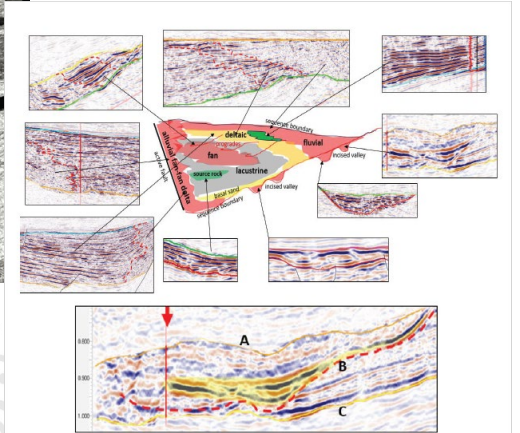
Whole of Basin Analysis



Conventional core interpretation

Onshore Otway Basin, South Australia

C Cubitt and S Tlainen



Seismic stratigraphy of the Jurassic - Early Cretaceous sequences of the onshore Otway Basin, South Australia

Rob Kirk



South Australia
mesa
Journal

MESA research article 3 (17-28)
November 2024
Department for Energy and Mining

Play mapping workflow – a practical example from the onshore Otway Basin, South Australia

Otway Basin: Gas and Oil expulsion

The Robe and lightly explored Tantanoola Troughs (yellow arrows) have been identified for the first time as regions of significant gas expulsion.

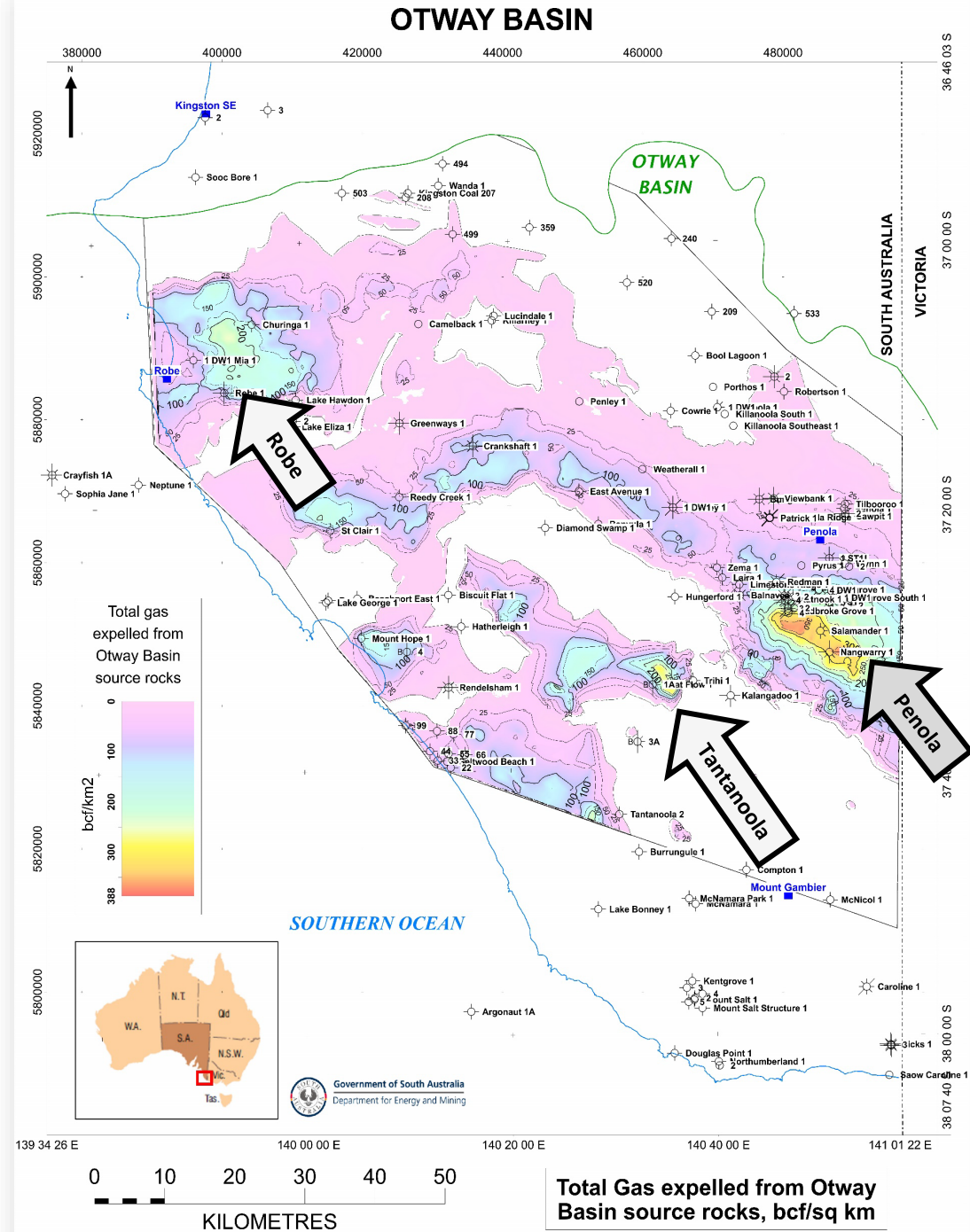


South Australia
POLDA BASIN
Acreage Release
PO2025 RSEL-A

BIDS CLOSE 6.00 pm ACDT
Friday 31 OCTOBER 2025

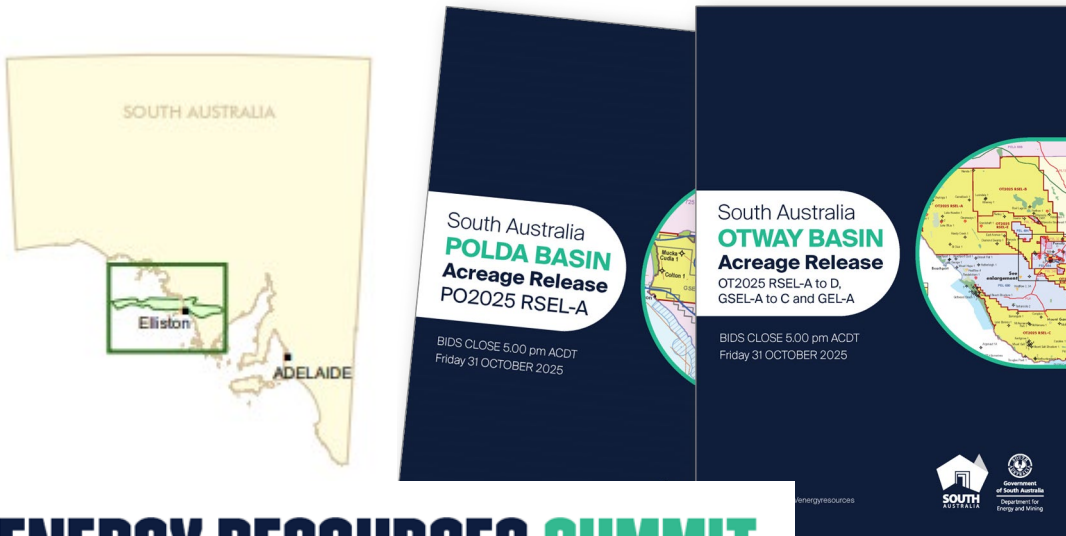
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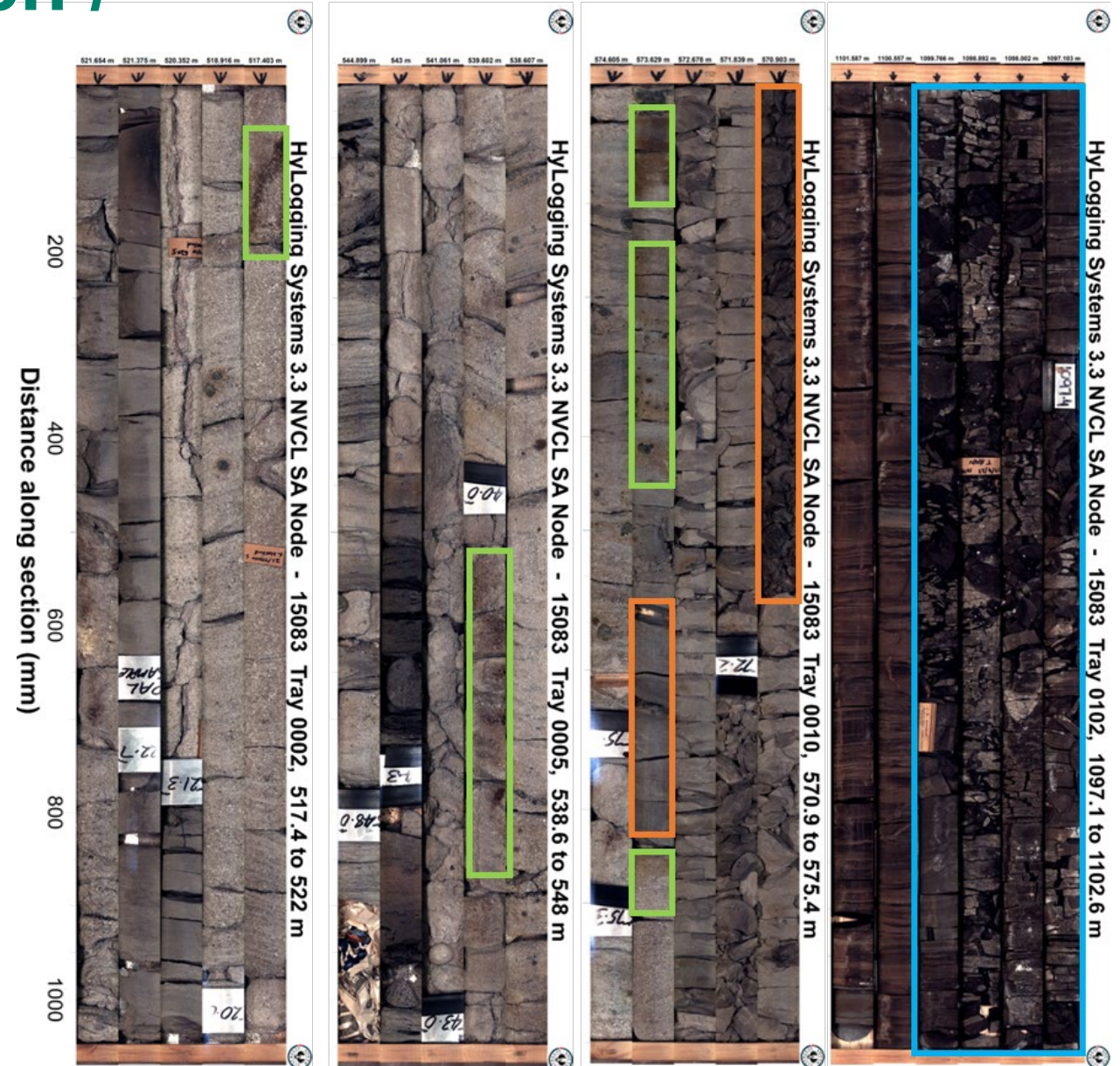
Polda Basin: Oil / Hydrogen / Gas Storage?

- ✓ Core from a mineral hole: Kilroo-1A (1984) re-examined with oil staining recognised, proving an active hydrocarbon system
- ✓ Reservoir quality preserved in fluvial / floodplain Jurassic section.
- ✓ Shallow basement and possible salt, identified offshore, may provide source rocks for natural hydrogen and perfect seal, if proven onshore.

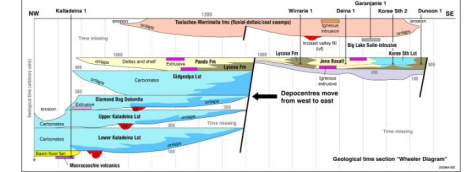
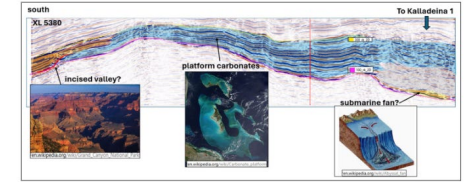
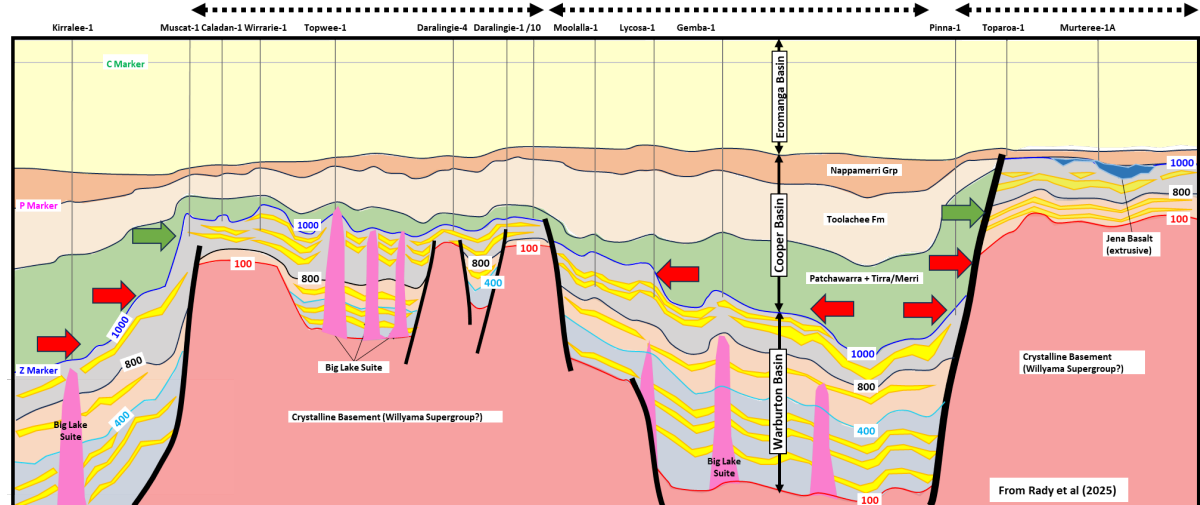
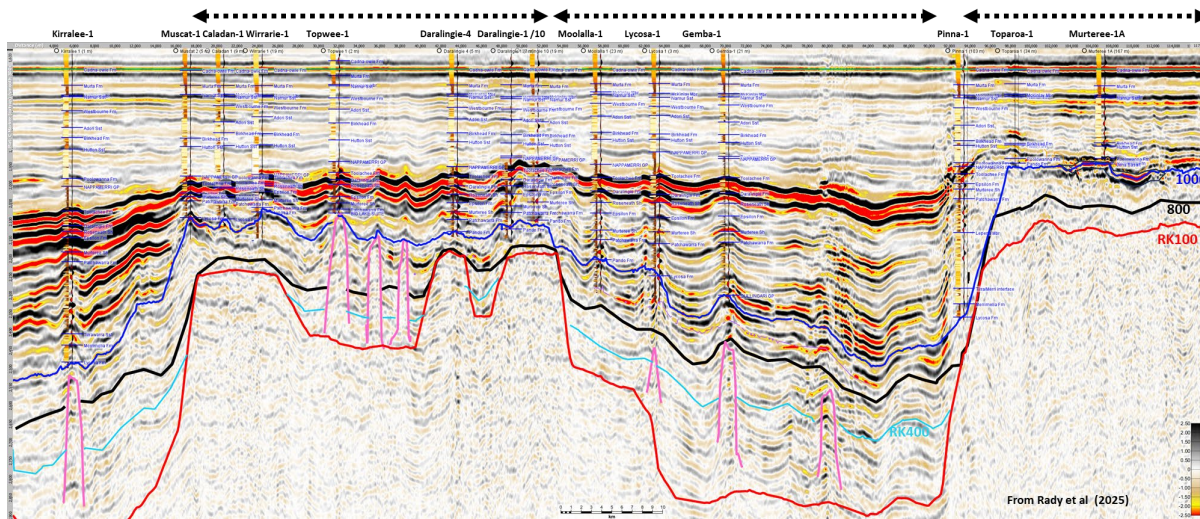


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Kilroo 1A / CRA83 KD1A



Warburton Basin – Daralingie Shelf Project



Seismic stratigraphy of the Cambrian Eastern Warburton Basin, South Australia

Rob Kirk



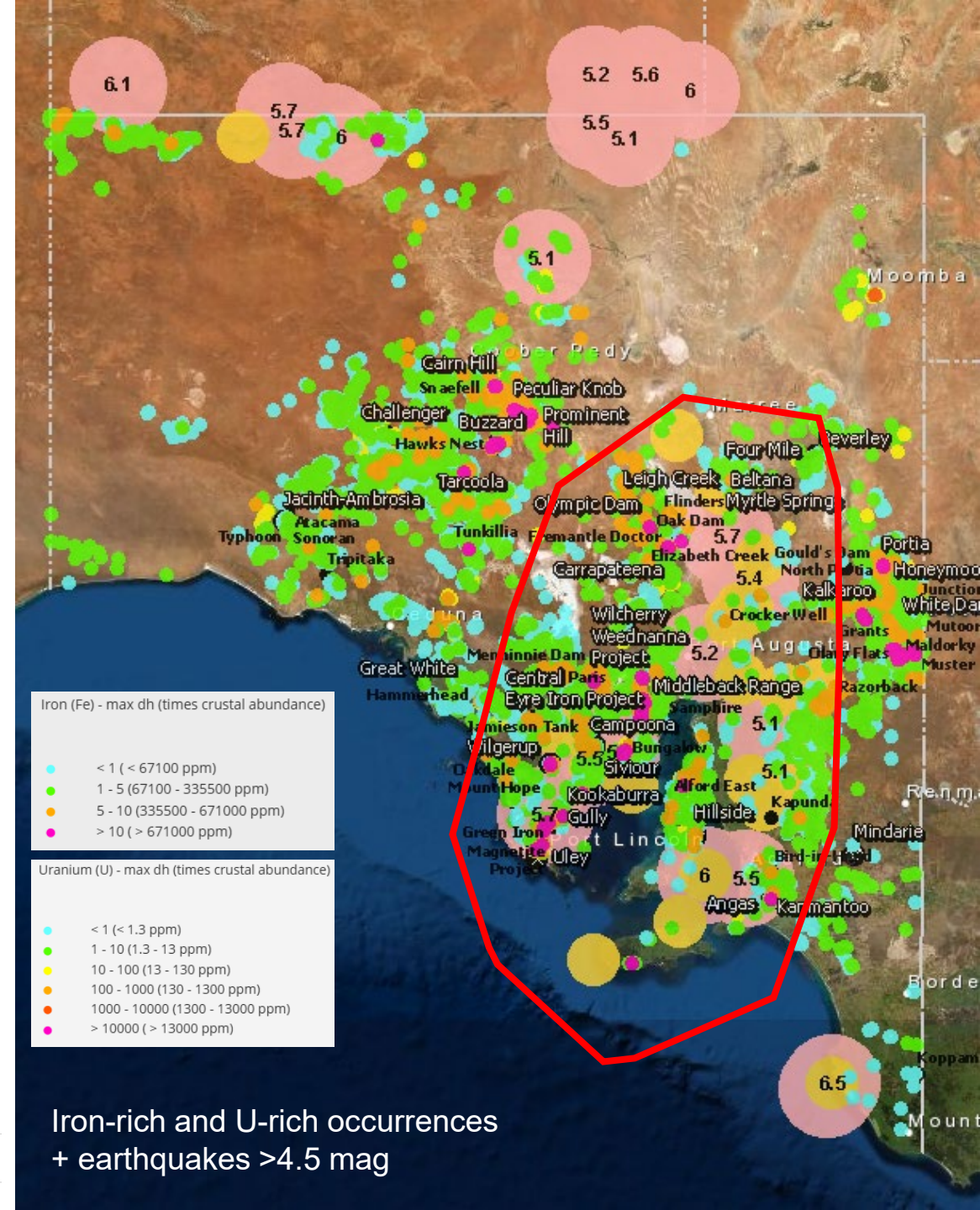
- ✓ Whole of basin 2D cubed seismic dataset interpreted.
- ✓ 88 checkshots, >10,00km seismic, >300 wells (wireline and hydrocarbon shows) and 32 cored wells interpreted and integrated.
- ✓ Six Gross Depositional Maps have been prepared – with the data released and papers

Significant H2 potential in SA

- ✓ Ancient basement complexes which contain iron and/or uranium
- ✓ Fractured and seismically active source regions
- ✓ Proven occurrences of H2 & He (Ramsay Project)
- ? Some kind of seal / trap ?? (Petroleum Systems model)
- ? Active flux – open conduits - migration (Mantle involvement?)



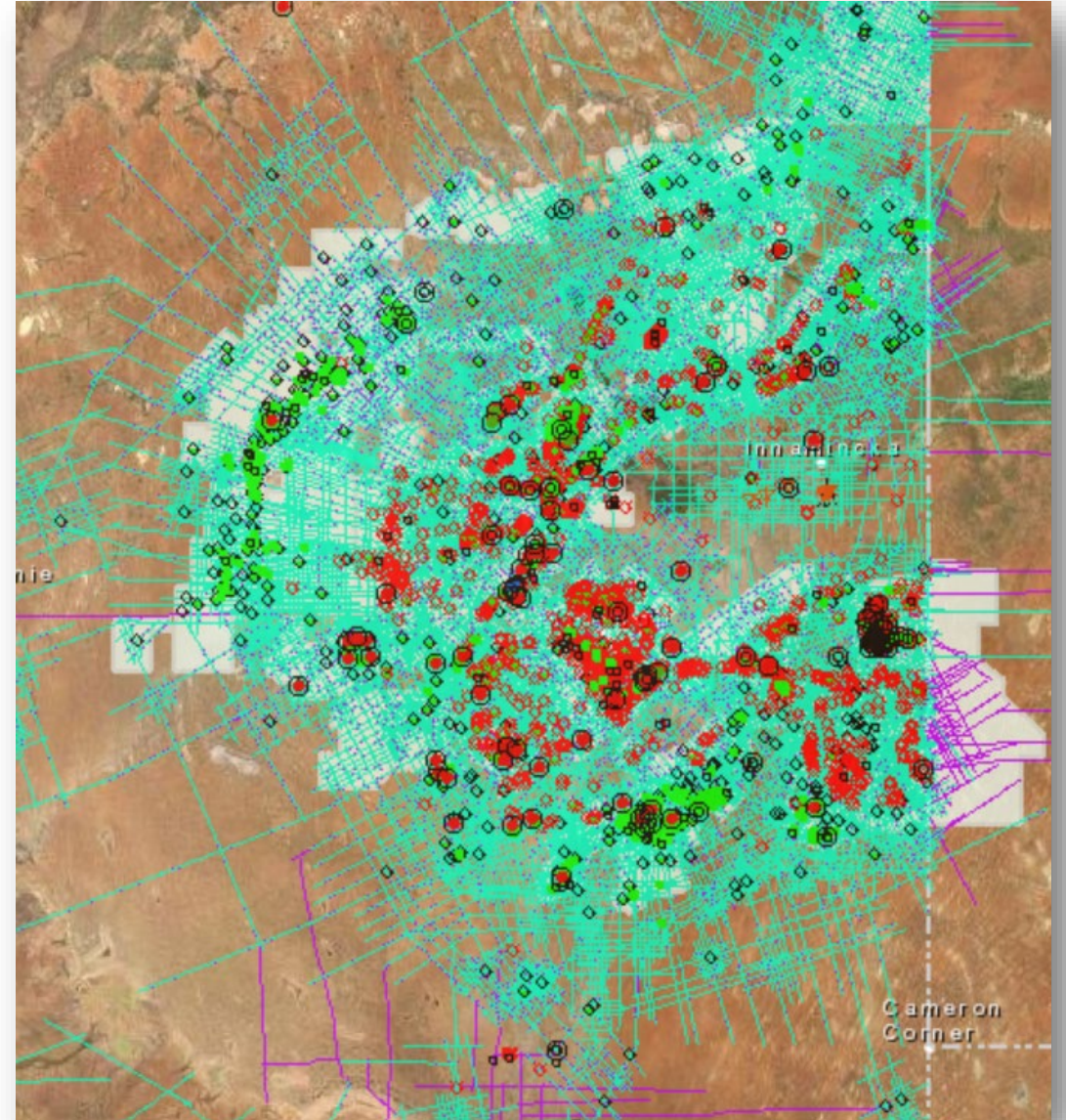
Ramsay-3 wellsite (c/- Gold Hydrogen Nov 2025)



Key to exploration success

To de-risk exploration...

- Access to **data, data and more data**
- Petroleum & Hydrogen systems models well understood
- Access to trustworthy expertise and advice



Cooper Basin data richness from SARIG

World-class Digital Data Delivery

REPLACEMENT
VALUE
\$7.5
BILLION

SARIG map | Main Menu | SARIG catalogue

South Australian Resources Information Gateway

Delivering statewide geoscientific and geospatial data

Quick links

- Search for a company mineral tenement holding
- Spatially search across multiple geoscientific datasets
- Search publications and reports
- Apply for a minerals exploration licence
- View minerals exploration licence application status

Explore map by theme

Browse map themes to select a map layer collection of interest.

- New Releases
- Mineral Resources
- Energy Resources
- Renewable Energy & Storage
- Land & Water Management
- Infrastructure

Drillcore library - samples and thin sections	2021 Cooper Basin 2D cubed seismic - depth
2023 commodity resource and reserve datasets	2023 regional gravity grids and data
Maximum downhole geochemistry suite	Delamerian National Drilling Initiative (NDI)

+ more

All Map Layers | Active Layers (0) | Saved Maps | Spatial Search | Location Search

Actions

- Identify
- Query
- Tools
- Base Maps
- Print Map

Map Layers:

- Magnetics
- Gravity
- DEM
- Surface Geology (7M, 2M, 100k)
- Drillholes_all
- Drillholes_Core Library
- Seismic Data
- Groundwater - GDE

- Interactive mapping and Data Access (> 800 Map layers)
- Exploration & Resource Information tenements, well data, critical minerals, mining information
- Geoscientific data Downloads
- Report & Publications (via SARIG Catalogue)
- Decision support & analytic tools – GIS,
- Free and open to use

Decimal Degrees Minute Seconds | X: * * * Y: * * *

0 50 100km

PEPS - Petroleum data for all wells in SA [~4000 wells]

PEPS SOUTH AUSTRALIA
Begin Typing to Search for Wells...

[Wells](#) [Production](#) [?](#) [⚙️](#)

Name Fly Lake 002	Id 676	Security Open File	Province Cooper/Eromanga	Spudded 16 Dec 1971	Rig Release 24 Jan 1972	Core Intervals Excel
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Wells

- Find
- List
- Files
- Wellcard
- Details
- Location
- Technical
- WCR
- Geology
- [Core Intervals](#)
- Core Sidewalls
- Formation Tops
- Log Prints
- Log Digital
- Engineering
- Downhole Diagrams
- Production Summary

Cores

# ↑	Top (m) ↑↓	Base (m) ↑↓	#Photos ⓘ
1	2,681.021	2,699.309	36
2	2,699.309	2,717.597	21
3	2,747.162	2,765.450	33
4	2,804.160	2,822.448	23
5	2,826.715	2,845.003	37
6	2,862.377	2,867.558	5
7	2,888.590	2,906.878	11
8	2,906.878	2,925.166	10
9	2,925.166	2,938.882	4

9 Cores

Core Interval Details

METRIC
IMPERIAL

	Metric	Imperial	Formation
Core Type			
Driller Top	2,681.021 m	8,796.00 ft	Patchawarra Fm
Driller Base	2,699.309 m	8,856.00 ft	Patchawarra Fm
Recovered	18.008 m	59.08 ft	98 %
Total Depth	2,948.940 m	9,675.00 ft	Petroleum Subsidy <input type="checkbox"/>
Comment			
Type Section	<input type="checkbox"/>	Sampling Restrictions May Apply	<input type="checkbox"/>

Cores

Core Photos

SEE DETAILS FOR ALL WELL PHOTOS
DOWNLOAD ALL WELL PHOTOS (ZIP)

Photo Name ↑	From (m) ↑↓	To (m) ↑↓	Type ↑↓
FlyLake002_P001.png	2,681.021	2,685.593	Plain Light
FlyLake002_P002.png	2,690.165	2,694.737	Plain Light
FlyLake002_P003.png	2,690.165	2,694.737	Plain Light

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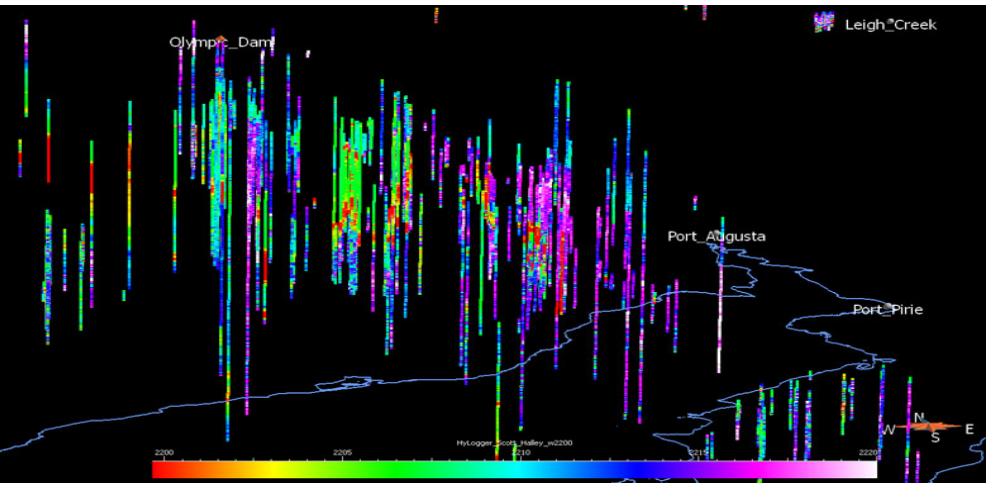
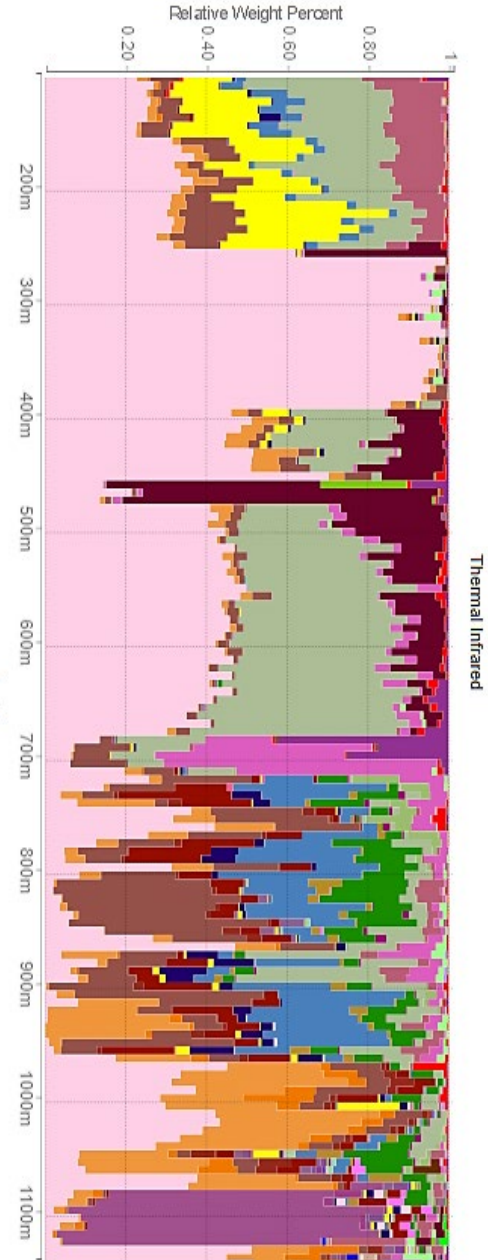
GSSA - South Australia Drill Core Library

- Hosts geological drill core and samples recovered from over 135 years of exploration for minerals and energy resources
- **51,156** drill cores, **10,000,000 m** drill core and cuttings, **~8,000** rock samples, **>21,000** thin sections

REPLACEMENT
VALUE
\$7.5
BILLION



HyLogger – hyperspectral scanning of drill core

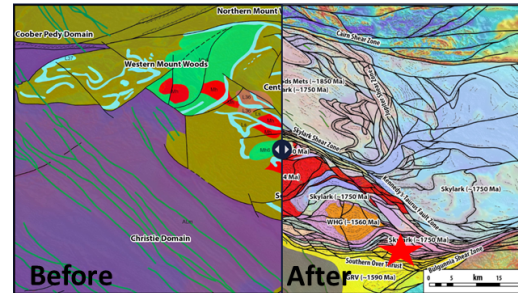


South Australia | next-generation data delivery

South Australian Discovery Mapping

- Increases the accessibility and usability of pre-competitive data delivered to industry.
- Delivered via SARIG and Web Services, which links geological processes across time and location and is future-proofed for new data integration.
- Spatial data integrated with text-based geological intelligence links spatial features with explanatory notes to create a more holistic understanding of the State's geology.

Example of improved mapping in the Mt Woods Domain, surrounding the Prominent Hill Mine



Access to seamless geology via SARIG, in GIS software and AI-ready

- GIS data package includes:
 - ESRI File Geodatabase
 - 45 spatial layers and symbology legend files
 - associated attribution tables with extensive detailed descriptions
- Web Service API includes:
 - IUGS CGI standards – National and International standard
 - Machine readable – future focus for next generation of digital AI/ML exploration



GSSA Energy Resources: What's next?

- › Successful applicants for all blocks will be notified early in the new year.
- › Natural Hydrogen exploration is full steam ahead with the drilling out on the Yorke Peninsula by Gold Hydrogen.
- › Integrating our onshore geological models with the offshore Otway Basin has strategic value.
- › Encourage further exploration of the Warburton play beneath the Cooper Basin.
- › Watch this space for more acreage releases in the Cooper and Otway basins!

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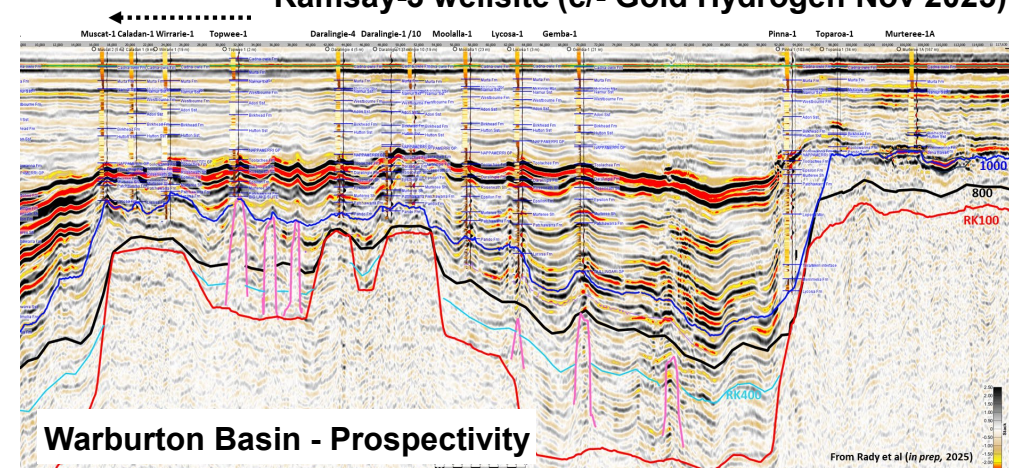
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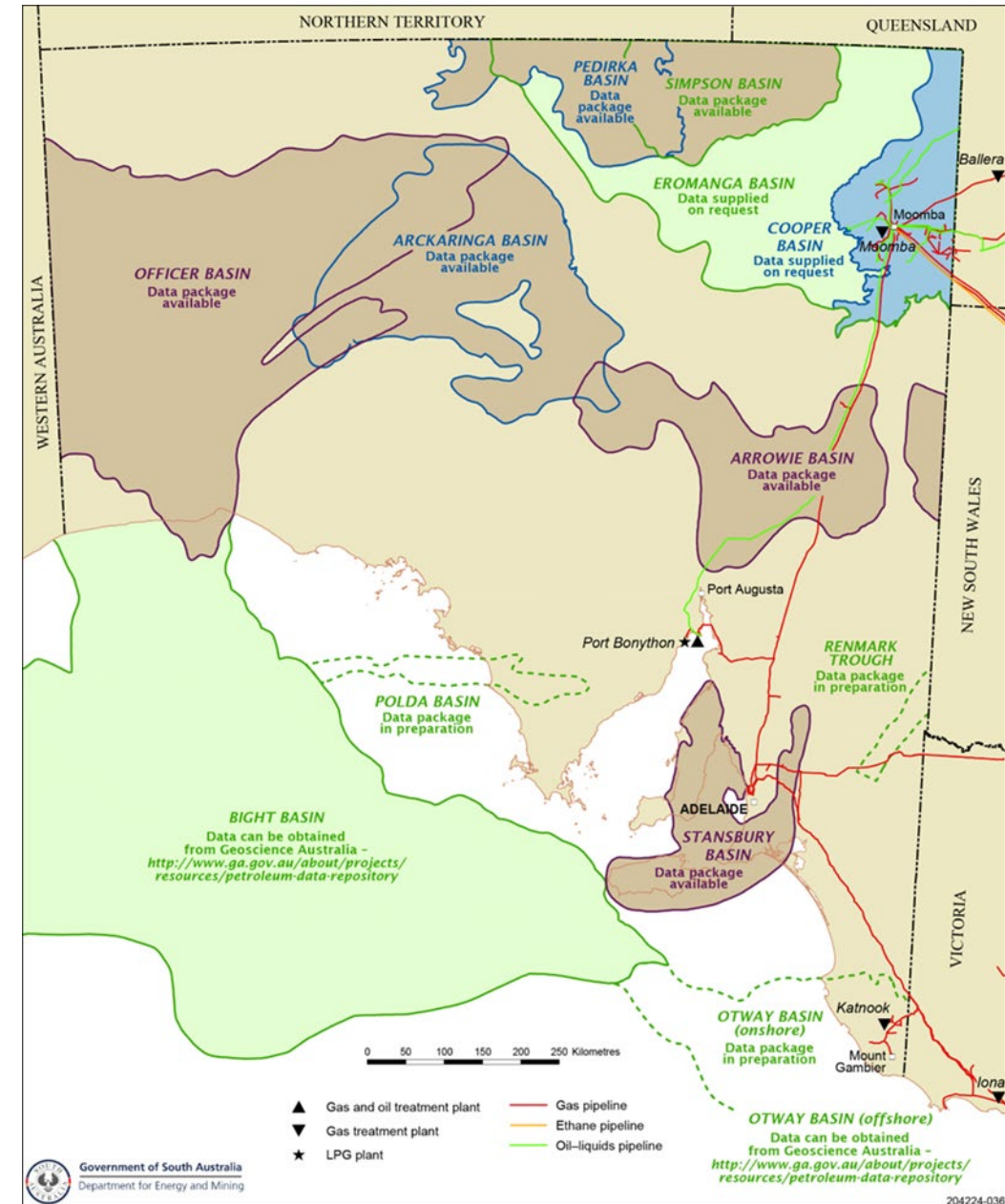


Ramsay-3 wellsite (c/- Gold Hydrogen Nov 2025)



In Closing: South Australia has:

- The right geology.
- World-class precompetitive geoscience which facilitates discovery and supports exploration economics.
- Innovation and continuous improvement are demonstrable across DEM.
- Best-in-class legislation and regulation facilitates exploration of petroleum and other regulated substances and permits them to get to market unhindered.
- Our objectives are clear:
 - › To provide a continued and sustainable energy supply for our people and businesses.
 - › We support and encourage exploration and production of all regulated substances.
 - › We are there to reduce uncertainty and risk in your projects by providing free precompetitive geoscience data and insights, with over 140 years of historical data on offer.



Thank You



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