

Thor Energy - PESA Natural Hydrogen Webinar Series

Natural Hydrogen exploration in South Australia Approaches & Potential

Disclaimer, legal notice and competent person statement

Disclaimer

These presentation materials contains projections and forward-looking information that involve various risks and uncertainties regarding future events. Such forward-looking information can include without limitation statements based on current expectations involving a number of risks and uncertainties and are not guarantees of future performance of the Company. These risks and uncertainties could cause actual results and the Company's plans and objectives to differ materially from those expressed in the forward-looking information. Actual results and future events could differ materially from anticipated in such information. These and all subsequent written and oral forward-looking information are based on estimates and opinions of management on the dates they are made and expressly qualified in their entirety by this notice. The Company assumes no obligation to update forward-looking information should circumstances or management's estimates or opinions change. All data shown within these materials are the property of Thor Energy or are open-source information. Licence boundaries are accurate at time of release and subject to change with RSEL 802 second term outline shown, pending finalization of third term outline.

Competent Person Statement

The information in this report that relates to exploration results and exploration targets is based on information compiled by Andrew Hume, who holds a BSc in geology (Hons) and is a Fellow of the Geological Society of London. Mr Hume is an employee of Thor Energy PLC. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Andrew Hume consents to the inclusion in the report of the matters based on his formation in the form and context in which it appears.

Glossary

Mscf	Thousand standard cubic feet	RSEL	Regulated Substance Exploration Licence
MMcf	Million standard cubic feet	GSEL	Gas Storage Exploration Licence
Bcf	Billion standard cubic feet	PEL	Petroleum Exploration Licence (which includes nH ₂ and He rights)
Tcf	Trillion standard cubic feet	PELA	Petroleum Exploration Licence application (which will include nH ₂ and He rights)
t	Metric tonne	nH ₂	Natural Hydrogen (aka 'Gold', 'White', 'Geologic' hydrogen)
		He	Helium

Corporate Snapshot



ANDREW HUME: Managing Director & CEO

28 years in Oil and Gas E&P, holding senior roles across the value stream

Previous experience working for TotalEnergies, Maersk, Shell, Murphy, and Thales in Australia, Europe, UK and USA. Andrew holds an MBA and BSc (Hons) Geology



ALASTAIR CLAYTON: Chairman

30 years in finance with a focus on the mining and exploration industries.

Former Director of ASX100 Extract Resources representing Kalahari Minerals, both of which were sold for c. A\$2.2bn. Co-founder of Bannerman Resources & Universal Coal plc.



LINCOLN MOORE: Non-Executive Director

Highly experienced establishing and raising finance for mining and agriculture projects.

Co-founder and corporate advisor of Firering Minerals plc and Executive Director of Ivory Coast based AIM-quoted, Dekel AgriVision plc. Previously Director of Dial Square Investments plc (now Energy Pathways plc) undertaking feasibly for UK hydrogen storage.



TIM ARMSTRONG: Non-Executive Director

An institutional financial advisor for Prenzler Group and Non-Executive Directors at Cooper Metals Limited (ASX: CPM).

Previously financial PR in Australia and UK, advising private and listed resource companies. Tim is a former professional cricketer representing NSW, WA and Australia.

Dual listed company

London Stock Exchange (AIM: THR)

Australian Stock Exchange (ASX: THR)

US – OTC Market (OTCPK: THORF)

Finance (Aug 11th 2026)

Fully diluted: 1,268m

Perf Shares: 81m

Cash Position: A\$2.6m (AU\$1.3m payment expected September)

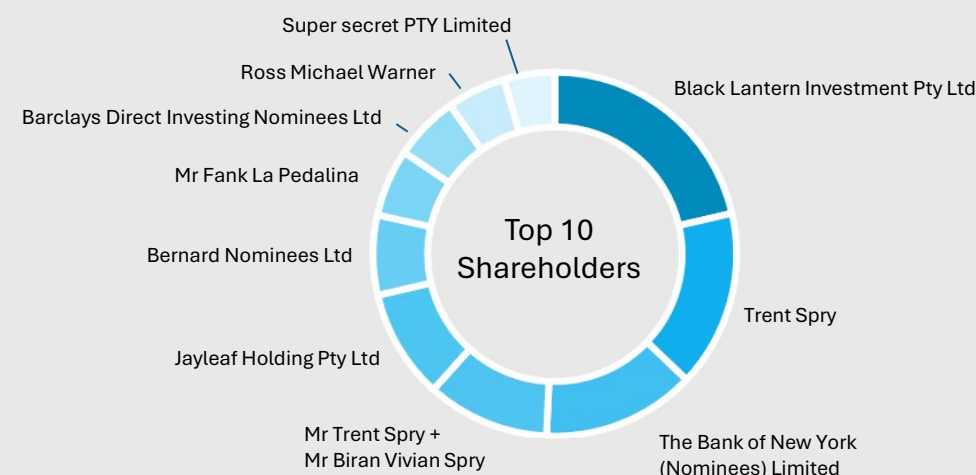
Market Capitalisation: A\$9.3m

Options: 156m

Supportive Shareholder Base

Top 10: 49.4%, Top 20: 64.7%

Board & Management: 1.9%

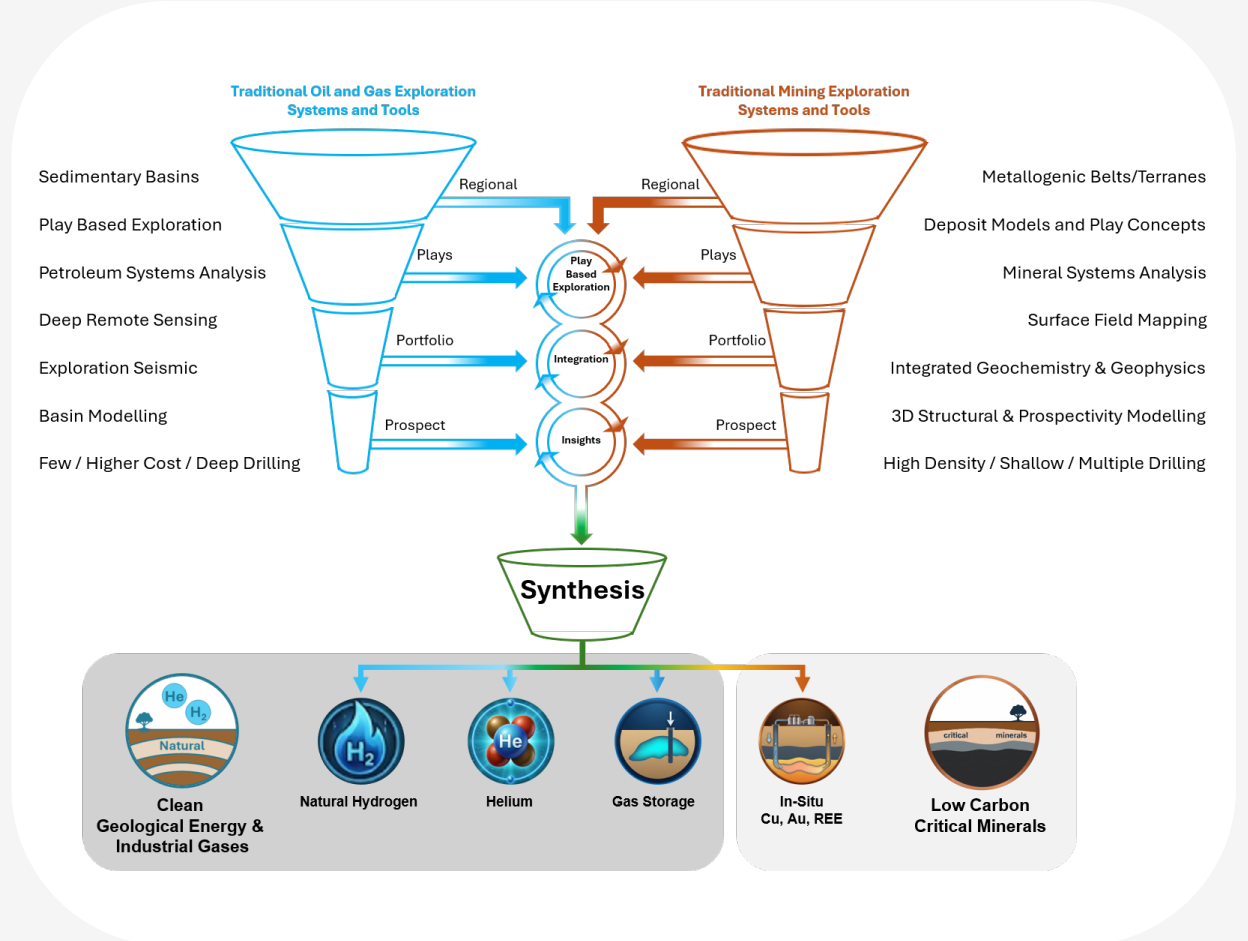


Thor Energy | Exploration Innovation

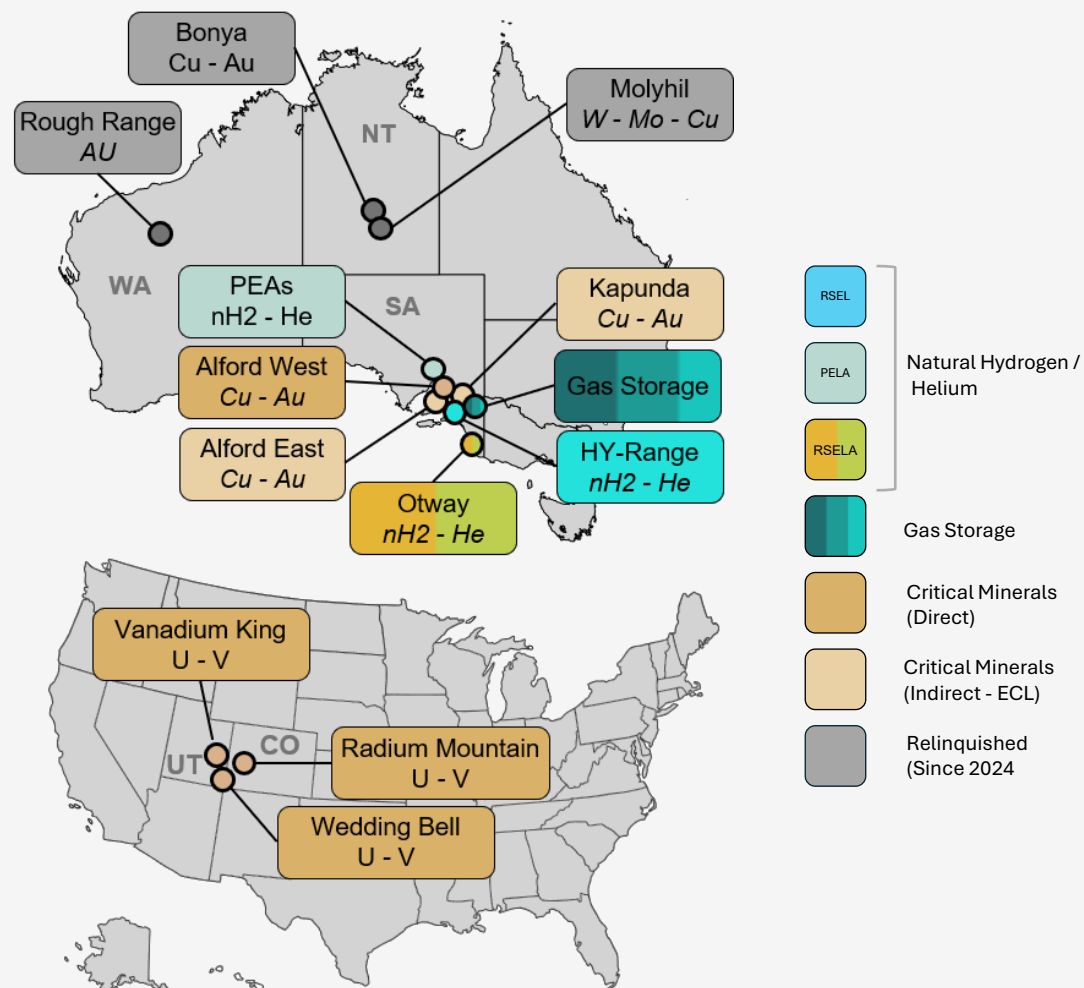
Global explorers focused on natural hydrogen, helium and critical minerals. Deploying techniques at the intersection of traditional mining and oil and gas exploration

Positively differentiated by company structure, geographic focus, exploration approach and portfolio

- World class natural hydrogen (nH₂) Helium (He), & critical minerals portfolio, focused on South Australia
- Financed through to exploration drilling



Thor Energy Portfolio Transformation and Focus



Strategic transition

- Rationalised portfolio, reduced costs, generated funding and secured future milestone payments
- Divestiture of non-core assets in Australia
- Equity reduction in USA

South Australia Focus

- Industry leading natural hydrogen/helium and in-situ critical minerals portfolio, with Gas storage opportunity
- Direct and indirect industry-leading ISCR portfolio

nH2 / He / Gas Storage

- HY-Range (RSEL 802) – priority licence
- Otway (RSELA 810, 811) Joint Venture with H2EX
- GSELS – gas storage augmentation
- PELA portfolio – Significant expansion potential

In-situ cu/au/REE

- Operator (80%) of Alford East (EL 6529)
- 24% equity EnviroCopper Ltd (Alford West / Kapunda)

Natural Hydrogen & Helium Exploration

Natural Hydrogen
& Helium

HY - Range Licence – RSEL 802

Growing Portfolio – PELA maturation

Otway Joint Venture – RSELA 810 & 811

THOR
ENERGY PLC



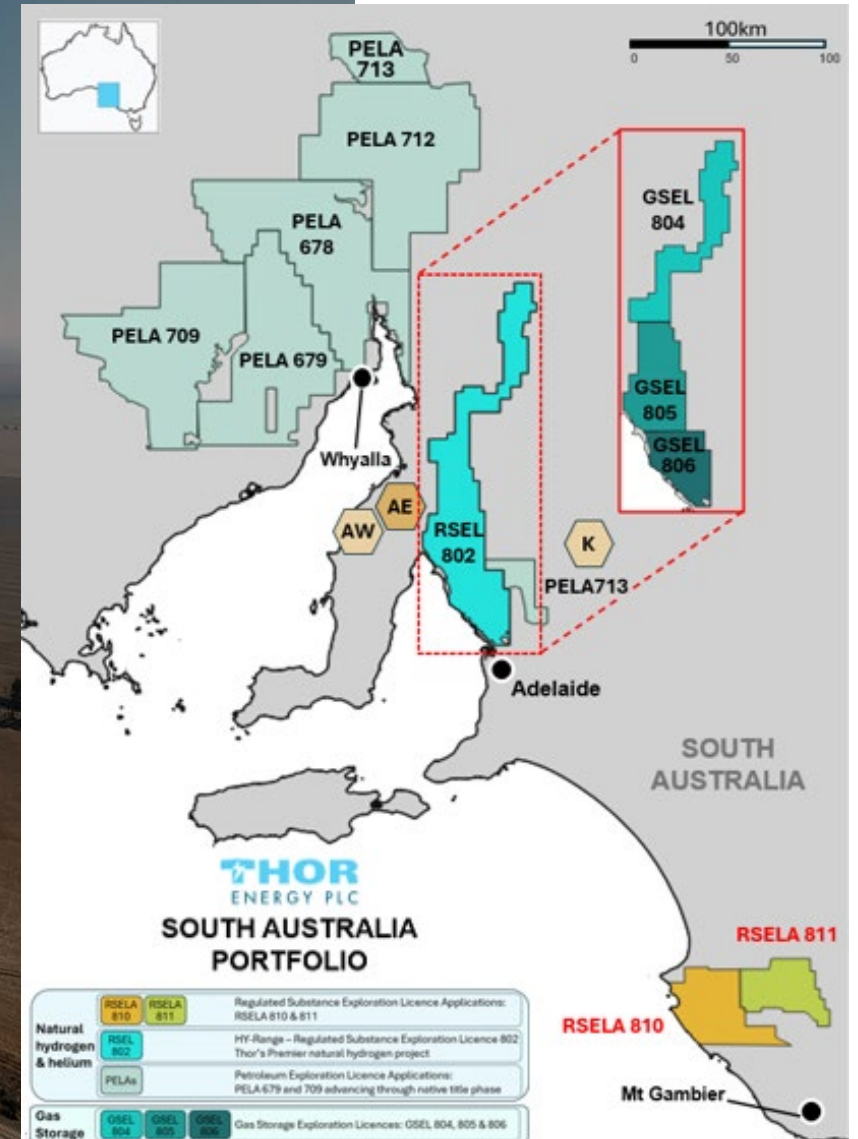
Gas
Storage

Gas Storage – Synergy and Opportunity

Critical
Minerals

Alford East

EnviroCopper Limited – 24% Indirect Holding



Industry Focus

Business Environment

- Supportive Government (local and national)
- South Australia is a global natural hydrogen and helium exploration hotspot

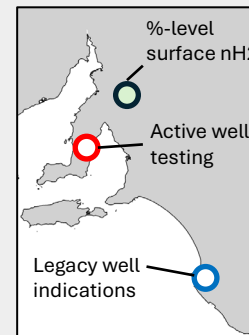
Exploration Potential

- Prospective and diverse natural hydrogen and helium potential
- Hydrogen and helium recorded by legacy drilling

Active Industry

- Gold Hydrogen –flow testing at Ramsey wells (Yorke Peninsula)
- Thor Energy preparing for 2D seismic acquisition 2026 Q4
- Active lease sale with awards in Otway and Polda Basins
- Thor recording highly elevated hydrogen concentrations
- Numerous industry and academic geochemical survey anomalies

Salient Touch-points



South Australia Portfolio

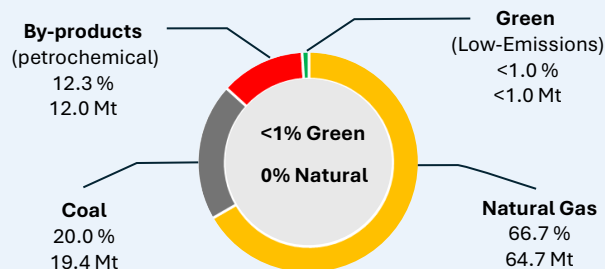
- Synergies across Thor's SA minerals portfolio
- Built on Thor's long history in South Australia
- Complementary skills, data and processes
- Integrated learnings across commodity types
- Shareholder focus and local skills



Why Natural Hydrogen

2023 Global Hydrogen Production

IEA – Global Hydrogen Review 2024



Currently a fossil-fuel world

- >99% produced from fossil fuels*
- Hard-to-abate, and costly
- ~2.5% of Global CO₂ emissions*

Natural Hydrogen advantage

- 100% clean, truly net-zero emissions
- Scalability potential
- Low-cost potential

*Hydrogen - IEA

SA Offtake Opportunities

Hydrogen markets

- SA investing in hydrogen infrastructure
- Thor portfolio ideally located for offtake

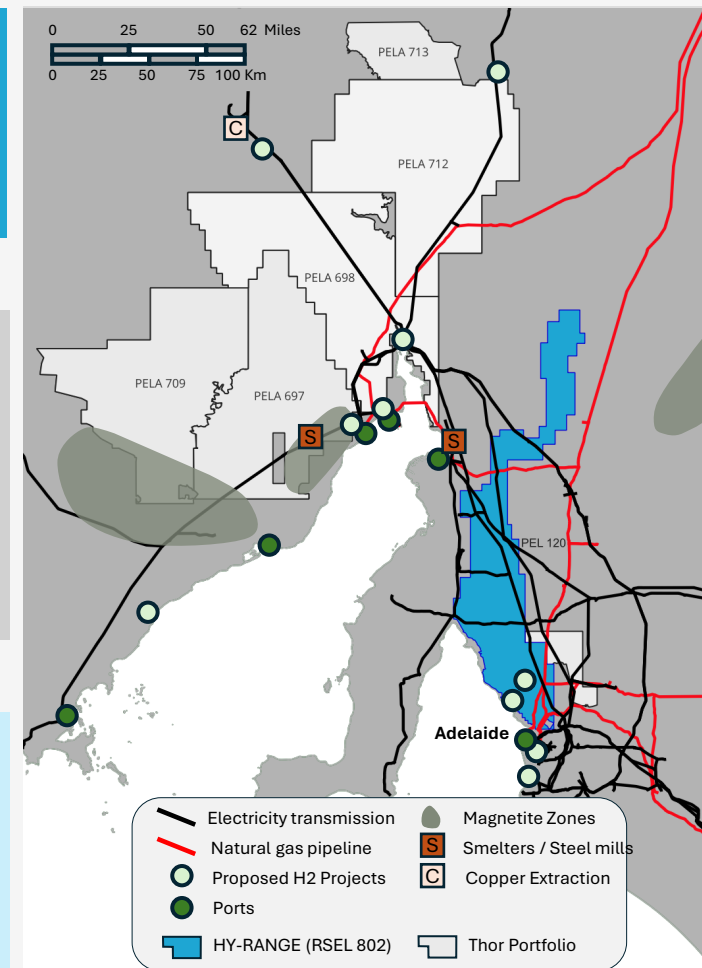
Helium markets

- Lack of Australian production
- Domestic needs (114 MMcf pa = 2024*)
- Growing international market

*Australia Helium Market Size, Share & Growth Analysis | Report 2025-2034 <https://www.expertmarketresearch.com.au/reports/australia-helium-market>

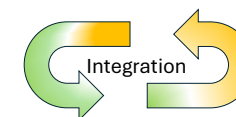
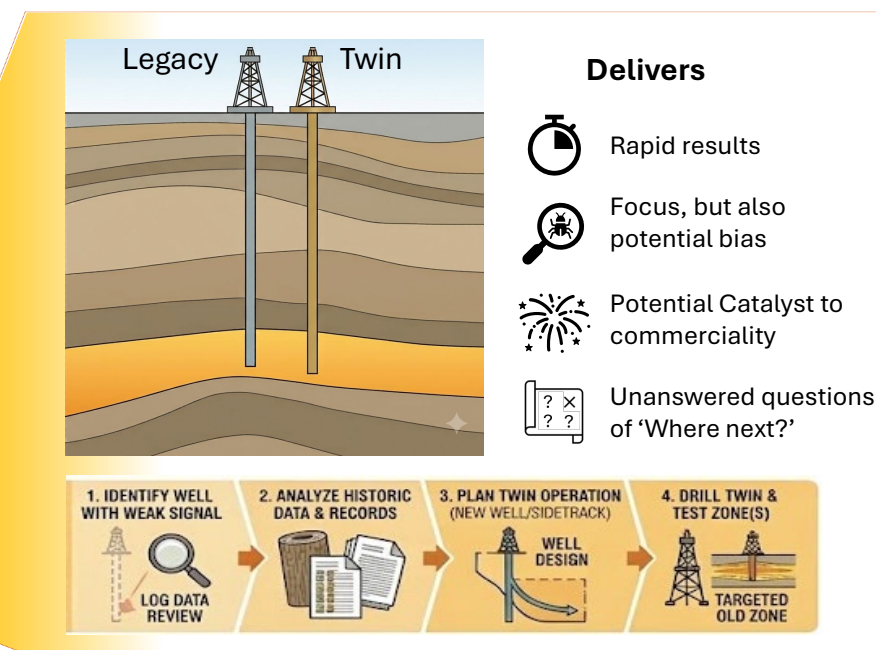
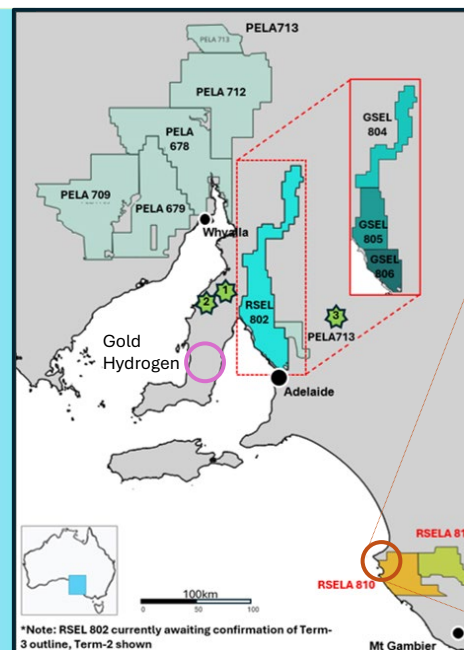
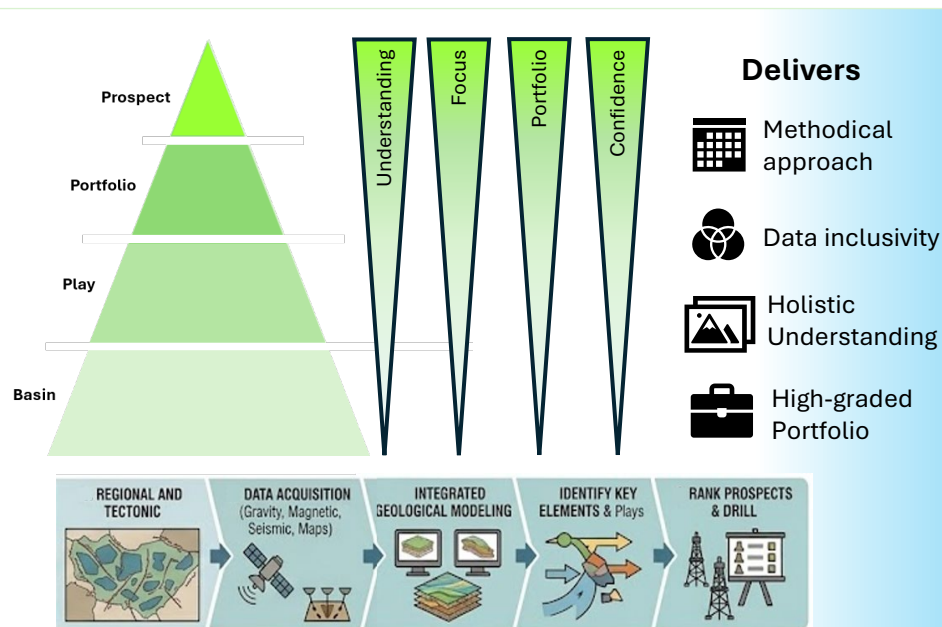
Gas storage markets

- Potential catalyst for natural hydrogen
- nH2 or CH4 aggregation or grid-levelling
- Industrial CO₂ sequestration potential



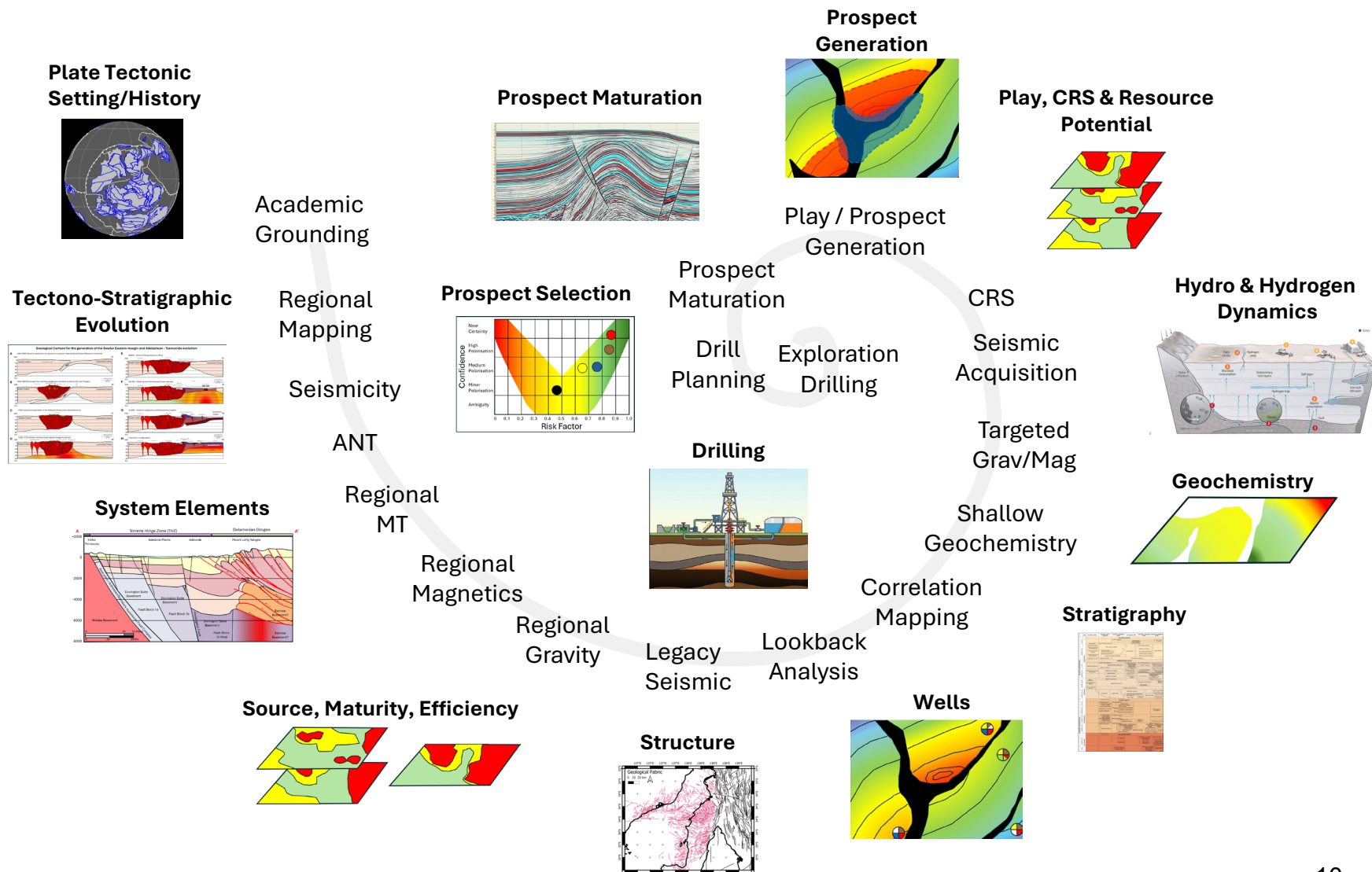
Thor Energy Natural Hydrogen Exploration Approaches

Play based exploration (PBE) versus twinned wells

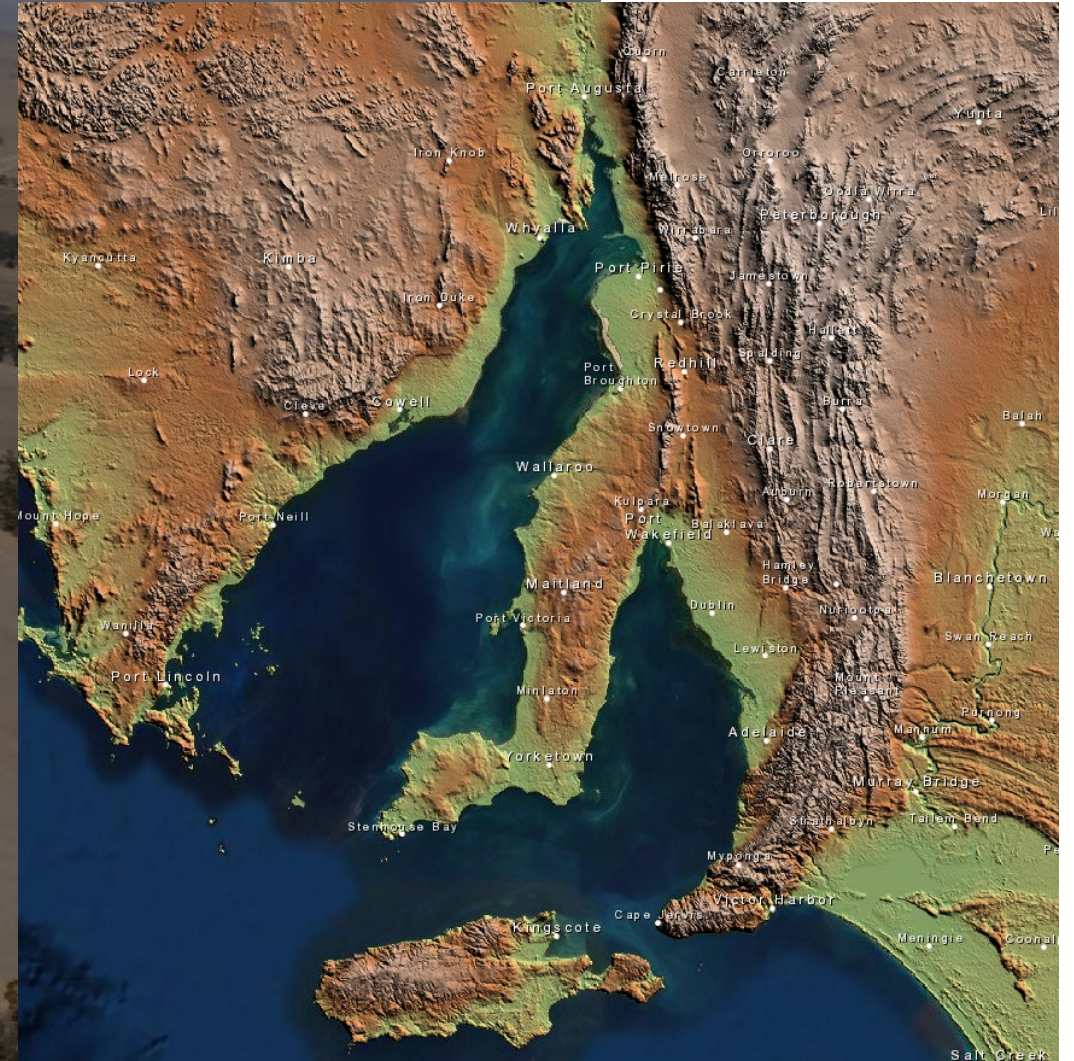


The Play-Based Exploration Approach

- **Play Based Exploration (PBE)** developed for petroleum exploration and ideally suited for natural hydrogen and helium
- **Structured approach** to transition from continental to prospect scale
- **Numerous subtleties** to its useful application in natural hydrogen and helium exploration



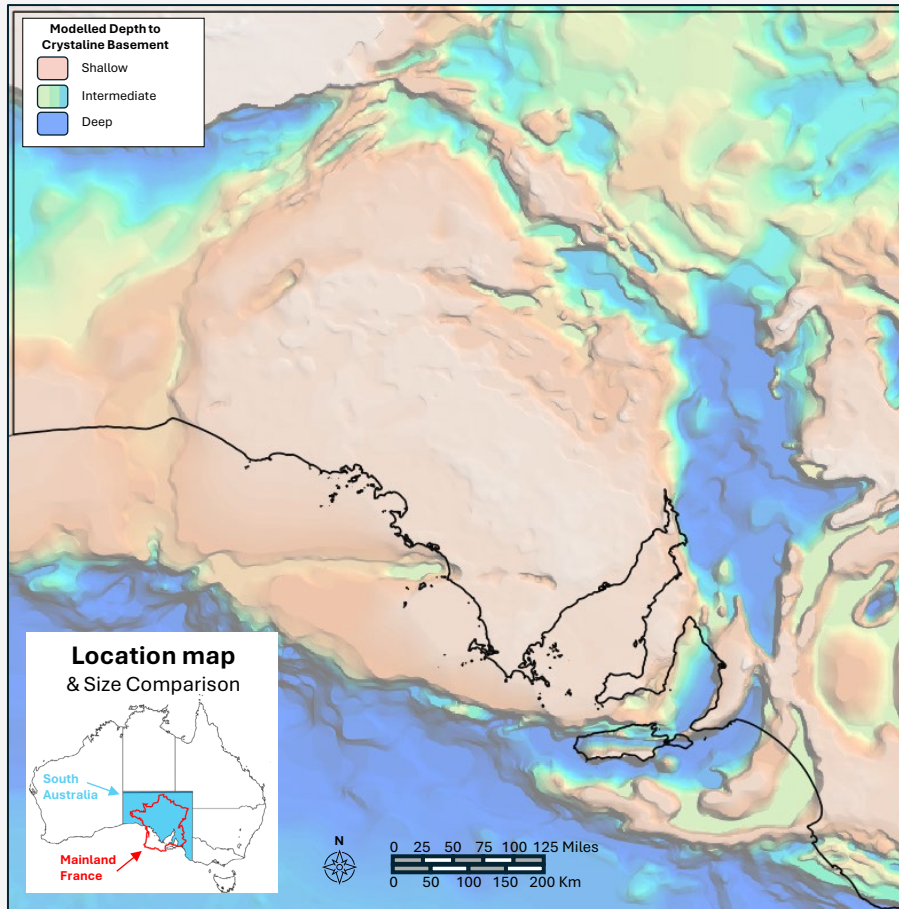
SA Cratonic Margin nH2 Geology



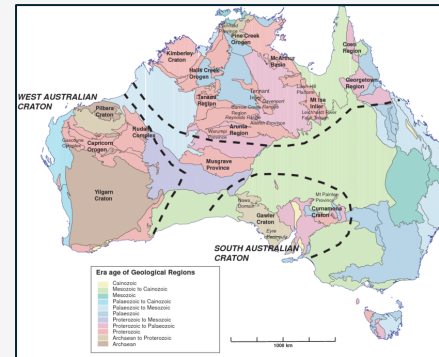
South Australia – Geological Elements

Continental Keystone, meets rift fill, meets Fold-thrust belt

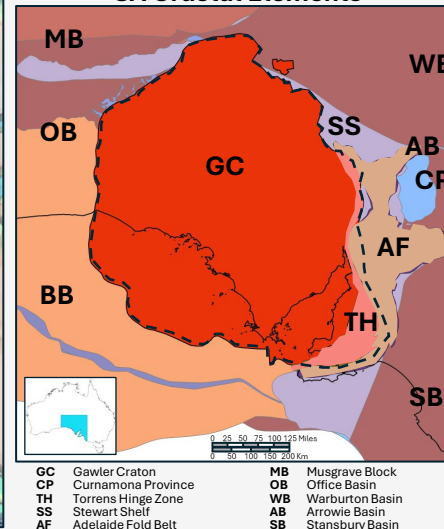
SEEBASE – Modelled depth to crystalline basement *1



Australian Crustal Elements *2



SA Crustal Elements *3

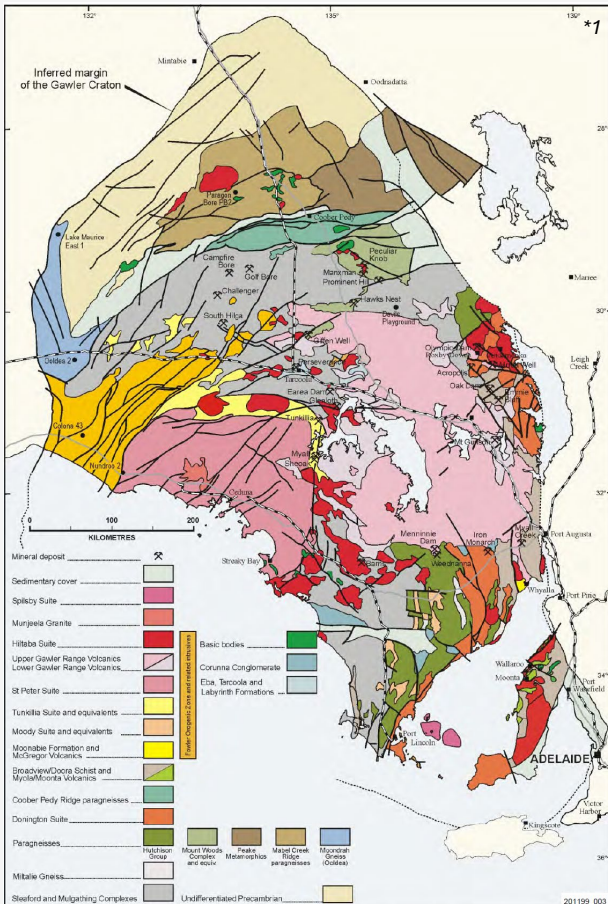


- **Australia:** Complex continent of ancient Cratons
 - Multiple stages of complex accretion, and rifting
 - Mobile belts and significant sedimentary basins
 - Host to high grade minerals deposits
- **South Australia:** Three domains of interest:
 - Gawler Craton – Archean-Mesoproterozoic
 - Torrens Hinge Zone - Neoproterozoic low grade, low-deformation metasediments
 - Adelaide fold-belt - Neoproterozoic mod-high grade, high-deformation metamorphic

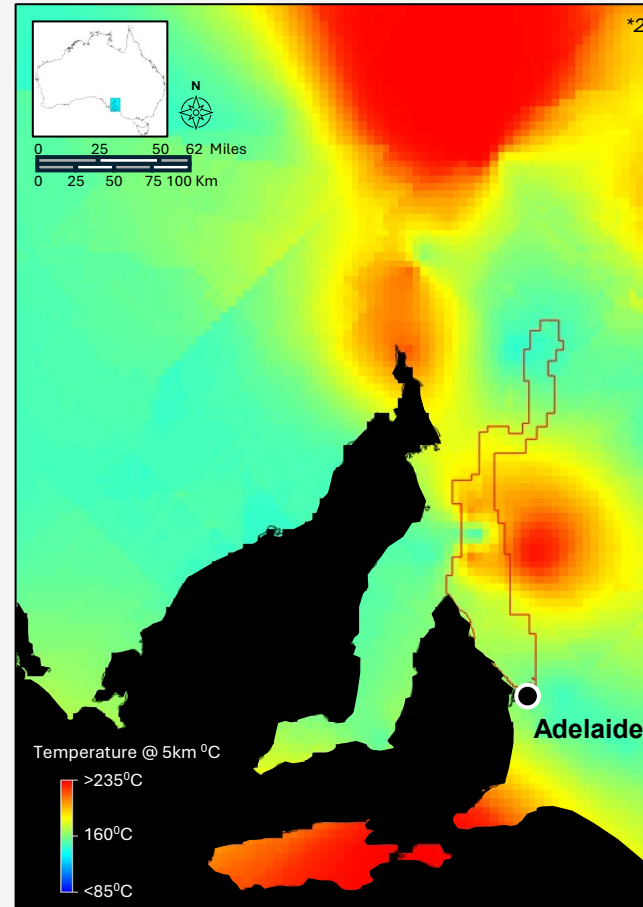
Ref: 1* Fairclough, M. C., et al. (2004). *Gawler Craton Crystalline Basement Map*. Primary Industries and Resources South Australia (PIRSA) / Geological Survey of South Australia.
 2* Australian – Principal Crustal Elements, from - Calwood, P.A. and Korsch, R.J. (2008) '
 3* Assembling Australia: Proterozoic building of a continent', *Precambrian Research*, 166(1–4), pp. 1–35.

Source Rock Potential

Gawler Craton Archaean to Meso-Proterozoic Assemblages

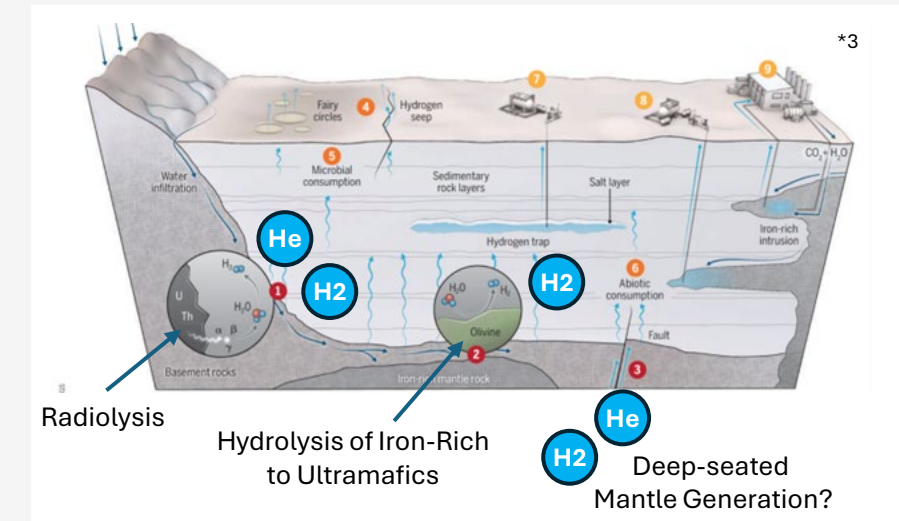


OzTemp 5km Depth Map: South-Central, SA



Gawler Craton

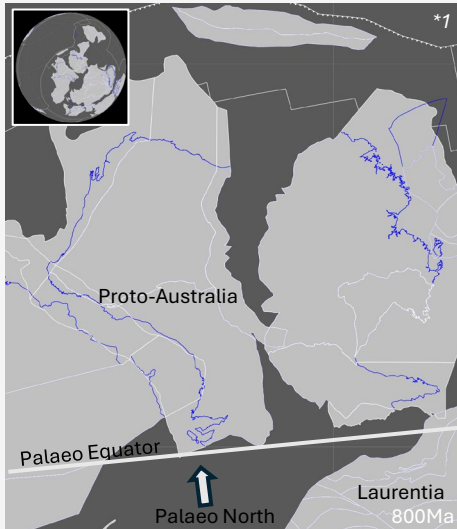
- Mafic-rich basement terranes offer potential for hydrolytic hydrogen formation
- Felsic dominated terranes offer potential for radiolytic production of hydrogen and helium
- Deep seated faulting allows connection to lower crust and mantle degassing



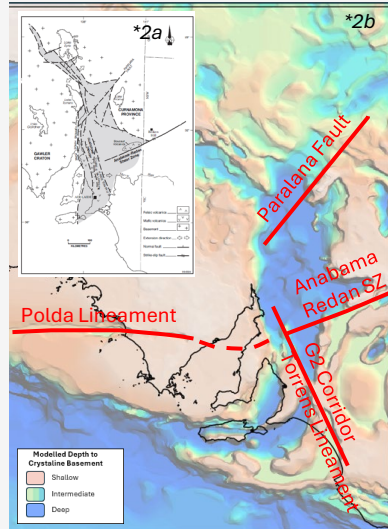
Ref *1 Figure 1.1., Fanning, C. M., Reid, A. J., & Teale, G. S. (2007). A Geochronological Framework for the Gawler Craton, South Australia (Bulletin 55). Geological Survey of South Australia, Primary Industries and Resources South Australia (PIRSA), Adelaide.
 *2 Available from Sarig Map: <https://map.sarig.sa.gov.au/>
 *3 Adapted after: Hand, E. 2023, Hidden Hydrogen – Does Earth hold vast stores of a renewable carbon-free fuel? Science 379:6633, p. 631-636, <https://doi.org/10.3133/ofr20211045>.

Southeastern South Australia

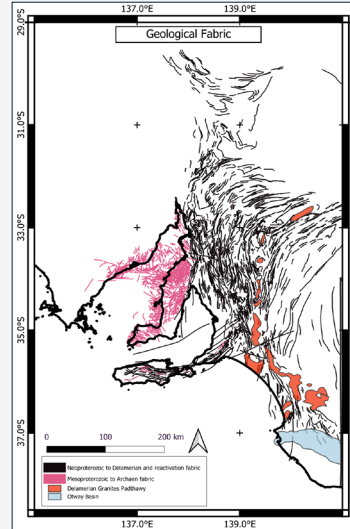
Plate reconstruction/Palaeolatitude



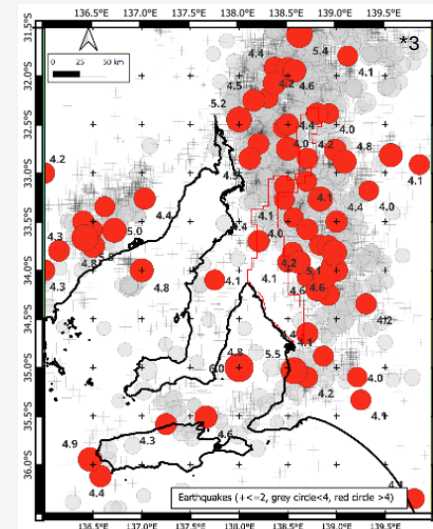
Lineaments and Structural Controls



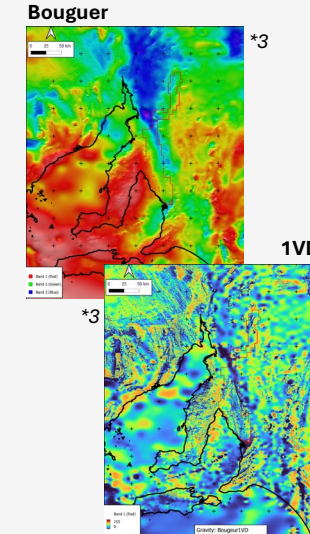
Structural Fabric



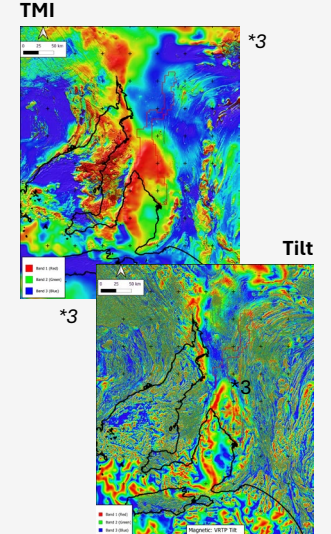
Seismic (Earthquake) Activity



Regional Gravity



Regional Magnetics

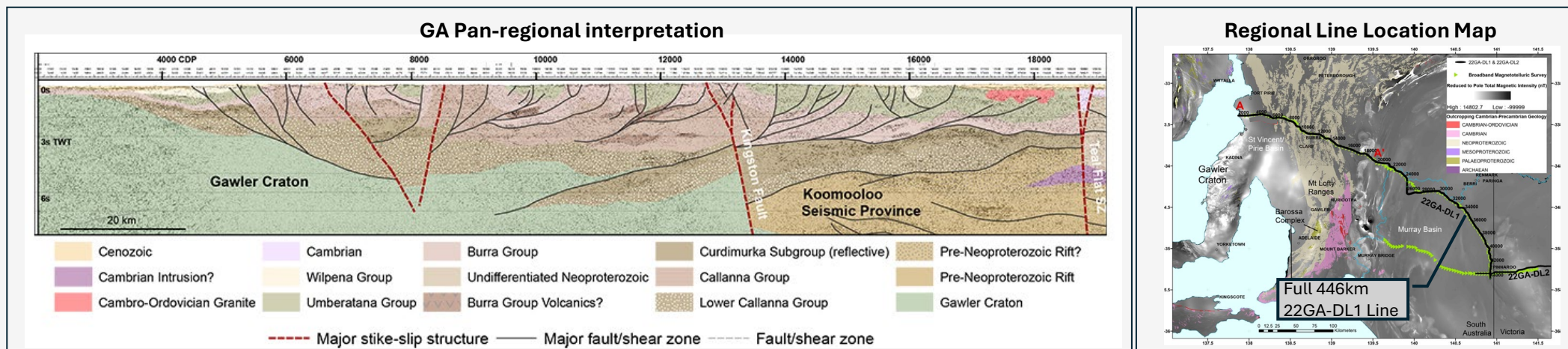


- South Australia is a tapestry of basement terranes, sedimentary basins, fold-thrust complexes, volcanic and intrusive complexes
- Deep-crustal lineaments implicated in continental evolution and associated fabric
- Multiple stages of deformation establish strong, often superimposed and reactivated, fabrics
- Earthquake activity reflect fault reactivation, surrounding stable zones
- Potential field data highlights contrasting basement character and depth, superimposed with shallower lithologies and fabric
- ANT and MT may also provide insights

*1 Available from SARIG Catalogue. *2 Available through

Ref *1 Generated with Gplates, based on Meredith_etal_2021_ESR_v1.2.4. Located at: <https://doi.org/10.5281/zenodo.13635864>
 *2a Fig. 4 (p. 30) in Preiss, W.V., 2000. The Adelaide Geosyncline of South Australia and its significance in Neoproterozoic continental reconstruction. *Precambrian Research*, 100(1-3), pp. 21-63
 *2b Fairclough, M. C., et al. (2004). *Gawler Craton Crystalline Basement Map*. Primary Industries and Resources South Australia (PIRSA) / Geological Survey of South Australia.
 *3 Available from Sarig Map: <https://map.sarig.sa.gov.au/>

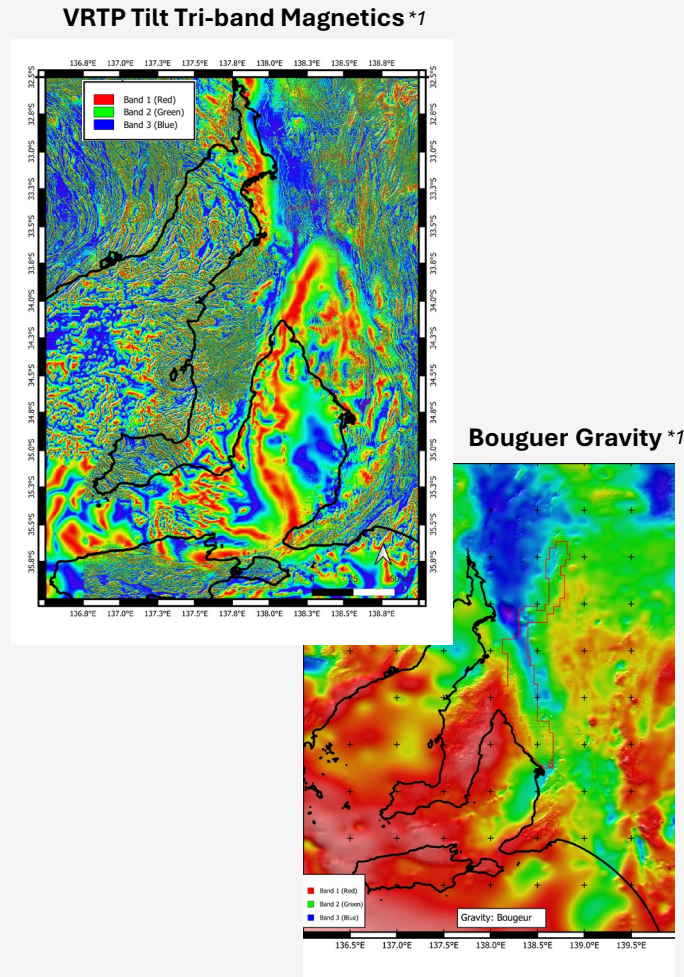
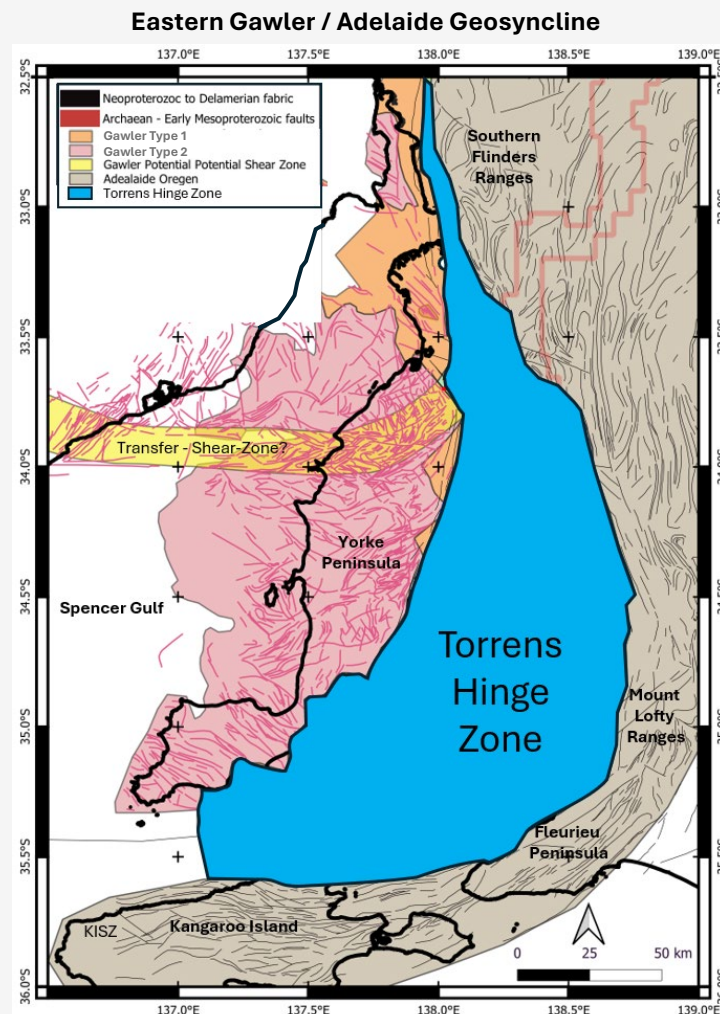
Regional Configuration of Southeastern South Australia



- **Regional Seismic Line: G22A-DL1** – crosses 446km from near Port Pirie to Pinnaroo, close to the SA/Vic border
- The only regional seismic line spanning this area
- Deep crustal profile provides insights into basement, rifting, the Delamerian Orogen and Tasmanide assemblage (Figure from Wise et. al. 2025*)
- Gawler Craton/ Adelaide Rift transition locally flexural margin (this line) or sharp faulted margin (expected to south)

Ref *Basins and Ranges: a cross-section through sedimentation and tectonism along the Delamerian-Lachlan deep crustal seismic line 22GA-DL1, Tom Wise^{1,2}, Michael Doublier³, Wolfgang Preiss¹, Mark Pawley^{1,2}, Stephan Thiet⁴, Carmen Krapf^{1,2}, Rashed Abdullah^{1,2}, Claire Wade^{1,2}, Roger Miller³, Ross Costelloe³, Muhammad Hossain³, Haroon Rasheed³ and Malcolm Nicoll³ 1 Geological Survey of South Australia, Department for Energy and Mining, 2 MinEx CRC, 3 Geoscience Australia, 4 CSIRO, Mineral Resources

Basement, Source Rocks – Depth and Fabric



Torrens Hinge Zone (as Thor considers it), is:

- The Adelaide Rift system preserved west of the shallow / surface Gawler Craton and East of the principle thrust belts of the Adelaide Fold Thrust Belts
- Occupying Gulf St. Vincent and much of the Adelaide Plains

Character:

- Data suggest significant variability in basement character
- Implications for natural hydrogen and helium source rock potential, reaction potential and migration/focusing

Varied Source Rock Potential:

- Donington Suite Mafic to Felsic
- Hiltaba / Tikera – Felsic dominated
- Deep-seated faulting and focusing geometries

Migration and Enrichment in the Neoproterozoic Rift Section

Neoproterozoic Stratigraphy

- Wilpena Gp: Siltstones, Sandstones, minor carbonates
- Umberatana Gp: Sturtian & Marinoan glacial deposits
- Burra Gp: Laminated sandstones, siltstones, & dolomites
- Callanna Gp: rift volcanism, evaporites and coarse clastic & shales

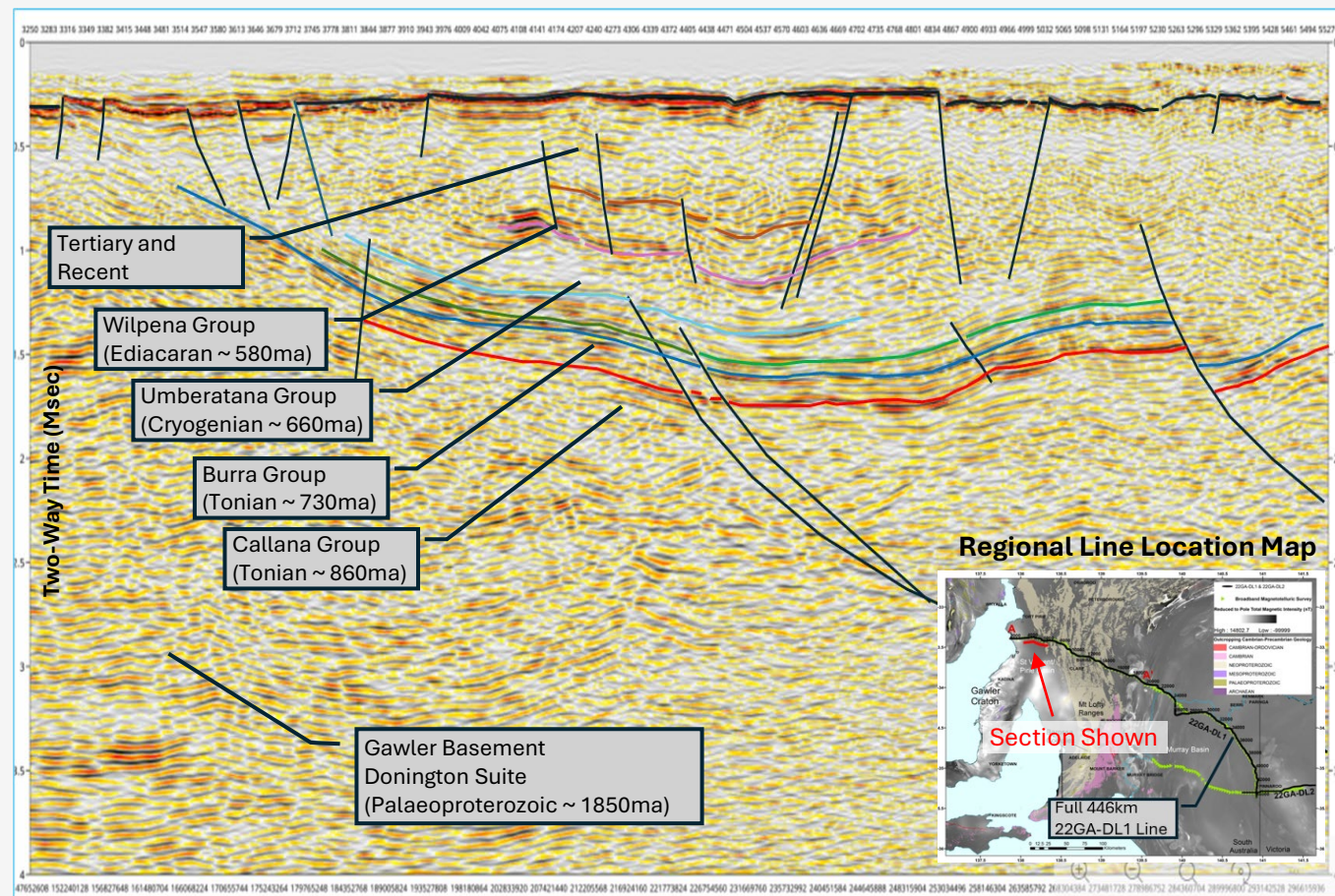
Deformation

- Neoproterozoic Rifting – Approximately North-South, generally normal extensional faulting
- Cambrian (Delamerian) east-west shortening, likely reactivating some Rift faulting
- Numerous phases of extension and compression, including Tasmanide stresses, Antarctic Rifting and Neogen far-field compression

Implications of Structural Style

- Varying stress fields – allow water ingress and nH2 / He egress
- Crustal faulting allows enhanced advective migration potential
- Structural focus zones allows potential enrichment
- Conventional / dynamic trapping potential

Zoomed and partially interpreted section



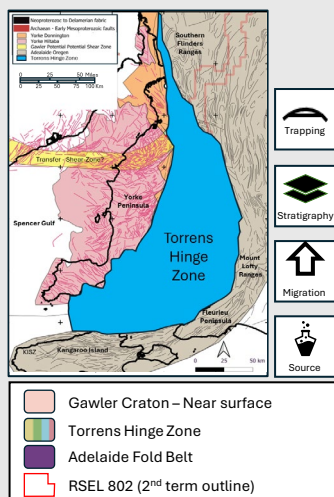
Ref GD22A-DL1 SEG-Y data available through SARI Catalogue

RSEL 802 – HY-Range Project



HY-Range (RSEL 802) Play Elements and Exploration insights

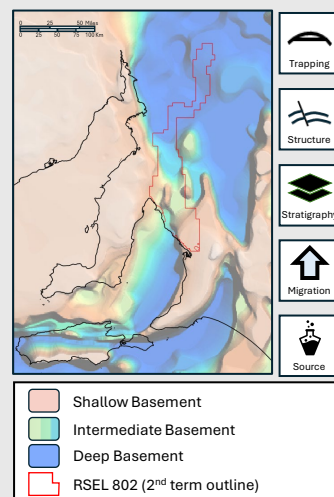
Tectonic Elements



Pivotal location across Torrens Hinge Zone (THZ) and Adelaide Fold belt (AFB), underlain by Gawler Craton (GC)

Ingredients for: source, migration, reservoir, and trapping

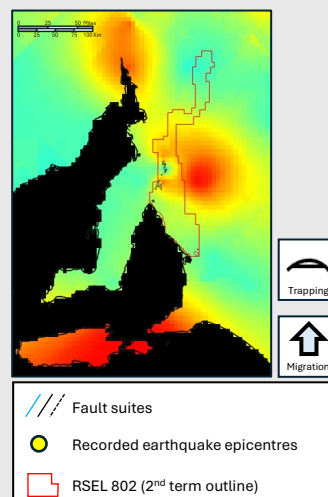
Basement Architecture *1



Margin of the paleo-rift, underpinned by crystalline basement both as shallow terraces & blocks as well as, at significant depths

Ingredients for: stratigraphy, source, migration & trapping

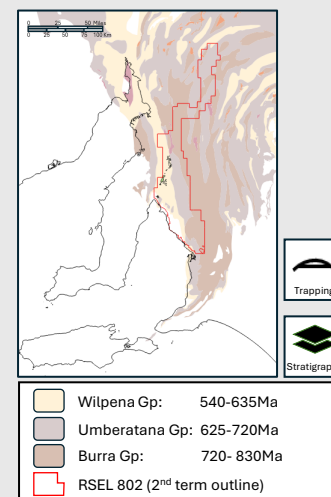
Source Potential *2



Multiple source mechanisms and proven nH₂ field recordings. Multiple episodes of pervasive faulting facilitating genesis and migration of nH₂ and He

Ingredients for: migration and potentially trapping

Stratigraphy

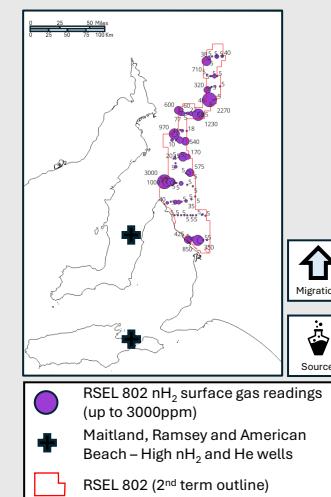


THZ – low deformation clastic, carbonate & halite sequences of the Neoproterozoic

AFB – fold thrust belts with all Neoproterozoic groups exposed

Ingredients for: reservoir and trapping

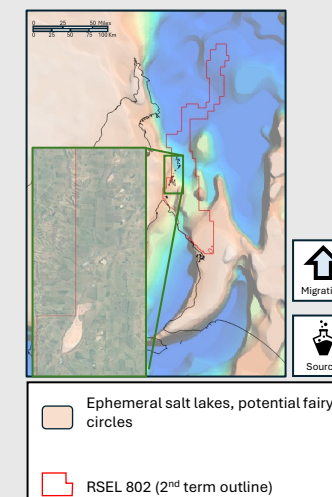
Proven NH / He



Very high nH₂ and He encountered in adjacent wells and significant surface geochemistry anomalies

Ingredients for: source, and migration

Surface Features *1

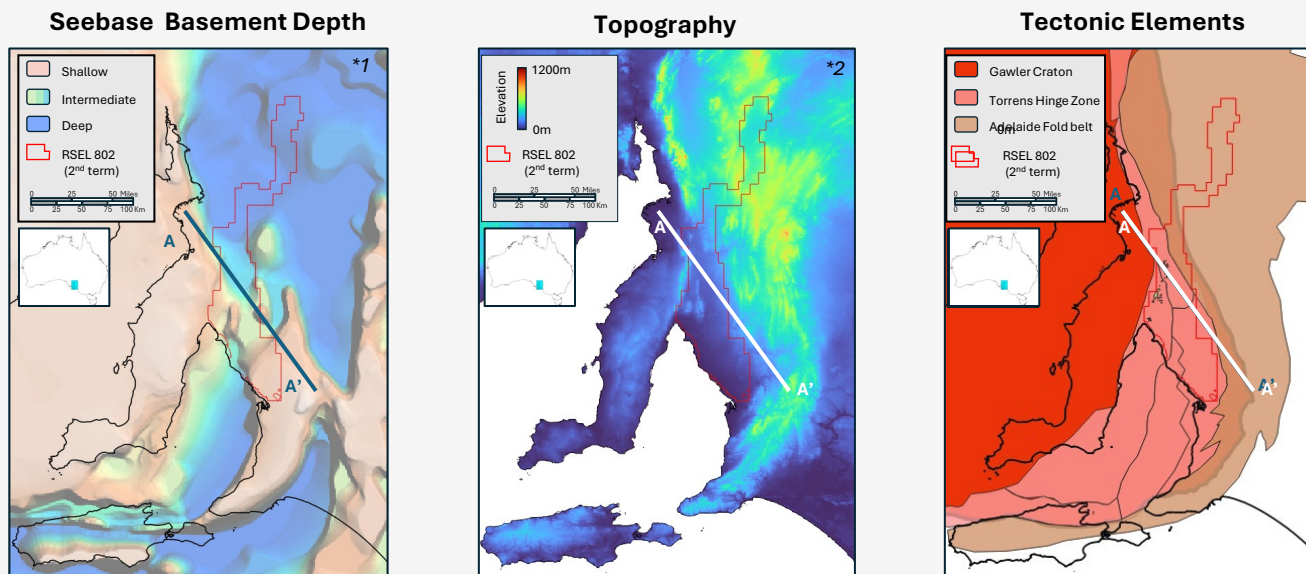


Numerous ephemeral salt lakes, aligned adjacent to major geological boundary, major faulting and potential necking zone

Ingredients for: source and migration

Ref 1* Fairclough, M. C., et al. (2004). Gawler Craton Crystalline Basement Map. Primary Industries and Resources South Australia (PIRSA) / Geological Survey of South Australia.
2* Available from Sarig Map: <https://map.sarig.sa.gov.au/>

RSEL 802 Tectonic Elements



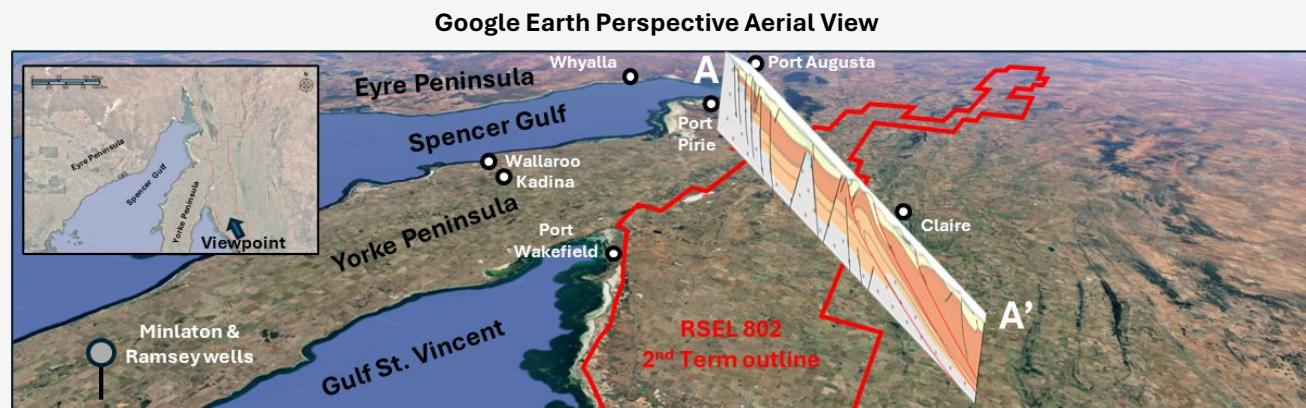
RSEL802 Spans the Torrens Hinge Zone and part of the Adelaide Fold Belt

• Torrens Hinge Zone

- Modestly deformed remnants of an 800-500MA rift
- Neoproterozoic Clastic, carbonate and evaporitic rocks metasediments
- Gawler Craton, crystalline basement
- Approximately North-South oriented, low-lying relief
- North south faulting with Neogene reactivation

• Adelaide Fold Belt

- Highly deformed remnants of 515-475 MA Delamerian Orogeny
- Arcuate fold-thrust belts composed largely of Neoproterozoic sediments, now metamorphosed

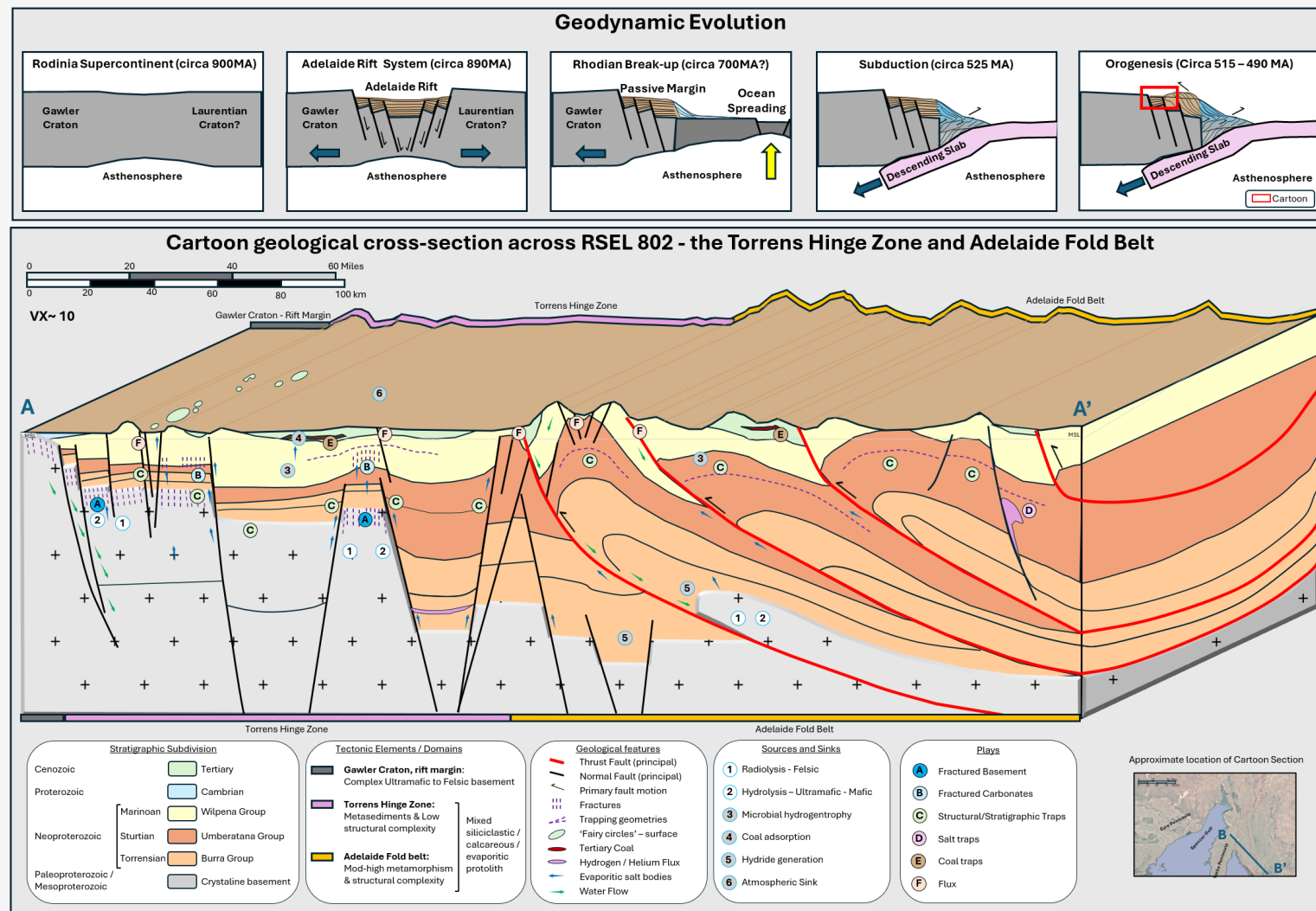


Ref 1* Fairclough, M. C., et al. (2004). *Gawler Craton Crystalline Basement Map*. Primary Industries and Resources South Australia (PIRSA) / Geological Survey of South Australia.
2* Available from Sarig Map: <https://map.sarig.sa.gov.au/>

Play Synthesis

- **RSEL 802** spans the Torrens Hinge zone and the Western Parts of the Adelaide Fold belt
- **Torrens Hinge Zone**
 - Neoproterozoic low-grade Rift and passive margin low-grade metasedimentary succession
 - Crystalline Felsic to Ultrabasic basement at depth
- **Adelaide Fold Belt**
 - Complex fold-thrust systems
 - Exposures of Neoproterozoic to Paleoproterozoic
- **Source**
 - Complex basement geology with felsic lithologies ideal for radiolysis, mafic to ultramafics suitable to for serpentinization, pervasive crustal faulting for mantle degassing
 - Aquifers, hills, and gulfs facilitate water delivery
- **Plays**
 - Diverse play potential from fractured basement, conventional traps, potential salt and coal

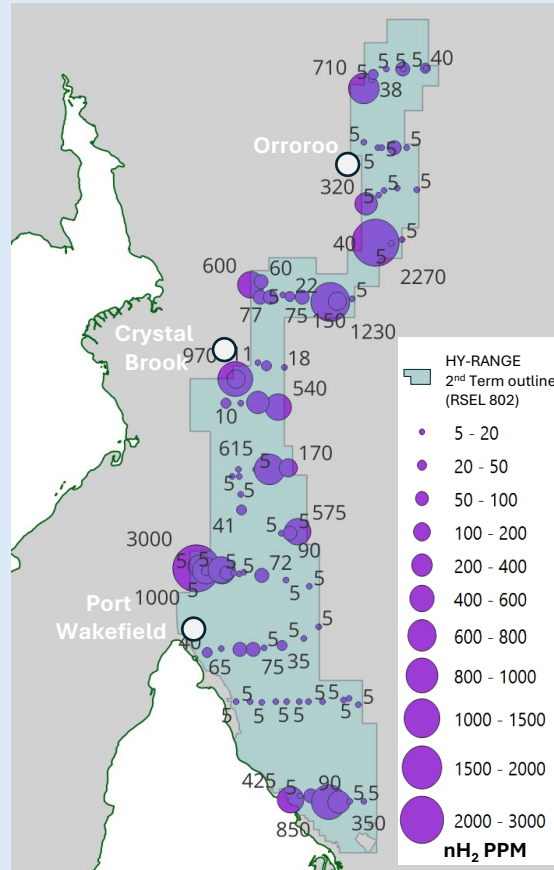
Note: Conceptual



Geochemical Analysis

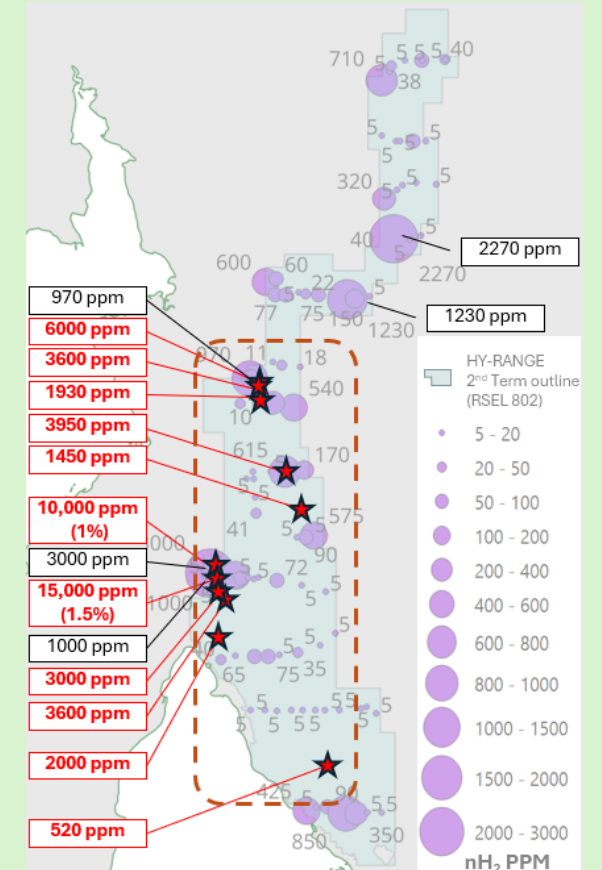
Phase1: Proven Hydrogen and Helium

- Successful May 2025 geochemistry survey
- nH₂ Readings up to 6000x background
- He readings up to 6x background
- Elevated readings in Torrens Hinge zone and Adelaide fold-belt
- Exploration focus areas identified

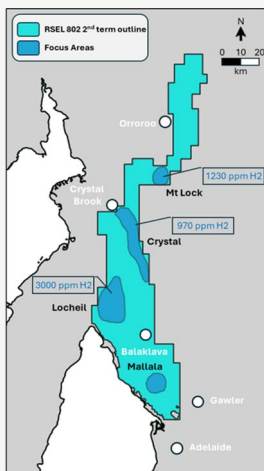


Phase 2: Confirmed Increased Readings

- Phase 2: 2025/2026
- Surpassed Phase 1 recording up to 3% nH₂
- Innovated new sampling techniques and methodologies
- Increased spatial sampling
- Increased temporal sampling



HY-RANGE: Licence Focus, Targeted Maturation and Exploration Drilling



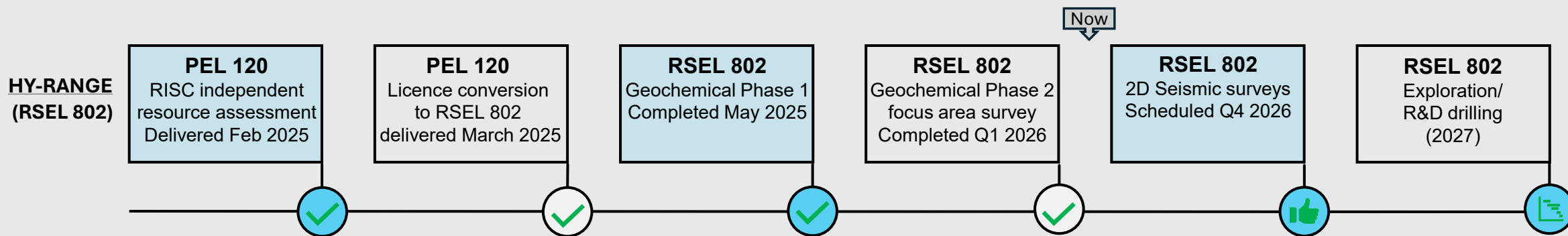
*Note: RSEL 802 currently awaiting confirmation of Term-3 outline, Term-2 shown

Planned work programme

- 2D exploration seismic
- Scheduled for Q4 2026
- Planned 464-line kilometres
- Acquisition across the high-graded Lochiel and Crystal exploration lead areas

Main aims

- Provide increased seismic data for lead-to-prospect maturation, prospect identification, and underpin target high-grading and well planning
- Aid understanding of basin architecture, basement depth/character
- Develop structural model to understand potential migration pathways, areas of potential fluid flux and traps
- Assess potential for rock property evaluation



Takeaways



**South Australia:
nH2, He hotspot**

Industry activity:

- Geochemical surveys, ANT, MT
- Exploration seismic
- Planned drilling
- Ongoing testing

Supportive environment:

- Regulatory support
- Active lease rounds
- Comprehensive and available data

Offtake opportunities

- Domestic and industrial Energy
- Industrial feedstock



**Exploration
Approaches**

- Traditional hydrocarbon exploration approaches are highly applicable to natural hydrogen and helium exploration
- Use of weak signals and legacy data may represent weak-signals to inform exploration
- Understanding basement type, history and pervasive structures key to unlocking natural hydrogen and helium exploration



**Portfolio quality
& diversity**

- Geographic focus, with portfolio proximal to gas storage and critical mineral exploration licences
- Synergies between oil and gas with traditional mineral exploration methodologies



**Activity & Critical
industry timing**

- Significant global exploration and testing activity, particularly in North America, Europe and South Australia
- Increased helium commodity prices encouraging synergistic exploration
- Industry set to expand and determine economic viability

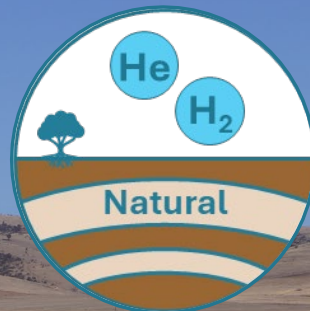


**Career Potential for
Petroleum Explorers**

- Significant overlap in the skills, techniques and approaches used in oil and gas exploration
- The nature of generation processes, migration and enrichment/trapping are more uncertain, and highly debated
- Hardrock geology a large part of the story, requiring lessons from traditional minerals exploration approaches

Thor is motivated to pioneer the vast potential of natural hydrogen & helium

We are compelled to explore and develop.



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Thank You