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**whitebark**  
ENERGY

**Strategic Acquisition – King Energy**  
**December 2024**

Mark Lindh – Chairman

Richard King – Director - King Energy

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## **Cautionary Statement Prospective Resource Estimates**

The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery, as well as a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a commercial quantity of potentially moveable hydrocarbons.

## **References and Competency Statements**

The Company confirms that that it is not aware of any new information or data that materially affects the information included in the relevant market announcements included in this presentation and, in the case of oil and gas Reserves and Resource Estimates, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

The information in this document relating to resources is based on information compiled by Mr Stuart King, a director of King Energy. Mr King is a Petroleum Geologist and has a Bachelor of Science in Geology and Geography (Hons) from the University of Western Australia and a Masters of Business Administration in Oil & Gas Management from Robert Gordon University. He is a member of the Society of Petroleum Engineers (SPE), the American Association of Petroleum Geologists (AAPG), the South East Asian Petroleum Exploration Society (SEAPEX) and the Australian Geothermal Association (AGA) and has 25 years' experience in the industry in exploration, appraisal, field development planning, reserves and resources assessment, commercial valuations and business development.

## **A Note Regarding Forward Looking Information**

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## King Energy Limited Acquisition Structure

### Transaction Overview

- Whitebark has agreed to acquire King Energy via an off-market takeover offer. Whitebark and King Energy have entered into a Bid Implementation Agreement, under which King Energy's Directors unanimously recommend that King Energy shareholders accept the Offer
- King Energy is an Australian public unlisted company that hold a 70% (with an option to acquire the remaining 30%) interest in two Petroleum Exploration Licenses comprising 19,467 km<sup>2</sup> in the Officer Basin, South Australia (Alinya Project). King Energy controls the operations of the Alinya Project. The Alinya Project comprises over 20 identified prospects the largest of which are the Rickerscote, Milford and Milford East targets, each of which exceeds 150km<sup>2</sup> of closure or productive area
- Given the productive area of the currently identified traps (up to 400km<sup>2</sup>), the occurrence Hydrogen or helium could result in the discovery of extremely large volumes, by global standards.
- The acquisition of King Energy will provide Whitebark with access to some of the largest seismically defined structures onshore Australia hosting the potential for significant prospective resources of naturally occurring hydrogen and helium, together with hydrocarbon prospectivity to fuel Australia's energy future and security.
- The Offer is subject to a 90% minimum acceptance condition by King Energy shareholders.
- Whitebark intends to undertake a capital raising early in 2025 to provide funding for exploration activities.

### Ownership

- Whitebark will issue 100 million new Whitebark shares at a deemed issue price of \$0.012 per share and 100 million new Whitebark options (exercisable at \$0.05 on or before 31 March 2030) as consideration for the acquisition of King Energy.
- The implied value of the acquisition is AUD\$1,669,700 and provides existing and new shareholders in Whitebark significant exposure to value upside assuming successful exploitation of the asset portfolio.

# INVESTMENT HIGHLIGHTS

## Fuelling Australia's Energy Future

### The 3H Strategy - Delivering White Hydrogen, Natural Helium and Transition Energy

Company making, sub-salt Officer Basin Project with ranked prospects among the **largest, undrilled seismically defined structures on-shore Australia.**

All **hydrogen, helium and hydrocarbon**, play elements are proven present in the basin.

Direct hydrogen, helium and hydrocarbon **measurements recorded** in the basin and on-block.<sup>1</sup>

**Hydrogen and helium proven** to the north in analogous Amadeus Basin and to the south on the Yorke Peninsula.<sup>2</sup>

**Low cost, low risk, near term exploration drilling**, delivering potentially huge returns for investors from the 3H strategy.

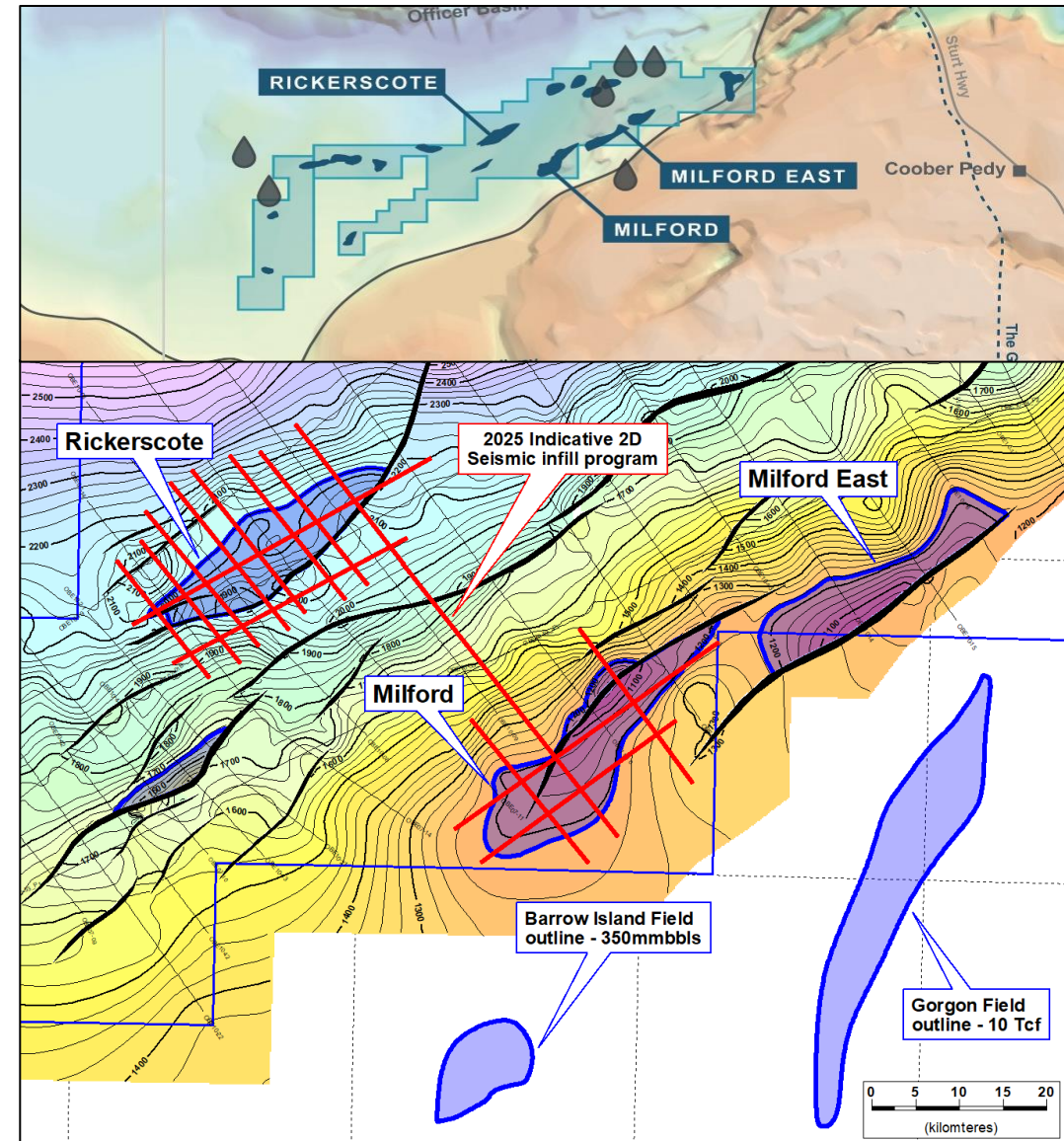
1. Kanpa-1, Lancer-1, Vines-1 & Empress-1 Fluid Inclusion Stratigraphy (FIS) H<sub>2</sub> and He – Officer Basin, WA, Munta-1, DST trace H<sub>2</sub> and He – Officer Basin, PEL-81, SA
2. Amadeus Basin: Magee-1 & Mount Kitty-1 up to 9.0% helium and 11.5% hydrogen; Yorke Peninsula: Ramsay-1 and -2 up to 25% helium and 89.0% hydrogen



# PROJECT SUMMARY

## Project Overview

- PEL 81 & 253 cover ~20,000km<sup>2</sup> of the Officer Basin in central Australia (SA).
- The licenses are located 250km west of Coober Pedy and 350km northwest of Ceduna.
- Access is via the Stuart Hwy and the Anne Beadell Hwy from Coober Pedy – the Anne Beadell Hwy runs through to ~10km north of the top ranked Rickerscote prospect.
- Land access agreements are in place with the Maralinga-Tjarutja people.
- The top ranked prospects are among the largest, undrilled, seismically defined structures on-shore Australia, with massive prospective volumes for hydrogen, helium and hydrocarbons.
- All hydrogen-helium-hydrocarbon play elements are present and proved in the basin.



Location Map and Pindyn Sandstone depth structure map showing Rickerscote, Milford and Milford East Prospects & planned 2025 2D seismic program. Comparison of structure size relative to Giant North West Shelf Fields provided

# WHITE HYDROGEN & HELIUM

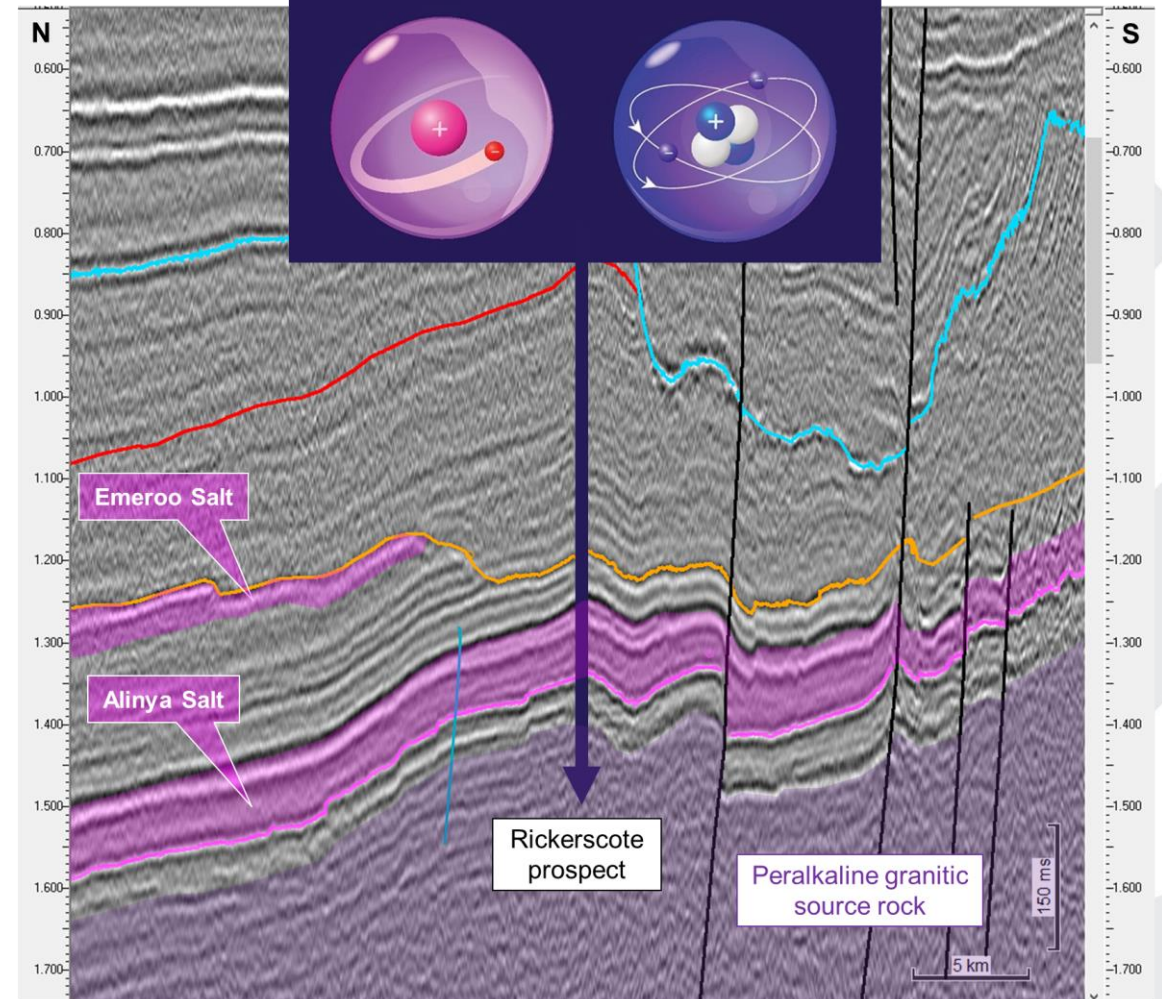
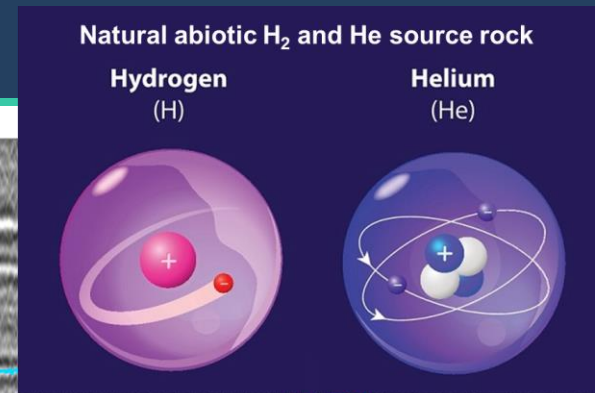
## Delivering White Hydrogen & Helium

Geologic fundamentals for white hydrogen and natural helium are proven and present.

1. **Abiotic source rocks for both white hydrogen and natural helium are present** – significantly the uranium / thorium / iron rich, Hiltaba granite (likely source for the Ramsay-1 and -2 discoveries ASX:GHY) outcrops immediately adjacent to the licences.
2. **Thick (>100m), regionally extensive, salt seals critical for effective long-term storage are present at multiple levels** – white hydrogen and helium gases are very small and highly diffusive, salt and other evaporite minerals have outstanding sealing efficiency.
3. **Conventional sandstone reservoirs are present at multiple levels** – thick (>100m), high net-to-gross, high porosity and permeability.
4. **Late-stage tectonic uplift, critical to exsolution (advection) processes for H<sub>2</sub> & He release in the free-gas phase.** H<sub>2</sub> and He are confirmed present in the Officer Basin and in PEL-81 from FIS and DST.

The prospects hold significant prospectivity for white hydrogen and natural helium, which in the event of success represent huge upside volumes and value

Rickerscote Prospect Resources	Low (P90)	Mid (P50)	High (P10)
Hydrogen KG	67 Million	710 Million	4.1 Billion
Hydrogen Value	462m US\$	5B US\$	28B US\$
Helium Bcf	17	97	499
Helium Value	9B US\$	49B US\$	250B US\$



2D Seismic Line over Rickerscote Prospect

- The estimated quantities of resources that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. They are un-risked and have not been adjusted for either an associated chance of discovery or chance of development. They are net after royalties and net to Whitebark (70%) and have been determined via probabilistic methods.
- Product prices based on US\$500mscf for helium, and US\$6.9/kg hydrogen

# HYDROCARBONS

## Hydrocarbons to Support Energy Transition Demand

The third limb of the project is to test the 3 reservoir/seal intervals for prospective volumes of hydrocarbons

Rickerscote Prospect Resources	Low (P90)	Mid (P50)	High (P10)
Hydrocarbons (mmboes)	67 Million	710 Million	4.1 Billion

All play elements are proven present in the basin from well intercepts and outcrops

### Reservoirs

Conventional sandstones, 100's m thick and exhibiting high porosity and permeability present.

### Top-seals

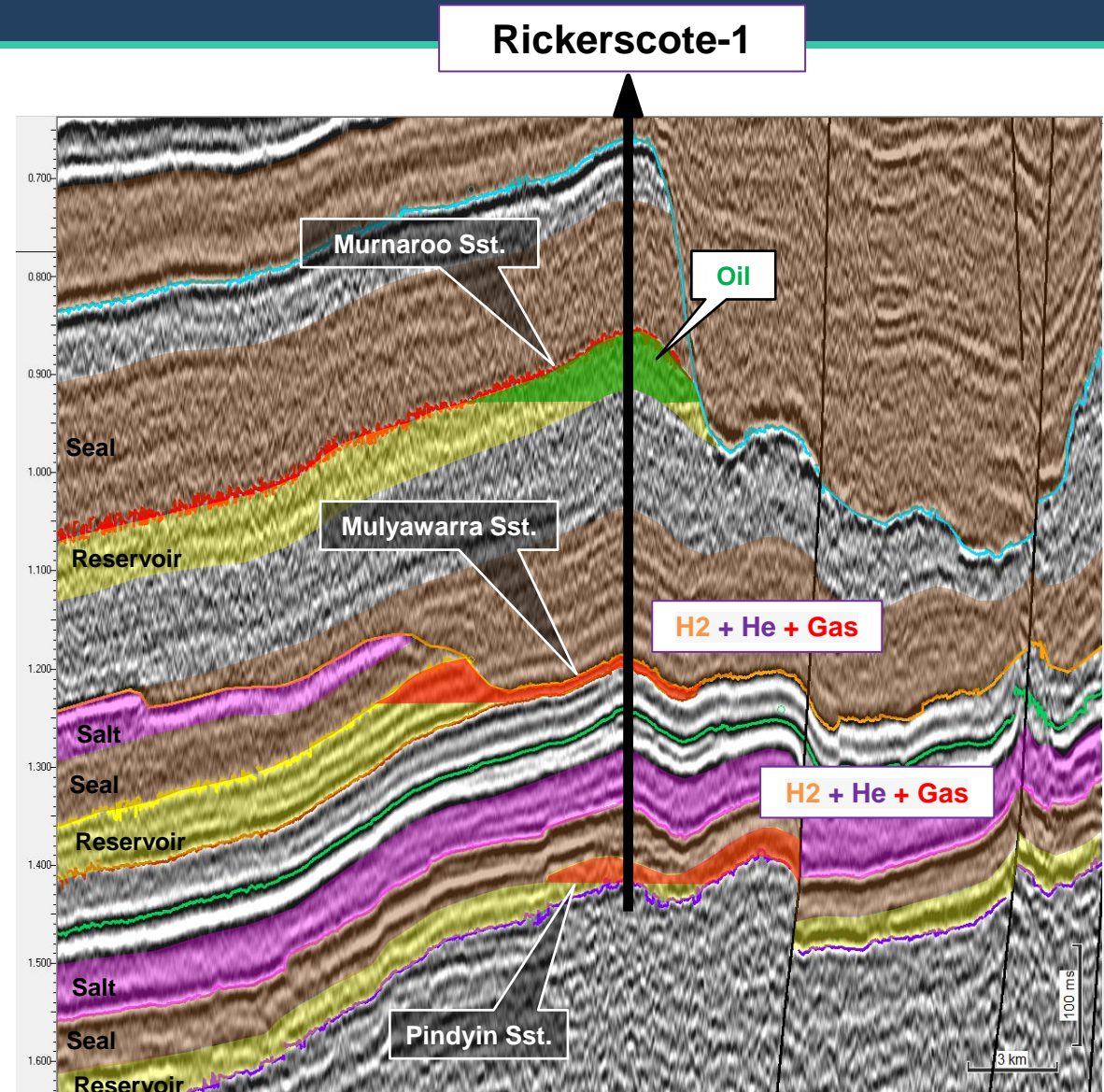
Outstanding sealing efficiencies, especially the two thick salt layers present.

### Source rocks

At least 10 sampled and analysed mature biotic source rock intervals present.

### Very large fault & canyon bounded structures

Up to 400km<sup>2</sup> - Mapped on good quality 2D seismic data present.



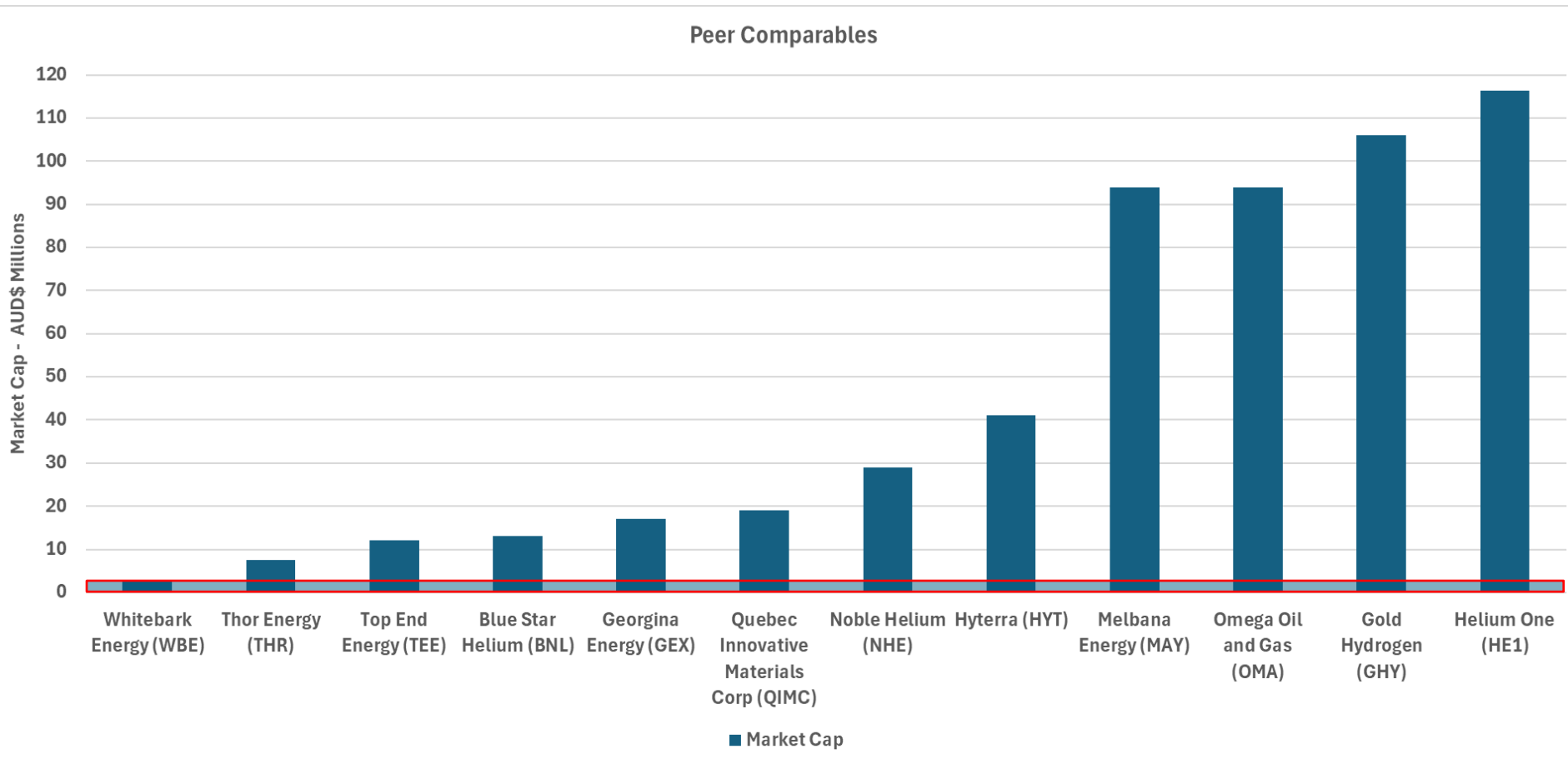
2D Seismic Line over Rickerscote Prospect

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## Peer Comparable Analysis

The project is valued for significant growth

Peer value for hydrogen, helium and hydrocarbon companies show that project's comprising white hydrogen, natural helium and hydrocarbons, are poised to deliver massive value growth for shareholders



Estimated values, 6 December 2024

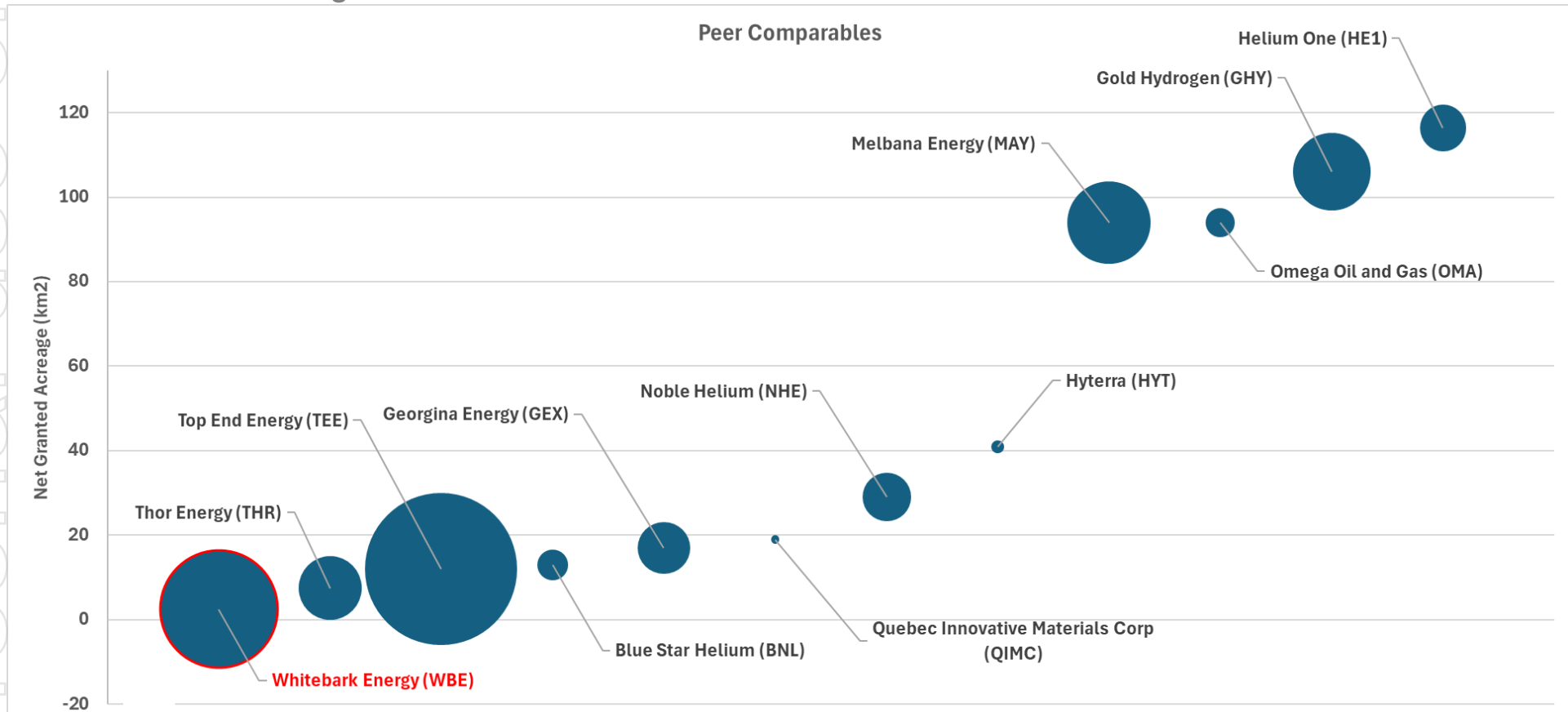
# MARKET COMPS

## Peer Comparable Analysis

The project is valued for significant growth

Whitebark Energy's prospective acreage position for hydrogen, helium and hydrocarbons dwarves many of its more highly valued peers (2 x larger than GHY, >80 x larger than HYT), positioning the company for massive future value growth

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Bubble size reflects net granted acreage position (km<sup>2</sup>)

# HYDROGEN MARKET

## Hydrogen Markets Taking Off!

White Hydrogen leading the way as hydrogen growth accelerates

### Rystad Energy, The White Gold Rush and Pursuit of Natural Hydrogen:

“Although still in its infancy ... white hydrogen has the potential to be a gamechanger for the clean hydrogen sector as an affordable, clean natural resource, thereby shifting the role of hydrogen from an energy carrier to part of the primary energy supply.

### McKinsey & Co., Global Energy Perspectives 2023:

“Clean hydrogen demand is projected to increase by between 125 and 585 mtpa by 2050.” “By 2050, clean hydrogen demand could easily account for between 73 – 100% of total hydrogen demand.”

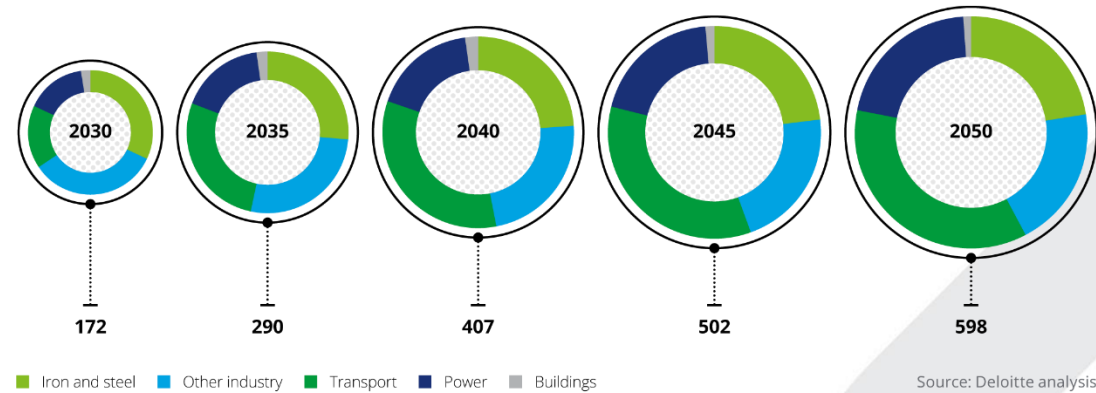
### Deloitte Global Green Hydrogen Outlook 2023:

“As support for clean hydrogen as a reliable, sustainable, energy source strengthens, the market is expected ..... To grow to >US\$1.4 trillion per year by 2050.

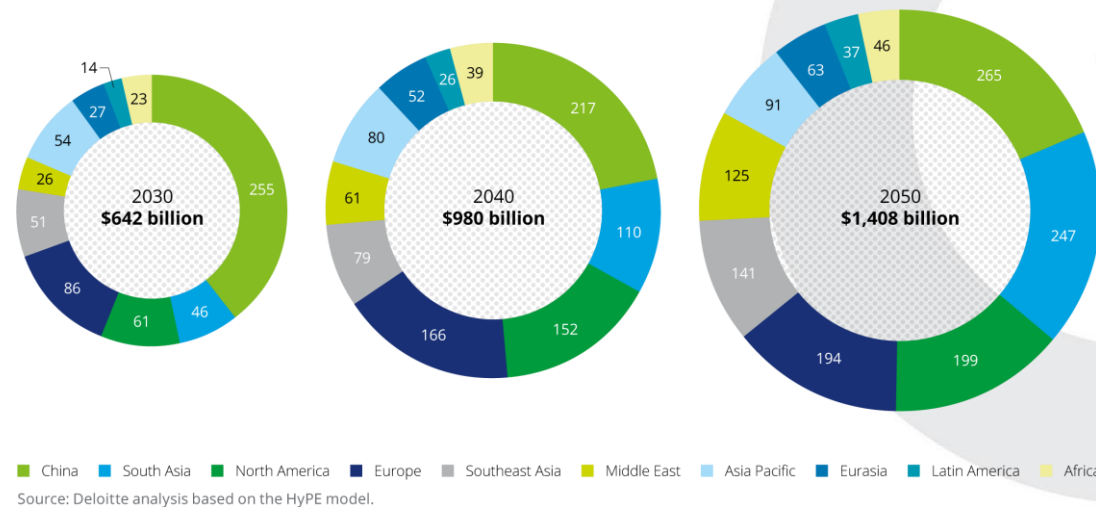
### PWC The Green Hydrogen Economy:

“Hydrogen demand by 2050 could vary from 150 to 500 million metric tons per year, depending on global climate ambitions ... “

Evolution of clean hydrogen demand by sector, 2030 to 2050 (MtH<sub>2</sub>eq)



Clean hydrogen market size (US\$ billion per year), 2030 to 2050








Source Deloitte Global Green Hydrogen Outlook

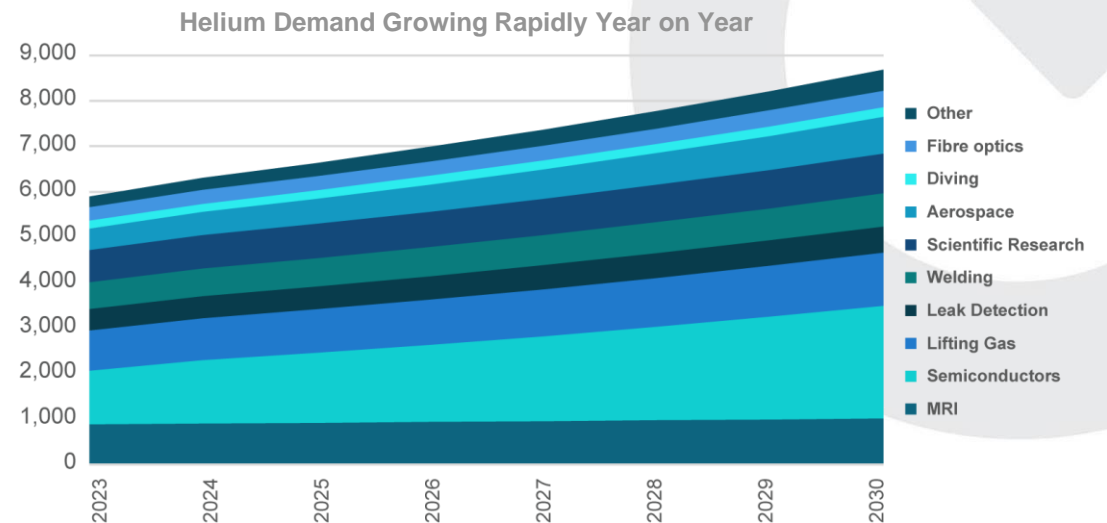
# HELIUM MARKET

## Helium Demand Accelerating

Critical supply requirement for high-tech & high-growth Sectors

	<b>Electronics</b>	<ul style="list-style-type: none"><li>• Fibre Optics</li><li>• Computer Chips</li><li>• LCD Panels</li></ul>
	<b>Aerospace/ Defence</b>	<ul style="list-style-type: none"><li>• Purging</li><li>• Defence Systems</li><li>• Welding</li></ul>
	<b>Science &amp; Research</b>	<ul style="list-style-type: none"><li>• Microscopy</li><li>• Quantum Computing</li><li>• Nuclear Fusion</li></ul>
	<b>Medical</b>	<ul style="list-style-type: none"><li>• MRI Scanners</li><li>• Assisted Breathing</li><li>• Cryogenics</li></ul>
	<b>Industrial</b>	<ul style="list-style-type: none"><li>• Leak Detection</li><li>• Controlled Atmosphere</li></ul>

- Helium is in unprecedented short supply.
- Demand from high-tech applications continues to grow.
- Short supply has had a material upward impact on prices.
- Average term pricing of US\$500mcf increasing at CAGR of 20% over the last decade.



## The demand for gas remains high across all Australian energy markets and is critical for the energy transition

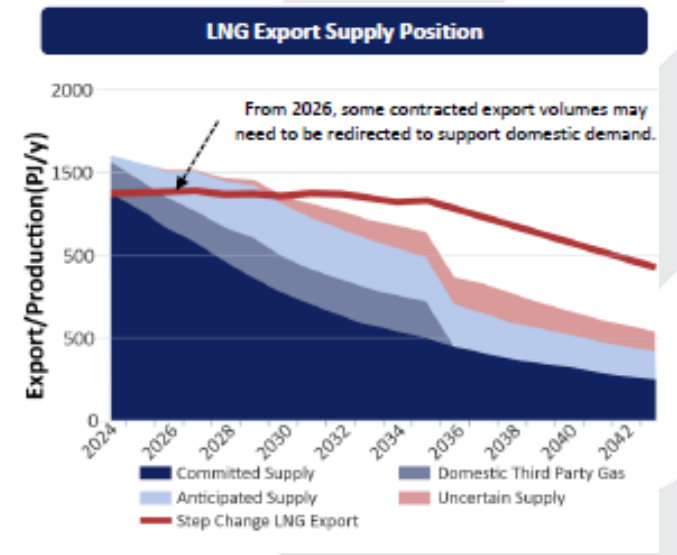
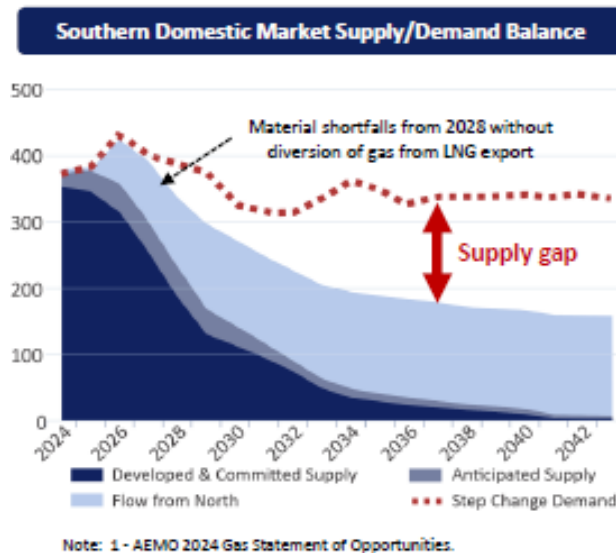
Short supply and lack of new material projects means new material projects are essential, and high prices will continue

- The AEMO in its 2024 Gas Statement of Opportunities highlights:

- That demand is forecast to be at risk of exceeding supply from 2027;

- To address supply gaps new sources of supply are required from 2026, and in the longer term substantial annual supply gas must be satisfied

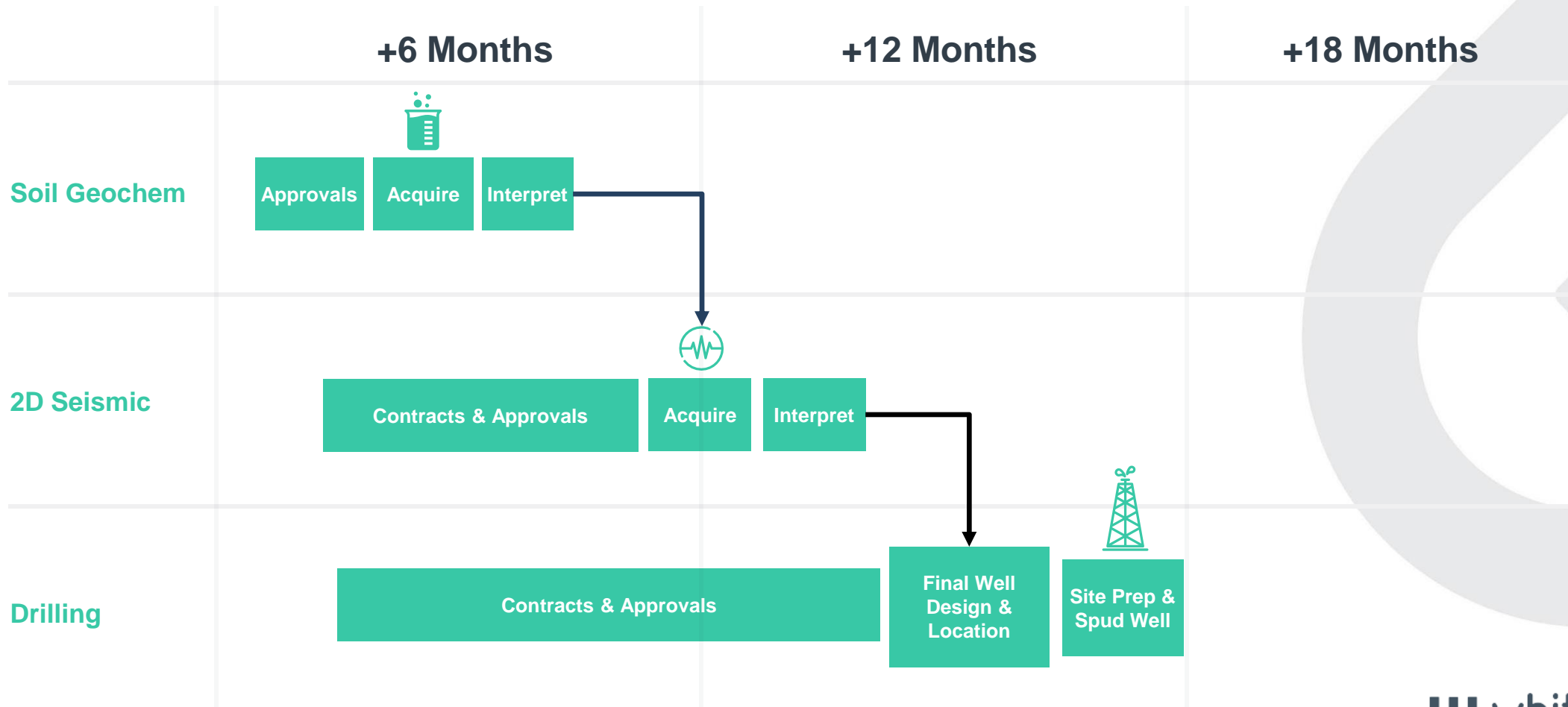
- Pipeline augmentations, plant expansions and field / basin expansions may need to be developed to address emerging supply requirements.



# PROJECT DELIVERY

## Indicative Project Schedule

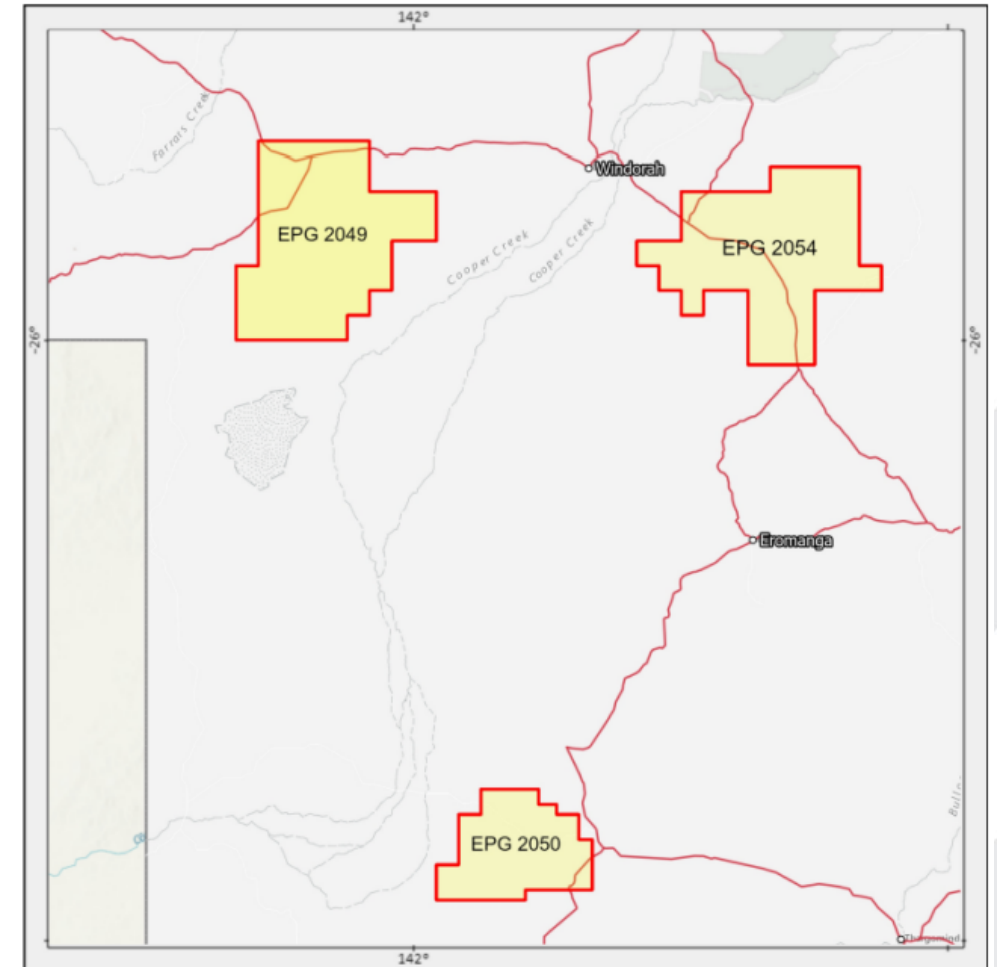
The Forward Work Program



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# WHITEBARK'S GEOTHERMAL EXPLORATION ASSETS

- Geothermal exploration permits held by Whitebark represent a further opportunity to grow new energy solutions from clean green renewable geothermal energy.
- Geothermal energy provides multiple pathways for Power-to-X commercialisation, which could include green electricity to grid, hydrogen and ammonia (both for the fertiliser market internationally and as a hydrogen carrier using established international value chains).
- **High Geothermal Potential:** Existing well data indicates significant geothermal activity and promising long-term dispatchable renewable energy production.
- **Alignment with Government Initiatives:** The project aligns with the Federal Government's recent A\$11.2 billion hydrogen production incentives and Whitebark's hydrogen commercialization pathway study.
- Internationally the use of geothermal resources for power production is growing as a renewable energy source. Geothermal fluids are also being assessed and produced for extraction of lithium (and other minerals) given the right geological settings.
- By leveraging Whitebark's existing assets with significant geothermal potential, management firmly believes the Company is in a unique position to capitalise on growing market demand for new clean renewable energy sources. The evaluation of these assets will continue as a key focus for Whitebark.



WBE's Southwest QLD EPG Application areas

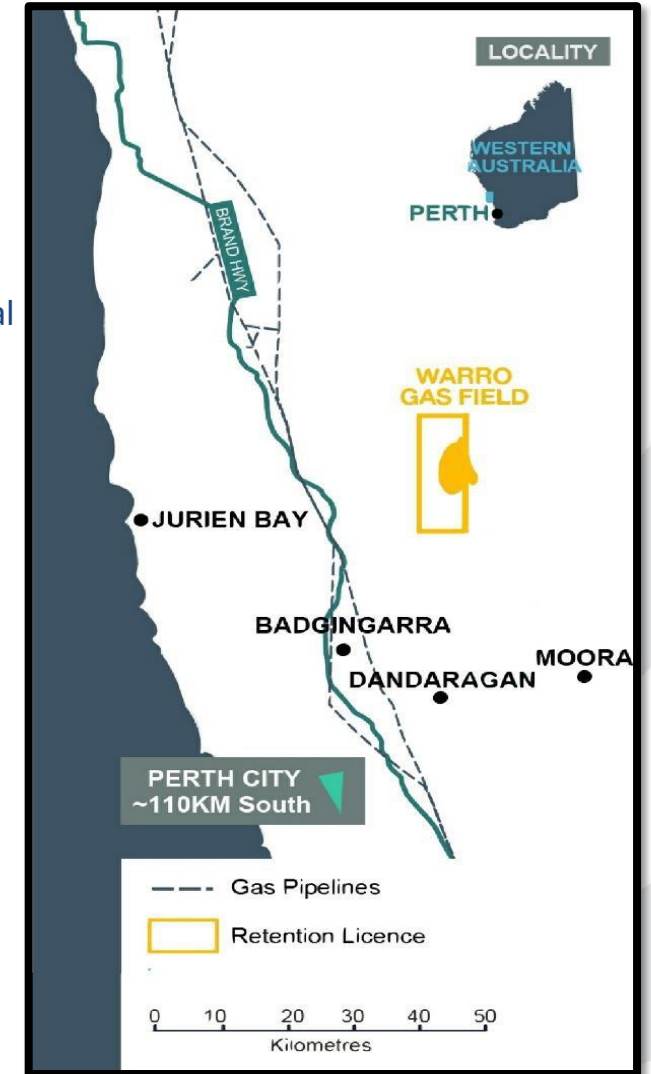
# WESTERN AUSTRALIA – WARRO GAS FIELD

**Perth Basin - Warro Gas Field (100% interest)** represents a significant gas resource and merits ongoing evaluation.

The WA Government released its **Fracture Stimulation Implementation Plan in July 2019** and allows onshore fracture stimulation in Western Australia. Companies are increasingly submitting applications to pursue fracture stimulation.

**Deeper Permian reservoir opportunities potential in the Warro permit.** Permian resources have proven to be extensive across the Perth Basin as evidenced by drilling success and gas development projects by Strike Energy, Mineral Resources, Mitsui and Beach. The extension of Permian reservoir into the Warro block, together with potential fracturing of the existing discovery, could open up one of the largest gas resources onshore WA. This will be evaluated further as a key focus area, and represents another opportunity to participate in the energy transition in WA.

Warro Sands Resources <sup>1</sup>				
GIIP	Low	Mid	High	
Contingent	2.4	3.2	4.3	
Prospective	2.0	4.1	7.3	
Total	4.4	7.3	11.6	
Un-risked Recoverable (Tcf)	Low	Mid	High	
Contingent	1.3	1.5	1.8	
Prospective	1.3	2.3	3.6	
Total	2.6	3.8	5.4	



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This presentation has been approved for release by the Board of  
Whitebark Energy Limited

**Mark Lindh – Chairman**