



**TOP END**  
**—ENERGY—**  
THE ENERGY OF TOMORROW

# LEADING AUSTRALIA INTO A LOW-CARBON ENERGY FUTURE

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CORPORATE PRESENTATION

MAY 2023

# DISCLAIMER

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This presentation is for the sole purpose of preliminary background information to enable recipients to review the business activities of Top End Energy Limited (Australian Company Number 650 478 774) (the Company).

This presentation is not a prospectus and does not constitute an invitation, solicitation, recommendation or an offer to purchase or subscribe for securities.

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## **Resource Estimation Methodology**

Resource estimates have been prepared by Discover Geoscience (Discover) in accordance with the definitions and guidelines set forth in the Petroleum Resources Management System, 2018, approved by the Society of Petroleum Engineers.

The primary target for the Company's permit in Queensland is the Buri Limestone, a reservoir with the potential to be productive for gas within ATP 1069 and the Adavale Basin more generally.

The Prospective Resource assessment has been conducted by Dave Gilbert. Mr. Gilbert is a subsurface advisor for Discover and has over 40 years of global experience evaluating and managing oil and gas exploration assets and is a qualified petroleum reserves and resources evaluator (QPRRE) as defined by ASX listing rules.

Discover is a well-known and respected independent energy advisory firm, with a history of providing impartial advice to the petroleum industry including providing Independent Technical Specialist Reports (ITSRs) and Competent Persons Reports (CPRs) for stock exchange and regulatory requirements. For further information please visit [www.discovergeoscience.com](http://www.discovergeoscience.com).



# INVESTMENT HIGHLIGHTS

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1. EXTENSIVE ONSHORE AUSTRALIAN ACREAGE POSITION  
INTERESTS IN 170,00KM<sup>2</sup> OF HIGH-IMPACT EXPLORATION POTENTIAL
2. THREE INDEPENDENT BASIN MARGIN ZONE FOCUS AREAS  
STRATEGICALLY POSITIONED IN PROVEN YET UNDER-EXPLORED REGIONS
3. NATURAL GAS, HELIUM AND HYDROGEN FOCUS  
UTILISING MODERN DATA ANALYSIS AND EXPLORATION TECHNIQUES
4. COMPELLING MACRO AND MARKET CONDITIONS  
UNLOCKING CRITICAL PRODUCTS TO DRIVE THE CLEAN ENERGY TRANSITION
5. DRIVEN, HIGH-QUALITY LEADERSHIP TEAM  
WITH A DEMONSTRATED TRACK RECORD OF DELIVERY

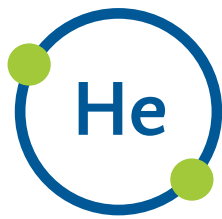


# INNOVATIVE ONSHORE GAS EXPLORATION AND DEVELOPMENT COMPANY

## UNLOCKING CRITICAL PRODUCTS TO DRIVE THE ENERGY TRANSITION



NATURAL  
GAS



HELIUM  
GAS



NATURAL  
HYDROGEN



### 1. ADAVALE BASIN

Proven producing region with material conventional gas prospect identified

### 2. MCARTHUR BASIN

One of Australia's most active gas exploration regions containing the Beetaloo sub-basin

### 3. AMADEUS BASIN

Existing hydrocarbon system with untested and historically overlooked margin extension opportunity



## INNOVATE

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**EXISTING,  
HIGH POTENTIAL  
ASSET BASE**

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Apply leading-edge technology to identify and capture high-value potential across multiple product streams



## EXPLORE

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**INDEPENDENT  
HIGH-IMPACT  
DRILLING EVENTS**

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Identify and commercialise critical resources to enable the clean energy transition



## GROW

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**STRATEGIC,  
OPPORTUNISTIC  
M&A**

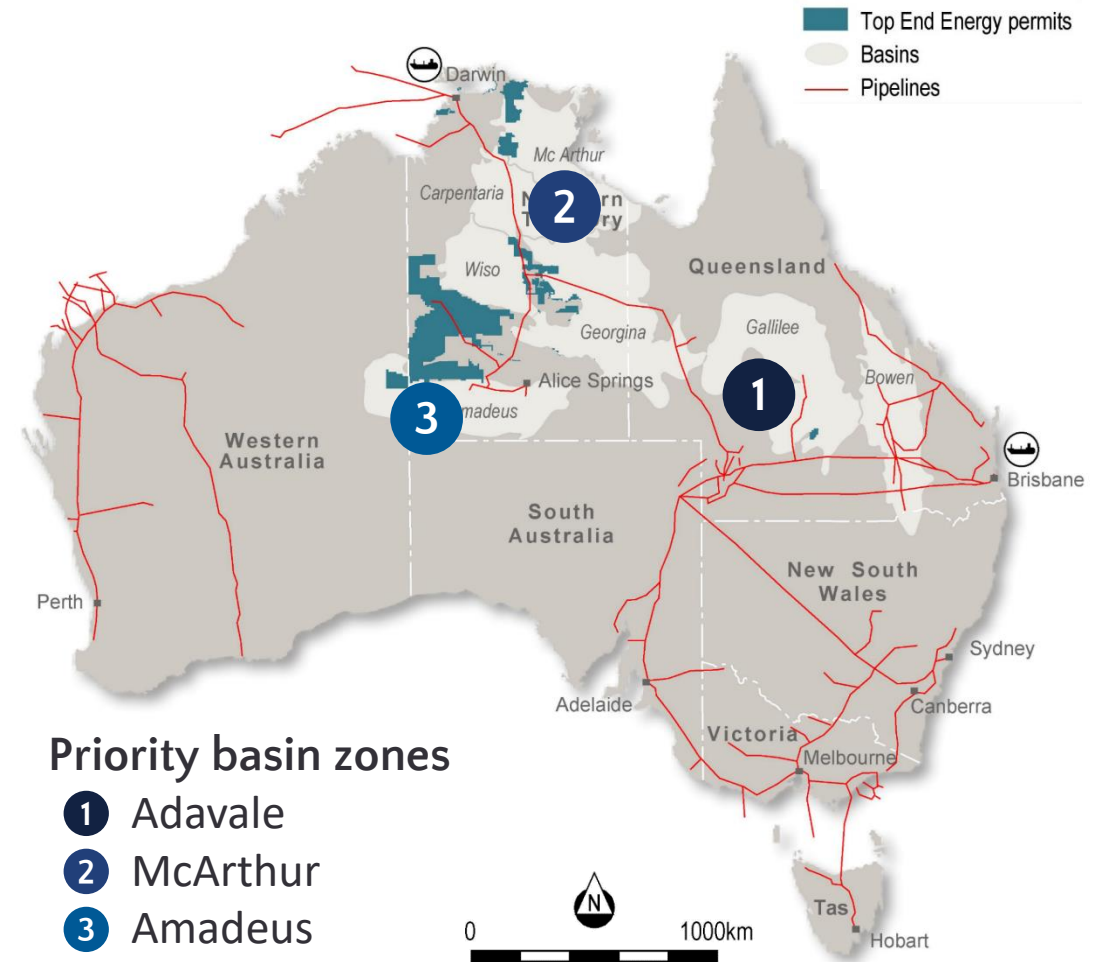
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Take advantage of strategic opportunities to broaden, scale and/or rationalise portfolio through the cycle

# LARGE, PROSPECTIVE AUSTRALIAN ACREAGE POSITION



- Extensive onshore interests covering ~170,000km<sup>2</sup> total acreage<sup>1</sup>
- Three technically independent high-graded focus areas targeting exciting basin margin potential
- Strategically positioned in proven but under-explored hydrocarbon regions
- High equity positions in TEE-operated assets:
  - ➔ ATP 1069 (100% interest), Queensland
  - ➔ 30 exploration permit applications (~53% interest), Northern Territory
  - ➔ Permit application Area L22-6 (100% interest), Western Australia
- Play opening potential across the portfolio for natural gas, helium and gold (natural) hydrogen
- Close to existing infrastructure, with access to 87% of Australian population and 38 mmtpa of LNG export capacity<sup>2,3</sup>



1. Acreage is a combination of granted and in-application permits

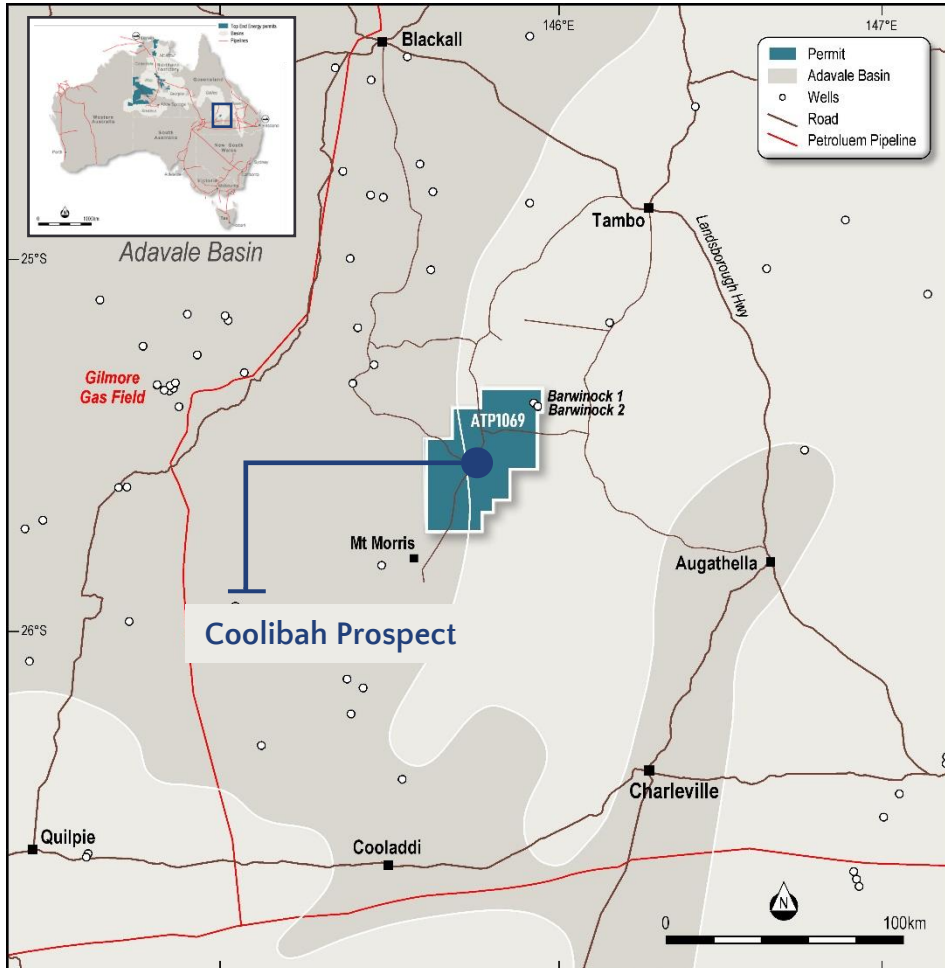
2. Australian Bureau of Statistics (population statistics at 30 September 2022)

3. Department of Industry, Science, Energy and Resources (Resources and Energy Quarterly December 2021)

# 1. ADAVALE BASIN ZONE



## MATERIAL CONVENTIONAL GAS PROSPECTIVITY IN UNDER-EXPLORED BASIN



- ATP 1069 permit covering approximately 1,048km<sup>2</sup> situated 130km NW of Charleville in Central Queensland
- Situated approximately 75km east of the **conventional Gilmore gas field**, **close to existing infrastructure** with potential to supply the east coast gas market
- **First independently assessed Prospective Resources declared on Coolibah conventional gas prospect with mean Prospective Resources of 715 bcf<sup>1,2</sup>**

Coolibah Prospect (100%) <sup>1</sup>	PMean	P10	P50	P90
Gas in Place (bcf)	1,951	4,140	1,288	400
Prospective Resources (bcf) <sup>2</sup>	715	1,573	491	150

Note: The estimated quantities of petroleum that may potentially be recovered by the application of a future development project relate to undiscovered accumulations. These estimates have both a risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially recoverable hydrocarbons

1. Refer ASX announcement "Certified Prospective Resource & Operational Update" (29 November 2022); the Company is not aware of any new information or data that materially affects the information included in the ASX announcement and all material assumptions and technical parameters underpinning the estimates in the ASX announcement continue to apply and have not materially changed.  
2. The Prospective Resource estimates have been prepared using the probabilistic method and are presented on an unrisks basis. In a probabilistic resource distribution, P90 (Low), P50 (Best), P10 (High) estimates represent the 90%, 50% and 10% probability respectively that the quantity recovered will equal or exceed the estimate assuming a success case in the prospect.



# 1. ADAVALE BASIN ZONE



## NEAR-TERM ACTIVITY TO MATURE MATERIAL CONVENTIONAL GAS PROSPECT



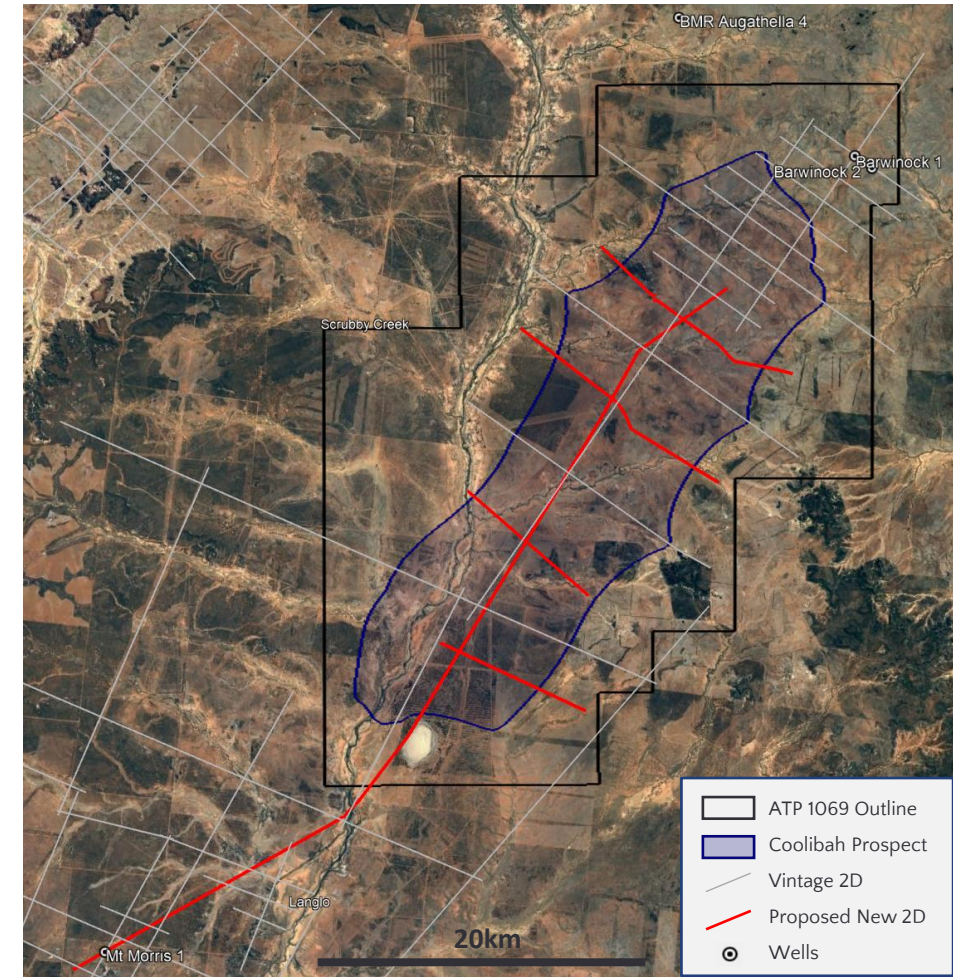
Terrex appointed to acquire **approximately 120 line km of infill 2D seismic** – designed to **reduce subsurface geological risk**



Assess **likely distribution and quality of hydrocarbon reservoirs** and provide confirmation of structural closure with sealing capacity



Coolibah Prospect **drilling decision planned for H2 2023 with drilling targeted for 2024**

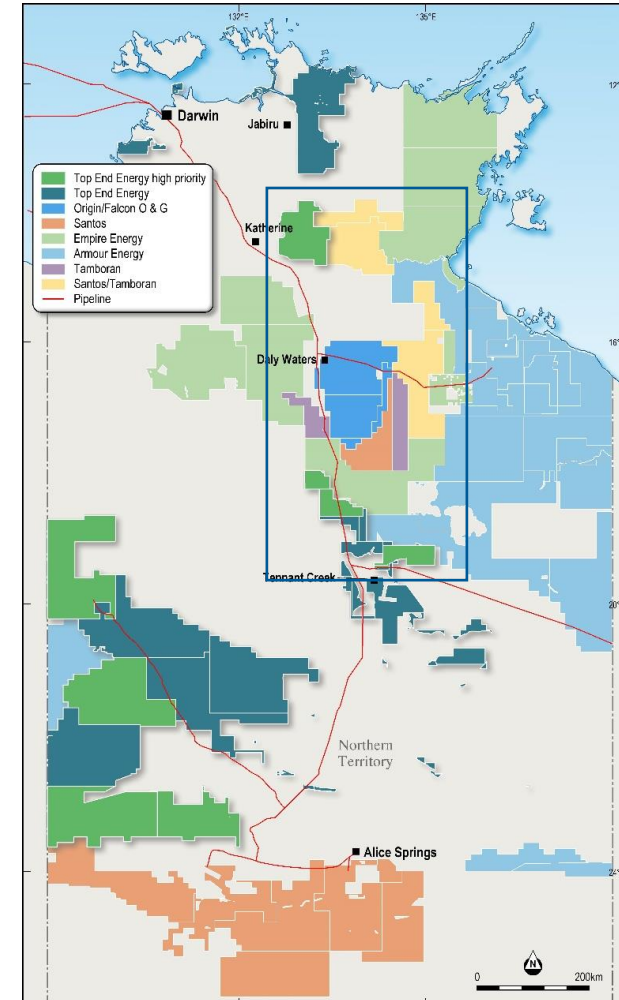




# 2. MCARTHUR BASIN ZONE

## ONE OF AUSTRALIA'S MOST ACTIVE GAS EXPLORATION REGIONS

- The McArthur Basin hosts multiple discovered resource plays including the **highly prospective Beetaloo sub-basin**
  - ➔ One of the largest shale gas deposits globally and Australia's largest undeveloped gas resource with an estimated 500 TCF of natural gas in place<sup>1</sup>
  - ➔ Market access to 87% of population and 38 mmtpa of LNG export capacity<sup>2,3</sup>
- Region has attracted **significant investment** from energy operators and multiple **ongoing work programs** continue to prove up resource base and commercial viability
- Supportive Territory government, recognising the importance of natural gas to industrial development and the Territory economy
  - ➔ Beetaloo regulatory framework finalised, **greenlighting development of the sub-basin**



### E&P COMPANIES IN THE MCARTHUR BASIN

**Santos**

**EMPIRE**  
energy

**tamboran**  
RESOURCES

**FALCON**  
OIL & GAS

**armour**energy

**Bryan**  
**Sheffield**

1. Petroleum supersystems in the greater McArthur Basin, Northern Territory, Australia: prospectivity of the world's oldest stacked systems with emphasis on the McArthur Supersystem (CSIRO, APPEA)

2. Australian Bureau of Statistics (population statistics at 30 September 2022)

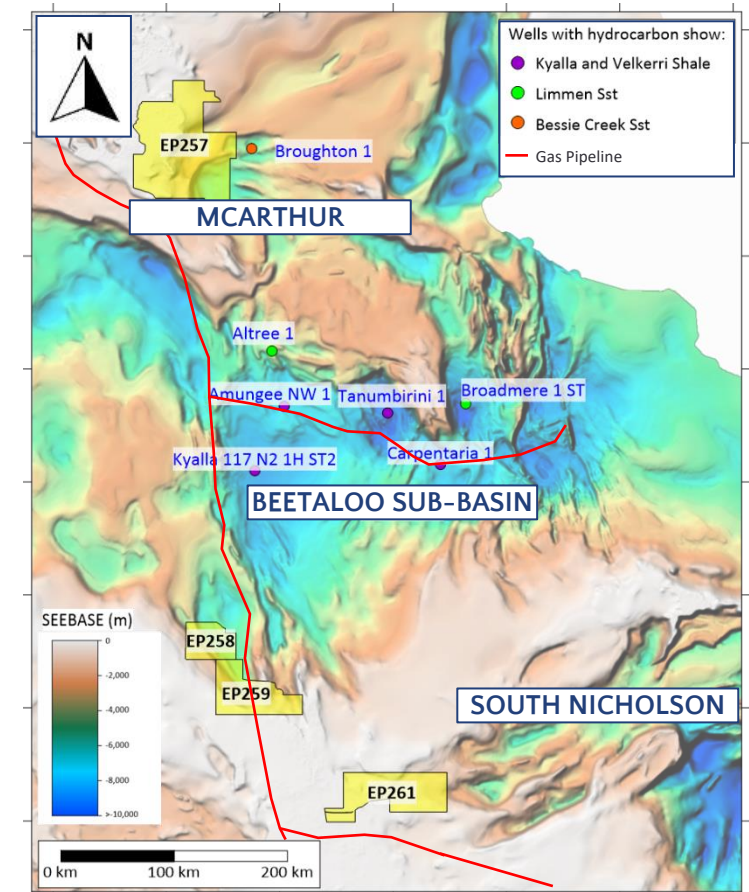
3. Department of Industry, Science, Energy and Resources (Resources and Energy Quarterly December 2021)

## 2. MCARTHUR BASIN ZONE



### PRIORITISED PERMITS ON THE MARGIN OF THE GREATER MCARTHUR BASIN

- Potential **wet gas window** on shallower basin margin around the Beetaloo sub-basin
- Targeting extension of **Beetaloo Kyalla and Velkerri shale formations**
- Additional potential exists for **conventional Bessie Creek sandstone reservoirs**
- Preliminary studies suggest key acreage is also prospective for **natural Hydrogen and Helium**
- Proximal to **existing gas pipeline infrastructure** with access to **east coast market and LNG export terminals**
- Opportunity to **leverage peer operator activity and learnings** to optimise exploration strategy and minimise costs
- **Strong relationships established** with key local stakeholders since entering the region





## 2. MCARTHUR BASIN ZONE



### EXPLORATION ACTIVITIES TARGETING NEAR-TERM DRILLING ON KEY ACREAGE



De-risking key acreage position **with near-term focus on EP 258** – exploration agreement with Native Title holders in-place and **formal grant of EP 258 imminent**



Airborne gravity gradiometry survey commissioned to aid structural interpretation and **optimise acquisition parameters and location of planned 2D seismic survey** – further maturing prospectivity and drilling targets



Drilling decision targeted for H1 2024 on EP 258, and consultations with **traditional owners of EP 257 and EP 259 scheduled for Q3/Q4 2023** to progress additional prioritised permit applications towards grant

AIRBORNE GRAVITY  
GRADIOMETRY SURVEY PARTNER

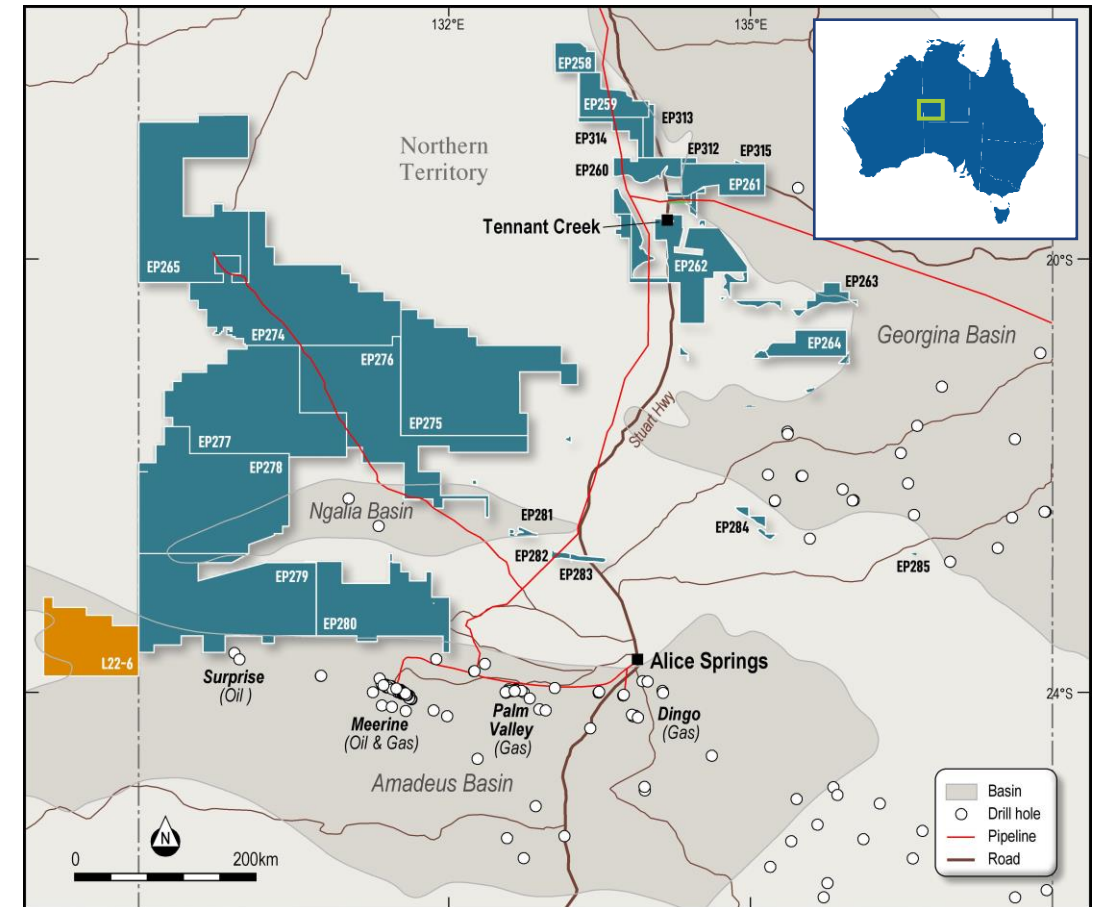


# 3. AMADEUS BASIN ZONE



## UNTESTED AND HISTORICALLY OVERLOOKED MARGIN EXTENSION

- Amadeus Basin is the NT's flagship onshore producing oil and gas basin also hosting some of the largest undeveloped natural hydrogen and helium resource potential in the world
- Basin margins of the Amadeus remain underexplored
- Near term drilling activity in 2023/24 by Santos JV aimed at sub-salt natural gas, Helium and Hydrogen play<sup>1</sup>
- **Technical and operational synergies** to be realised given high level of activity
- **Significant basin margin acreage position** with three high potential applications to be prioritised for play extension exploration for **natural gas, Hydrogen and Helium**



1. Source: Central Petroleum QUPEX presentation (ASX: CTP) – 18 April 2023

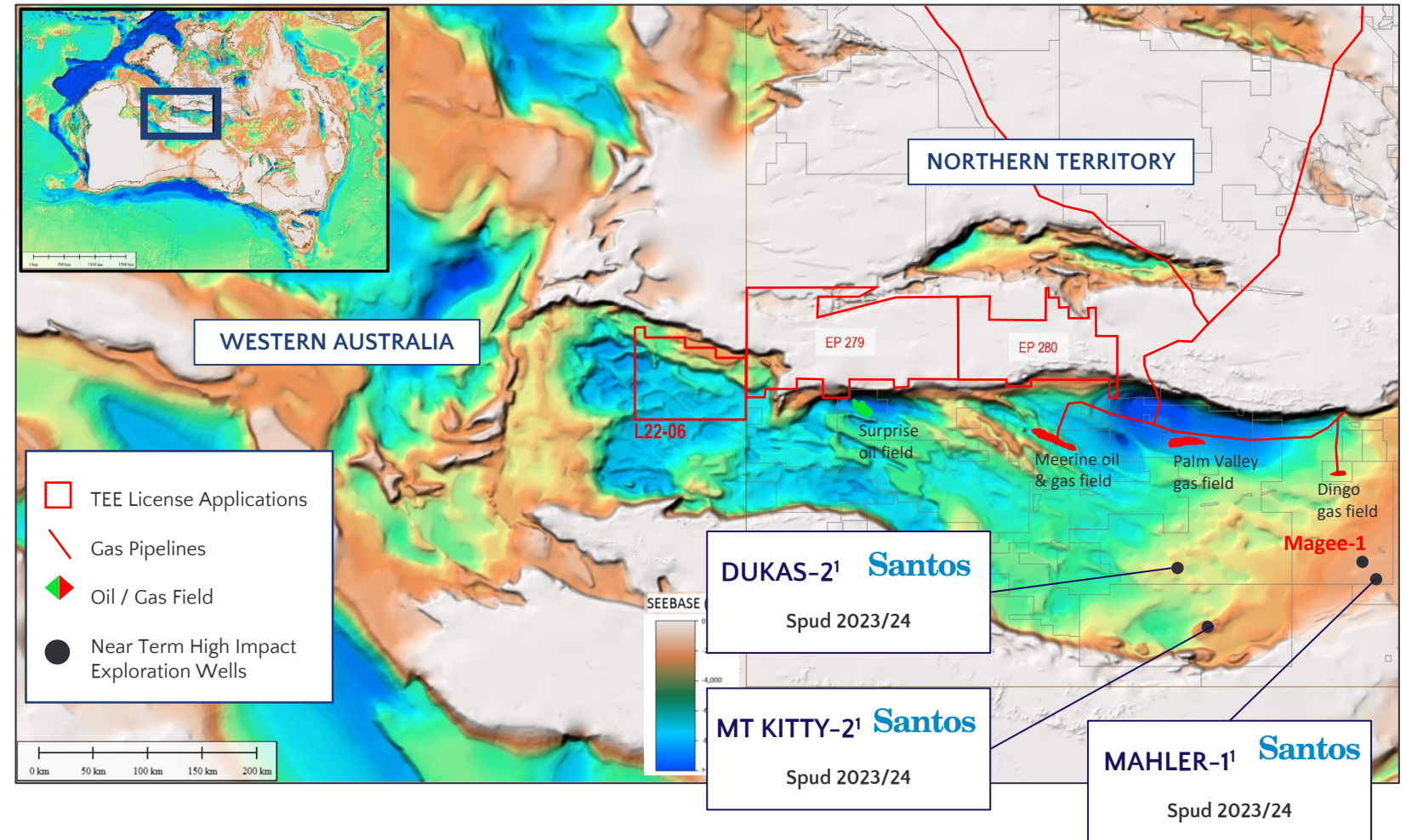


# 3. AMADEUS BASIN ZONE



## STRATEGIC BASIN MARGIN ACREAGE TARGETING MULTIPLE GAS PRODUCTS

- Area L22-6 (100% TEE, 6,300km<sup>2</sup>) recently secured, complimenting existing and immediately adjacent Northern Territory Amadeus Basin portfolio
- Expected to contain the **untested and historically overlooked Amadeus Basin margin extension**
- **Multiple play fairways identified** across the permits for conventional Hydrocarbons, Helium and Hydrogen
- Committed work program, **using modern techniques to mature multiple focus areas**
- Native Title process initiated on L22-6, EP 279 and EP 280

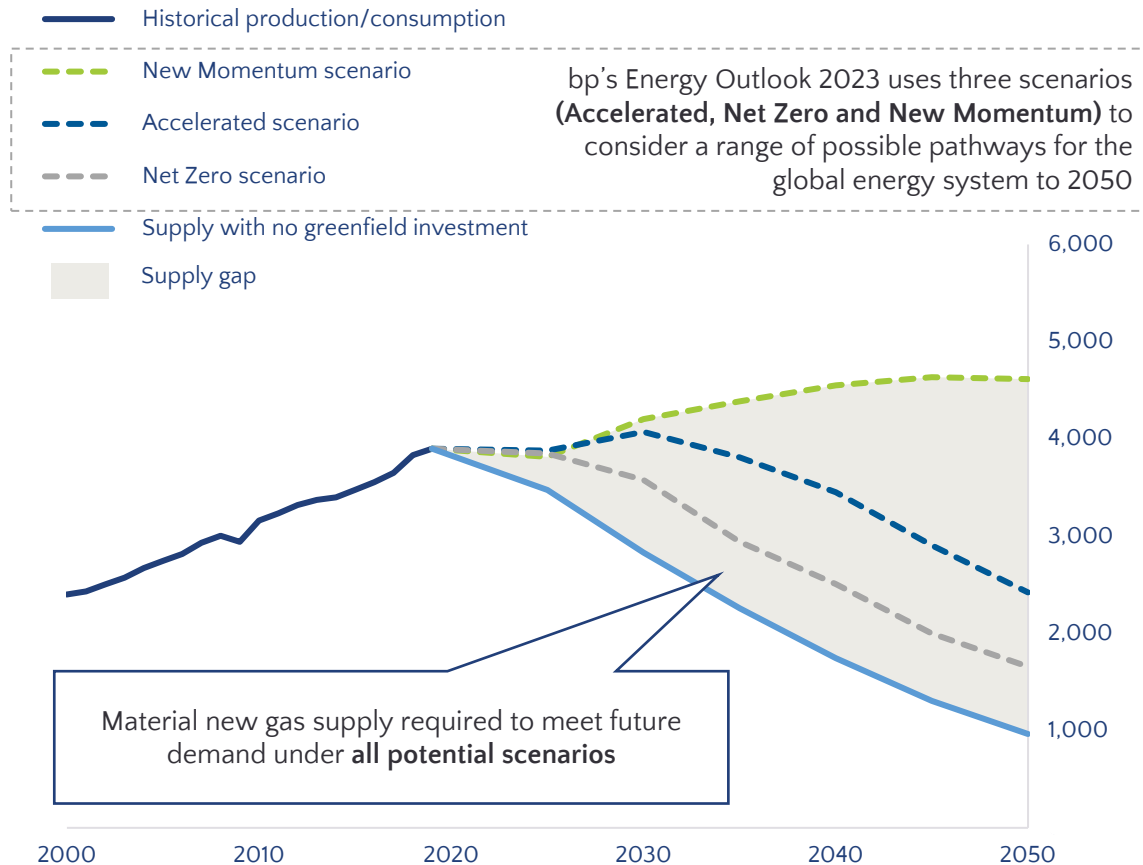


# CONTINUED STRONG NATURAL GAS DEMAND



## A CRITICAL PART OF THE CLEAN ENERGY TRANSITION

### GLOBAL OUTLOOK FOR NATURAL GAS (bcm)<sup>1</sup>



- Natural gas is a **low cost, high density energy source** globally recognised as a key part of the ongoing transition to a low carbon world
- Natural gas provides **reliable energy baseload** and is essential to ensuring energy security
- Future technological developments will allow **progressive decarbonisation through alternative fuels such as Hydrogen or technology such as Carbon Capture and Storage**



*The versatility of natural gas is one key to its expected prominent role in the energy transition... an attractive option for stabilizing the path to renewables while reducing carbon emissions in the short term.*



International Energy Forum, 20 September 2021<sup>2</sup>

1. Source: BP Energy Outlook: 2023 Edition; BP Energy Outlook: 2020 Edition  
2. International Energy Forum, 4 Reasons Natural Gas Is A Critical Part Of The Energy Transition (20 September 2021)

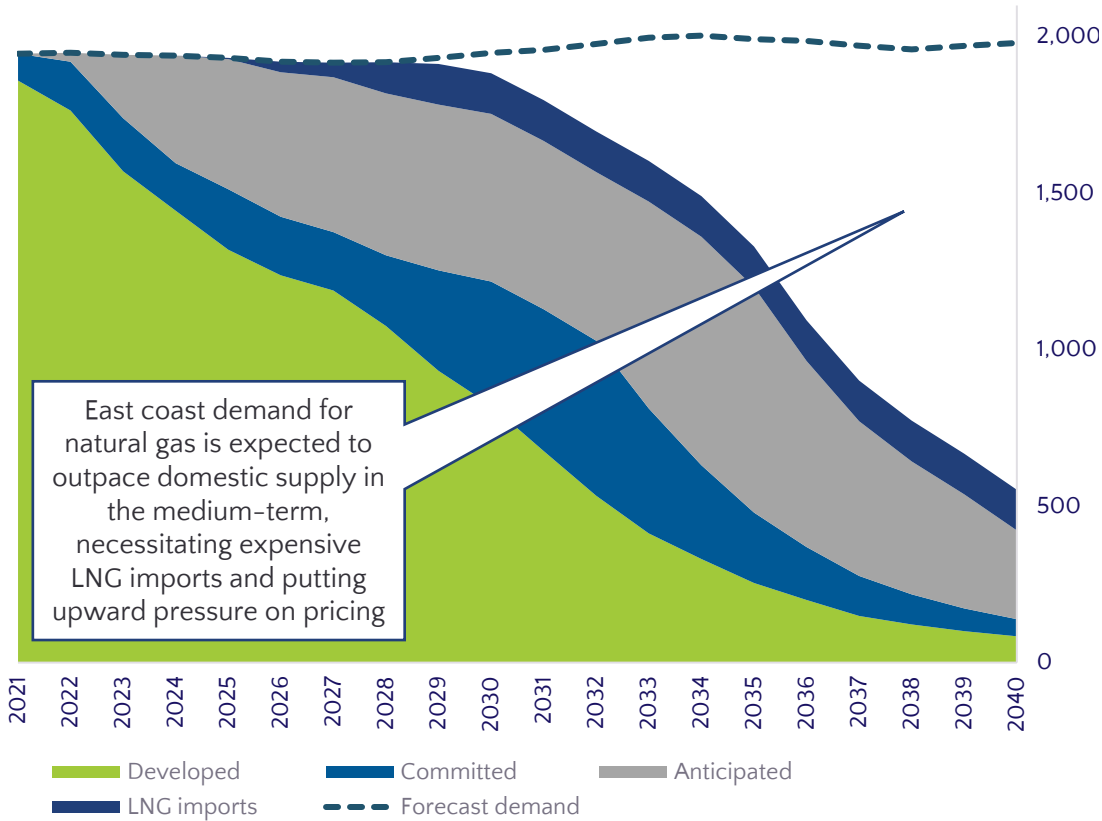


# STRUCTURALLY SHORT EAST-COAST GAS MARKET



## COMBINED WITH LONG-TERM GLOBAL LNG UNDERSUPPLY

AUSTRALIAN EAST COAST OUTLOOK (PJ/annum)<sup>1</sup>



“ Along with our world-class renewable resources, our highly prospective onshore gas resources will support our energy security during the transition to renewables – and will improve living standards for all Territorians. ”

Natasha Fyles, Chief Minister of the Northern Territory, 3 May 2023

“ The International Energy Agency makes it clear that Australia’s gas production must meet domestic and export needs, with the global LNG market increasingly calling on Australia to help ease the supply pressures during the global energy crisis. ”

APPEA Chief Executive Samantha McCulloch, 20 April 2023<sup>2</sup>

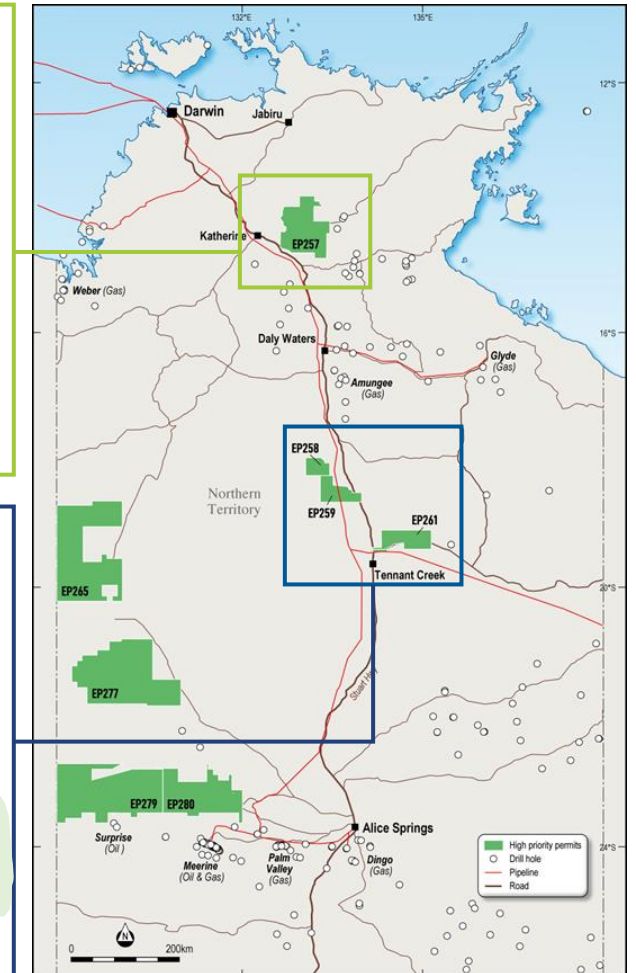
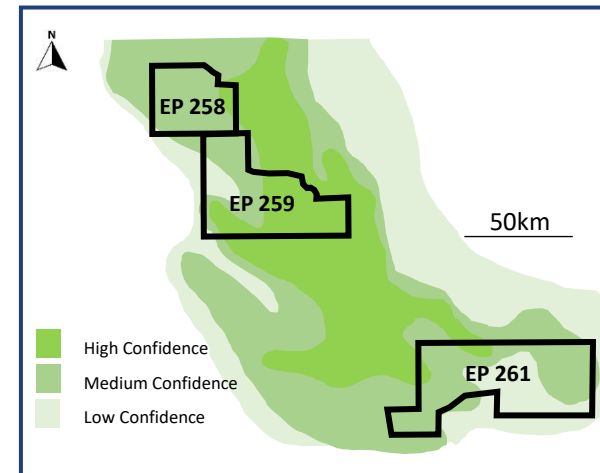
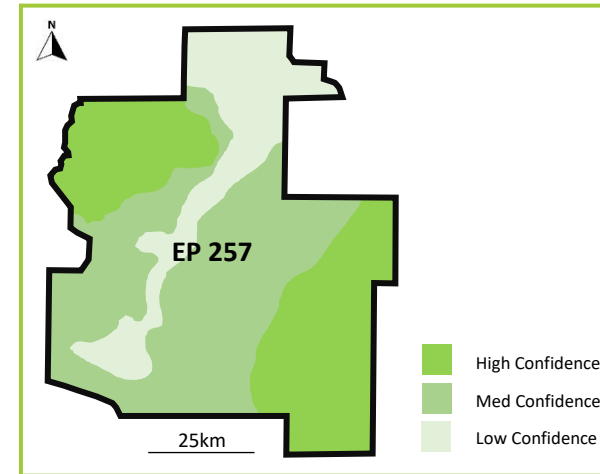
1. Source: AEMO: Gas Statement of Opportunities – For Eastern and South-eastern Australia (March 2021)  
2. Australian Petroleum Production & Exploration Association. (2023, April 20). Media Release: International Energy Agency backs natural gas and CCUS plans in Australia.

# NATURAL HYDROGEN AND HELIUM POTENTIAL



## HYDROGEN STUDY IDENTIFIES HIGHLY PROSPECTIVE PLAY FAIRWAYS

- The Greater McArthur Basin margin is considered **highly prospective for natural (Gold) Hydrogen**
- Evidence of natural Hydrogen identified from internal play fairway mapping and open file well data
- Recent Phase 1 natural Hydrogen screening study identified highly prospective play fairways
  - ➔ acquisition of 2,500km of Falcon airborne gravity gradiometry data over EP 258 to be integrated into natural Hydrogen study
  - ➔ Soil sampling and complimentary on ground exploration alongside hydrocarbon activities
- **Focus on EP 258 with activities tailored to the exploration of natural Hydrogen and Helium in parallel with natural gas exploration programs**
- Natural Hydrogen and Helium exploration to be undertaken on additional Greater McArthur Basin licences as permits awarded





# NATURAL HYDROGEN FOR A CLEAN ENERGY FUTURE



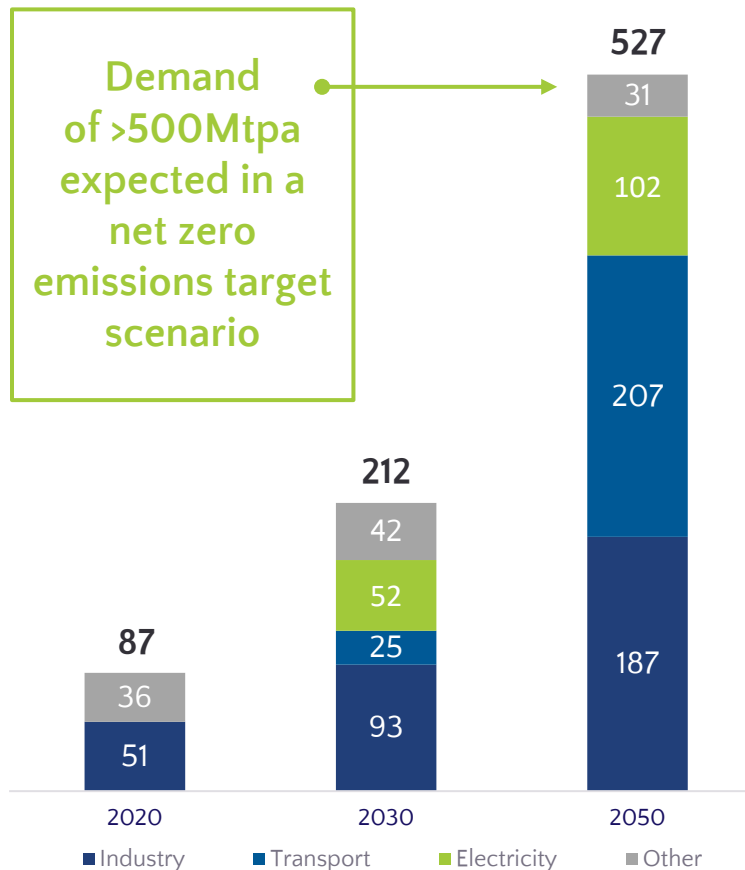
## MAJOR EMERGING FUEL SOURCE TO SUPPORT THE ENERGY TRANSITION



NATURAL  
HYDROGEN

- ✓ Contains zero carbon, is non-toxic and non-poisonous
- ✓ Storable in large quantities for long periods
- ✓ No atmospheric or water pollution when released

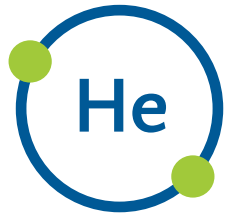
GLOBAL HYDROGEN DEMAND BY SECTOR (Mt)<sup>1</sup>



Investments in Hydrogen could reach **US\$280 billion by 2030** with the potential to create **2.5 million jobs** and reduce carbon emissions by up to **6 gigatons per year<sup>2</sup>**

# HIGH VALUE HELIUM GAS

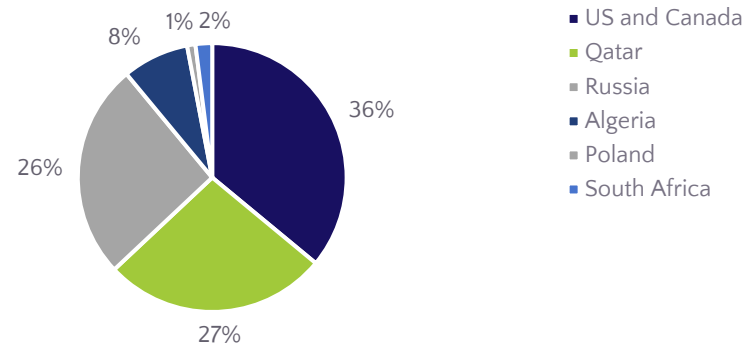
## ESSENTIAL FOR CURRENT AND FUTURE TECHNOLOGIES



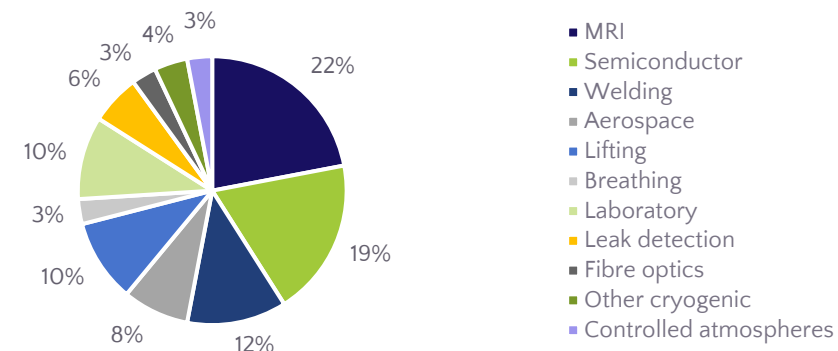
HELIUM  
GAS

A vital resource across  
the technology, science,  
medicine, and  
manufacturing industries  
**with no substitutes**  
when used for low  
temperature cryogenic  
applications

FORECAST SUPPLY BY COUNTRY 2025 (%)



DEMAND BY APPLICATION (%)



Estimated  
**US\$5 billion market**  
enabling US\$ trillions in  
economic activity

Supply concentrated to  
**roughly 20 natural  
gas sources**

Historically selling for  
**>50 times the price  
of LNG**



# HIGHLY DRIVEN LEADERSHIP TEAM



## DEEP GAS EXPLORATION, DEVELOPMENT AND MARKET EXPERTISE



**EMMANUEL  
CORREIA**

**CHAIR**

- Over 25 years' public company and corporate finance experience in Australia
- Non-executive director of BPM Minerals Limited, Ookami Limited and Pantera Minerals Limited
- Previously Director of ASX listed entities including Argent Minerals Ltd, Canyon Resources Ltd and Orminex Ltd



**OLIVER  
OXENBRIDGE**

**MANAGING  
DIRECTOR**

- Over 12 years' experience in international oil and gas and energy across investment banking, private equity, and corporate development
- Experience in numerous large and mid-cap M&A transactions, with global experience spanning deal sourcing, structuring, execution and asset management at Woodside Energy, Waha Capital, Ophir Energy and Evercore Partners



**DR MIKE  
FISCHER**

**NON-EXECUTIVE  
DIRECTOR**

- Nearly 40 years' experience in the global oil and gas industry
- Non-executive director of OKEA ASA and Transitus Energy
- Held senior positions at Bangchak corporation, Nido Petroleum, Ophir Energy, OMV, Woodside Energy and BP
- PhD from the University of Wales and a B.Sc. (Hons) in Geological Sciences from the University of Leeds and a fellow of the Geological Society of London



**GREG  
LEE**

**TECHNICAL  
DIRECTOR**

- Petroleum Engineer with over 35 years of diversified oil and gas experience in both technical and managerial positions
- Chartered professional engineer and a member of the Society of Petroleum Engineers
- Independent petroleum engineer consultant since 1992 having worked with both large and small organisations in Australia and worldwide



**RICHARD  
LAMPE**

**NON-EXECUTIVE  
DIRECTOR**

- Over 15 years of experience across financial services, agribusiness and natural resources
- Including eight years with Goldman Sachs JBWere in financial services, five years in professional services including with EY, three years as a commercial analyst with a subsidiary of Marubeni Australia as well as active involvement in his family mixed farming business



**MARSHALL  
HOOD**

**EXPLORATION  
MANAGER**

- 18 years of technical, operational and commercial experience in the energy sector including Upstream Oil and Gas and Hydrogen
- Previously COO for Bangchak Corporation (Resources) and Nido Petroleum Limited
- Successful upstream oil and gas exploration track record; more than 15TCF of gas discovered across multiple operated assets

# DEMONSTRATED TRACK RECORD OF PROGRESS



## DELIVERING ON IPO COMMITMENTS IN FIRST 12 MONTHS SINCE LISTING

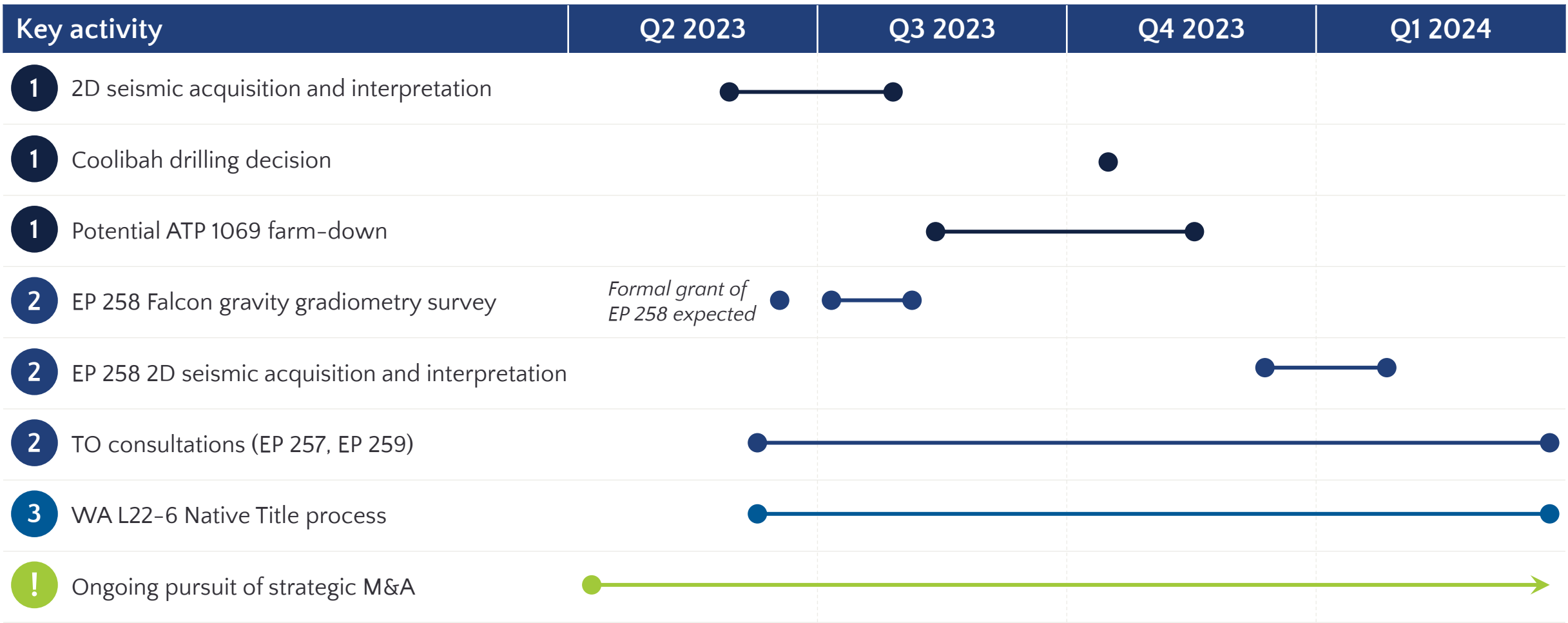


Priority basin zones: 1 Adavale 2 McArthur 3 Amadeus

# CLEAR ADVANCEMENT PATHWAY



## COMMITTED WORK PROGRAM TO MATURE KEY FOCUS AREAS TO DRILLING



Priority basin zones: 1 Adavale 2 McArthur 3 Amadeus



# CORPORATE SNAPSHOT

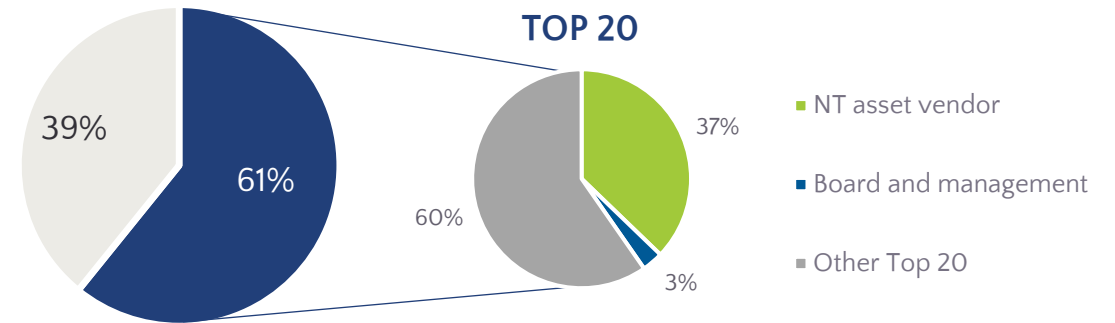


## TIGHT REGISTER, SUPPORTIVE MAJOR SHAREHOLDERS

### Capital structure

Share price <sup>1</sup>	A\$0.19/share
Shares on issue	69.6M
Market capitalisation (undiluted) <sup>1</sup>	A\$13.2M
Cash <sup>2</sup>	A\$4.0M
Implied enterprise value <sup>1,2</sup>	A\$9.2M
Options on issue	27.3M
Performance rights	3.0M
Total shares (fully diluted)	99.9M

### Register detail<sup>3</sup>



### Key technical service providers



1. As at 11 May 2023  
2. As at 31 March 2023  
3. As at 22 April 2023

