

## ASX ANNOUNCEMENT

6 June 2024

### **Formal Ministerial Grant of NT Exploration Permit 258**

Top End Energy Limited (**Top End** or the **Company**) (ASX:TEE) is delighted to announce that it has achieved the formal Ministerial grant of Exploration Permit (**EP**) 258 (**the Permit**) in the Northern Territory (**NT**). This represents a landmark accomplishment for Top End, being the first EP to be granted in the NT since 2015. Achieving the grant for EP 258 paves the way for the commencement of planned exploration activities.

#### **HIGHLIGHTS**

- Successful grant of EP 258 is a landmark achievement, being the first EP to be granted in the NT since 2015.
- Grant of the Permit is the culmination of a multiple year application and approval process encompassing native title holder agreement and NT Ministerial approvals.
- Enables rapid deployment of a planned exploration program, comprising:
  - Completion of an airborne gravity gradiometry (**AGG**) survey;
  - Targeted 2D seismic acquisition and data processing;
  - Geochemical analysis and identification of gas migration pathways; and
  - Drill prospect determination and prospect ranking in preparation for any future drilling event.
- Work program is designed to confirm the extension of the Velkerri Shale, the target for operators in the nearby highly prospective Beetaloo Sub-basin, and presence of the conventional Bessie Sandstone formation on the Permit.
- Exploration program will also provide the necessary data to further mature identified natural Hydrogen and Helium prospectivity of the Permit basin margin.
- Near-term work program will be funded from current cash reserves with the AGG anticipated to commence during Q3 2024.
- Grant of the Permit unlocks the pathway for additional priority NT permits to be granted in the near term (EP 257, EP 259 and EP 261).
- Regional peers continue to raise material funds as they progress towards pilot production with industry tailwinds from bi-partisan federal and Territory government support for natural gas.

#### **Commenting on the formal grant of EP 258, Managing Director Oliver Oxenbridge said:**

*"This is a landmark achievement in the relatively short history of Top End Energy. Receiving the formal grant of EP 258 is the culmination of multiple years of engagement and collaboration with our supportive native title holders and the NT Government. Being the*

first EP to be granted in the NT since 2015 is a testament to the dedication of our team and the prospectivity of our acreage position. We appreciate the constructive, collaborative engagement of the NT Government and associated regulatory bodies during the process. The grant of the permit enables us to begin exploration activities on the acreage in earnest, with our planned program of activities set to commence with the previously announced AGG program.

We are also looking forward to complementing EP 258 with the three additional granted permits from Hancock once that deal completes, delivering on our corporate strategy of maturing a diversified portfolio of technically independent drilling prospects.

In addition to exploring for natural Hydrogen and Helium, we are committed to unlocking the much-required gas resource, to supply both Territorians and the east coast gas market, and working with our immediate stakeholders as well as Territory businesses across the supply chain as we progress."

**The Honourable Mark Monaghan, Minister for Mining, Education, Agribusiness and Fisheries commented:**

"Natural gas is the way of the future and the Beetaloo Sub-basin holds some of the world's largest reserves of the highly sought after energy source. We are pleased to welcome Top End Energy to the Territory and look forward to continue working with them as they advance in the McArthur Basin."



**Figure 1: Oliver Oxenbridge (Top End Managing Director), Hon. Mark Monaghan (Minister for Mining, Education, and Agribusiness and Fisheries), James Pratt (Senior Executive Director – Department of Industry, Tourism and Trade).**

## Formal Ministerial grant of EP 258

On 4 June 2024, Territory Gas Aust Pty Ltd (**Territory Gas**) was formally granted EP 258 by the NT Minister of Mining. Top End holds a ~58% beneficial interest in Territory Gas and is manager of EP 258 in addition to the other 29 EP applications held by the immediate parent entity of Territory Gas.

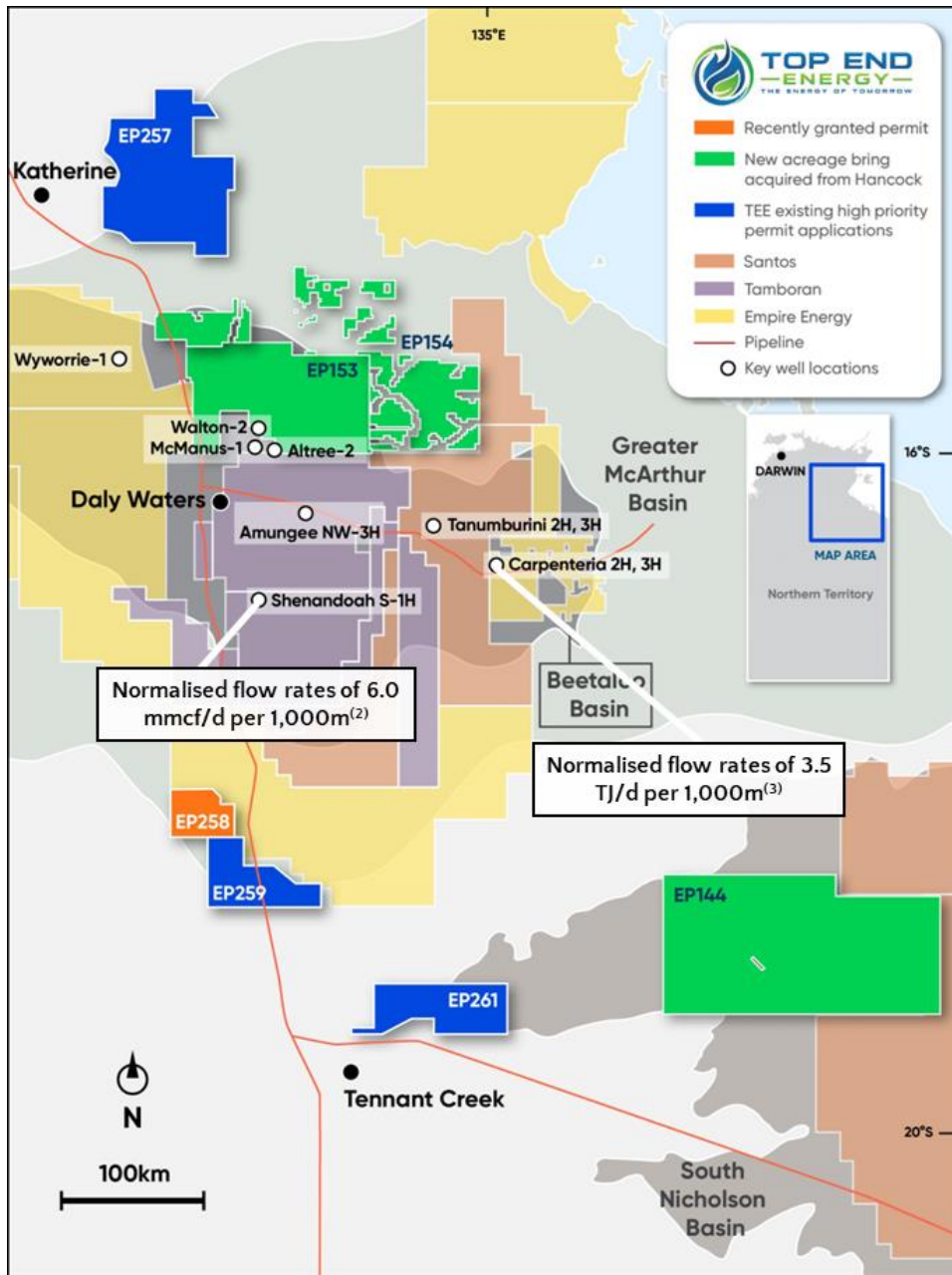
Following three on country meetings with the Native Title Holders of the Permit, Top End advised on 3 April 2023 that the Northern Land Council (**NLC**) had received instructions from the native title holders for the Top End (Default PBC/CLA) Aboriginal Corporation (**Top End PBC**) to enter into an exploration agreement ancillary to an agreement under section 31(1)(b) of the *Native Title Act* (the **Exploration Agreement**). The Top End PBC is the native title body corporate representing the native title holders. On 13 June 2023, and pursuant to the NLC's internal processes, the Exploration Agreement was executed by the Top End PBC and the Company. This represented the final milestone and critical path item for achieving formal grant of the Permit.

On 17 November 2023, the Company announced that it had entered into a Section 31 Deed (the **Deed**) in relation to the Permit, to which the Top End PBC, the Northern Land Council (**NLC**) and the NT Government are also parties. The Deed is a statutory document which the NT Government relies upon for consent of the native title party to the grant of the Permit under the *Native Title Act*.

The Company was advised during the last quarter that the Permit had been re-notified by the NT regulator under section 18 of the *Petroleum Act 1984* for a 60 day period given the age of the application and change in the shape of the permit. Following the completion of this period and satisfaction of all conditions to grant, the Permit has now been granted.

Top End is grateful for the support and collaboration of all stakeholders of the Permit during the process, specifically the Native Title Holders, the NLC and the NT Government.

As the first EP to be granted in over nine years, this milestone opens the door not only to initiating work programs on the Permit, but also for progressing the Company's interest in its other high priority permit applications.



**Figure 2: Top End Energy's acreage positions highlighting granted EP 258 location proximate to Beetaloo Sub-Basin margin.<sup>1</sup>**

<sup>1</sup> Binding agreement executed with subsidiaries of Hancock Prospecting Pty Ltd ("Hancock") – completion subject to NT government approval (refer ASX Announcement: *Acquisition of Granted NT Acreage and \$2.1m Capital Raising*; 27 February 2024).

<sup>2</sup> Tamboran Resources announcement: *SS-1H achieves IP60 flow rate of 3.03 MMcf/d (normalized to 6.0 MMcf/d)*; 26 March 2024.

<sup>3</sup> Empire Energy corporate presentation: *Australian Domestic Gas Outlook Conference 2024*; 26 March 2024.

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## Planned exploration program

The Permit is located on the edge of the Greater McArthur Basin, south of discoveries within the Velkerri and Kyalla Shales and the conventional Moroak and Bessie Creek Sandstone reservoirs. Although there is no seismic data on the Permit, seismic lines ending north of the permits suggest that both the conventional Bessie Sandstone and unconventional Velkerri Shale are present within the deeper basin sections of EP 258. The Velkerri Shale is the main shale gas target for operators such as Santos, Tamboran Resources and Empire Energy across the Beetaloo Sub-basin.

The Company has also conducted preliminary studies on the potential for natural Hydrogen and Helium prospectivity across the Company's McArthur Basin acreage with key system elements being identified across the Permit:

- Source Rocks: granites in continental crust;
- Generation processes: radiolysis of water by Potassium, Uranium, and Thorium-rich granites producing natural Hydrogen and Uranium and Thorium decay producing Helium;
- Migration pathways: both deep-seated faults and Dolerite dykes connecting Helium and natural Hydrogen sources with potential reservoirs;
- Reservoir rocks: porous and permeable sedimentary and volcanic rocks with necessary features for storing Helium and Hydrogen;
- Seal rocks: impermeable sedimentary and volcanic layers trapping Helium and Hydrogen in reservoirs;
- Trap structures: geological trapping structures including anticlines and fault traps are evident in regional seismic data; and
- Surface indicators: semi-circular depressions along deep-seated faults and around some intrusions indicating potential Hydrogen escape features.

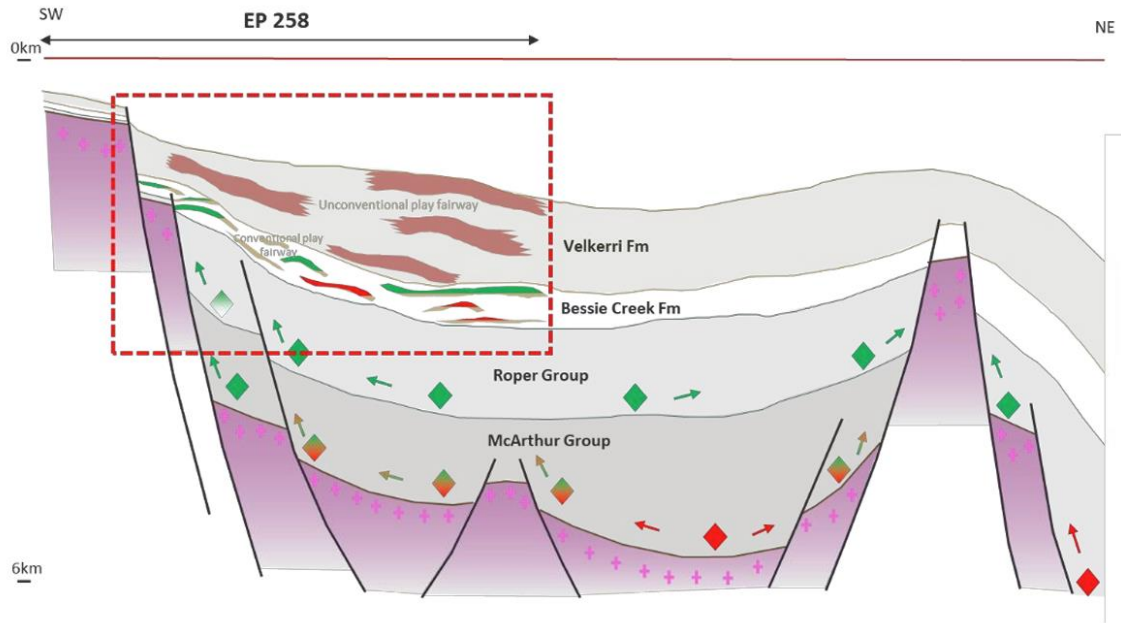
The objective of the Company's initial exploration activities is to confirm the presence of the unconventional Velkerri Shale formations and the conventional Bessie Creek Sandstone play potential, as well as potential Natural Hydrogen and Helium exploration targets.

In anticipation of achieving the Permit grant, a targeted exploration program has been prepared with the aim of advancing EP 258 to drillable resource targets. The exploration program has been structured around the following key workstreams:

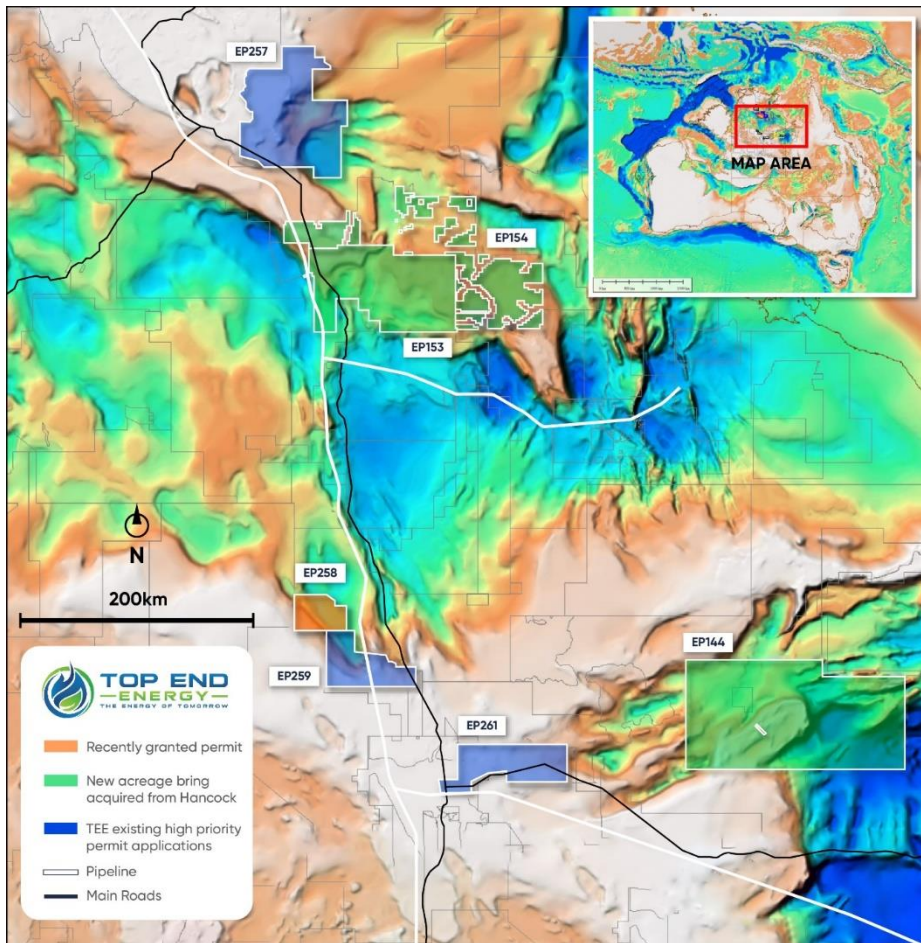
- completion of an AGG survey;
- targeted 2D seismic acquisition and data processing; and
- geochemical analysis and identification of gas migration pathways.

The data acquired and interpreted through these activities is intended to inform drilling prospect locations for both natural gas, and natural Hydrogen and Helium.





**Figure 3: Regional schematic highlighting the potential of the untested southern margin of the greater McArthur Basin and EP 258**



**Figure 4: Granted EP 258 overlying the McArthur Basin**

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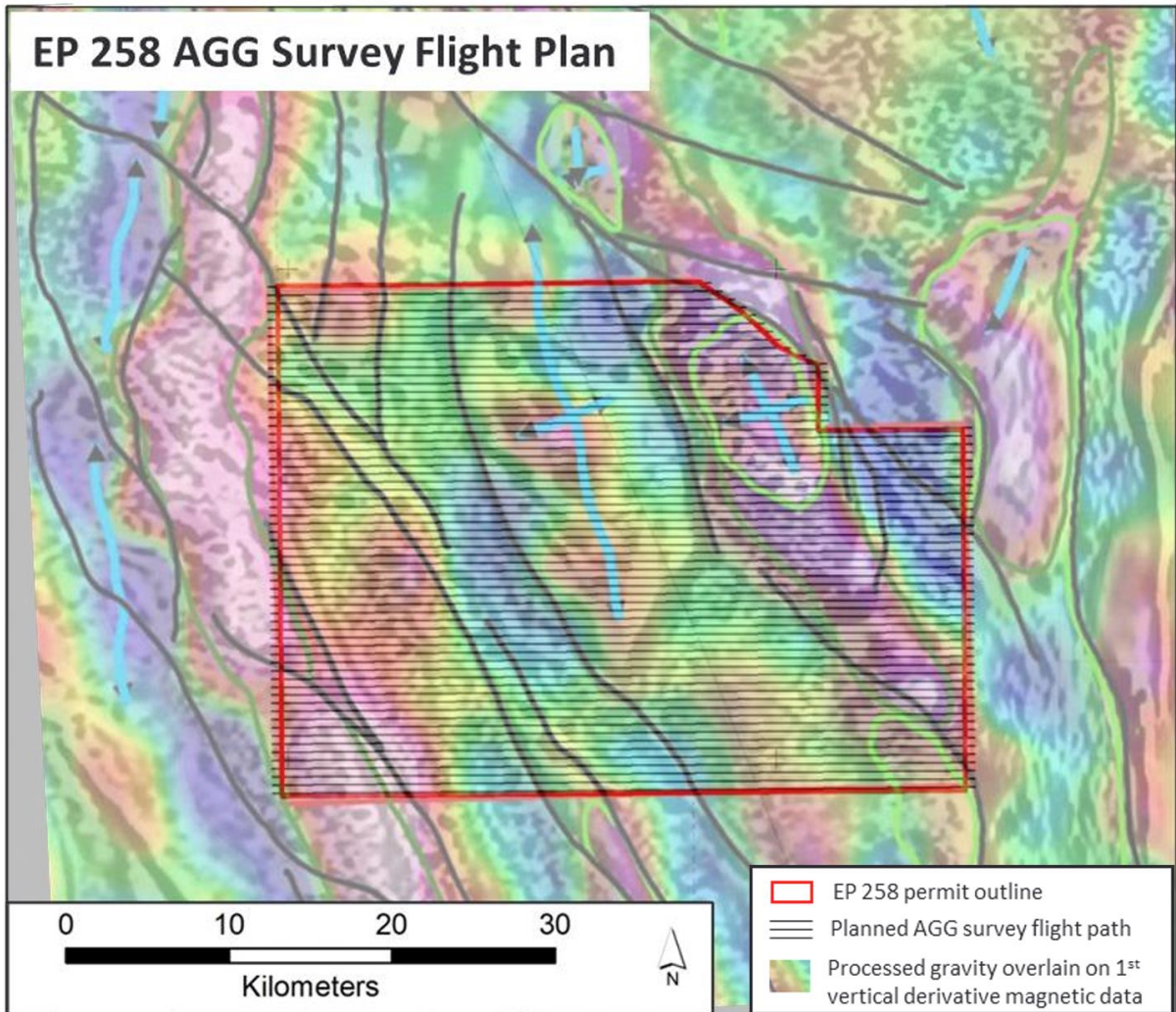
AGG survey

In 2023, Top End announced the engagement of Xcalibur Aviation to undertake the acquisition of approximately 2,500-line kilometres of Falcon AGG data over the entirety of EP 258.

The objective of the AGG survey is to better understand the location and orientation of structural lineaments and basin architecture including basement highs, deep-seated faults and density contrasts between reservoirs and seals across the Permit. Interpretation of the AGG dataset in conjunction with regional magnetic surveys and play fairway mapping will help to optimise the location, orientation and specifications of a planned 2D seismic survey acquisition across the Permit.

The AGG survey will be funded from existing cash reserves.

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**Figure 5: AGG Flight Survey Plan for EP 258 overlain with preliminary interpretation from existing regional gravity and magnetic datasets.**

## 2D seismic acquisition and data processing

Following refinement of scope and location using the acquired AGG data, the Company will undertake a constrained seismic acquisition program of at least 120 line kilometres. This data will be used to mature and confirm drilling targets.

In anticipation of the formal grant of the Permit and undertaking the 2D seismic acquisition, the Company has already completed the process for and been issued a sacred site clearance certificate by the Aboriginal Areas Protection Authority. The certificate includes sufficient buffer area to allow for refinement of the intended 2D seismic program following acquisition and interpretation of the AGG data. The Company has also progressed the preparation of an Environmental Management Plan, which will be required ahead of undertaking the 2D seismic acquisition as well as any subsequent drilling activities.

### **Beetaloo Sub-basin update**

The Company also notes recent updates from operators in the very active Beetaloo Sub-basin, including:

- On 26 March 2024, Tamboran Resources announced a basin record IP60 flow rate for their Shenandoah South 1H well of 3.03 MMcf/d (normalised to 6.0 MMcf/d over 1,000 metres);
  - Tamboran is targeting first production of a 40 MMcf/d pilot project in H1 2026 and on 6 May 2024, announced intentions to list on the New York Stock Exchange; and
- On 17 April 2024, Empire Energy Group announced that it had raised \$46.8m to fund development of its pilot project, cornerstoned by US industry investors Bryan Sheffield and Liberty Energy.

**- END -**

This announcement was authorised for release by the Board of Directors of Top End Energy Limited.

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**About Top End Energy Limited**

Top End aims to be a leading Australian diversified energy provider at the forefront of the energy transition. Combining an attractive portfolio of granted and in-application petroleum permits across Australia, intending to pursue complementary clean energy solutions and achieve a target of net zero (Scope 1 and 2) emissions.

For further information on Top End Energy Limited please visit [www.topendenergy.com.au](http://www.topendenergy.com.au)