



ADVENT ENERGY LIMITED



CLEAN HYDROGEN  
TECHNOLOGIES



CORTICAL  
DYNAMICS

ADVANCED BRAIN MONITORING

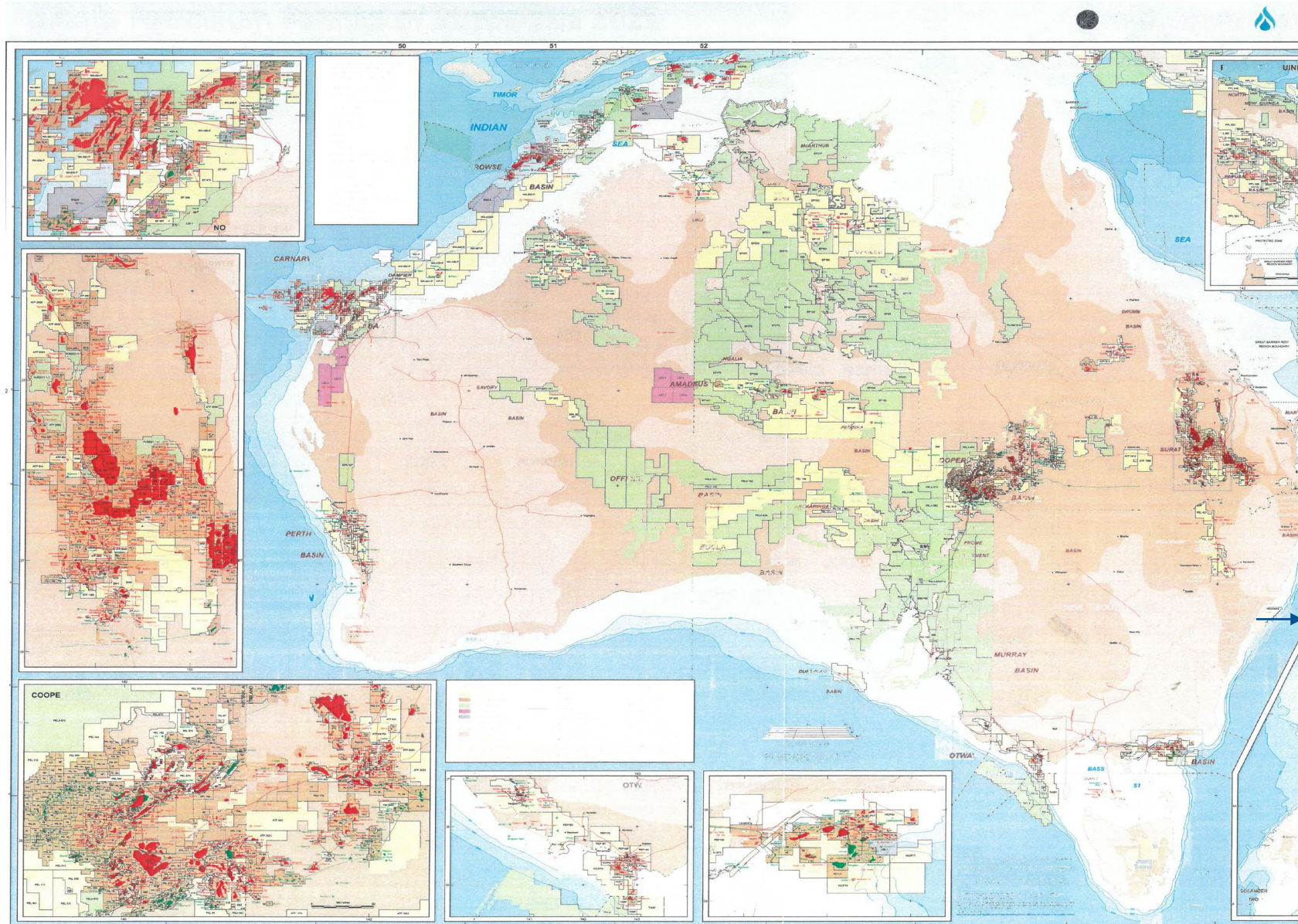
# BPH Energy Ltd -Company Presentation 2023



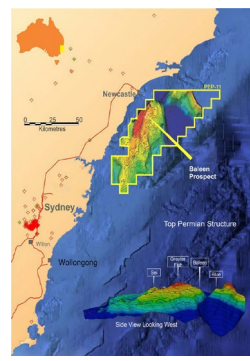




# ADVENT ENERGY LIMITED GPINFO Petroleum Permits of Australia 2022



## PEP11







ADVENT ENERGY LIMITED

# Future Gas Strategy consultation paper 03 10 2023

The release by the government on 03 Oct 2023 of a discussion paper on its future gas strategy coincides with the release of new forecasts revealing the value of Australia's annual minerals and gas exports will plunge by more than \$100bn in two years.



Resources Minister Madeleine King has warned that **decreasing gas supply faster than demand will lead to “shortages, supply disruptions and high prices”**, while also **“worsening poverty and inequality”**, launching a strong economic defence for the fuel source’s role in underpinning the nation’s clean energy transition.



Figure 15: Gas supply is forecast to decline on the east coast of Australia<sup>62</sup>

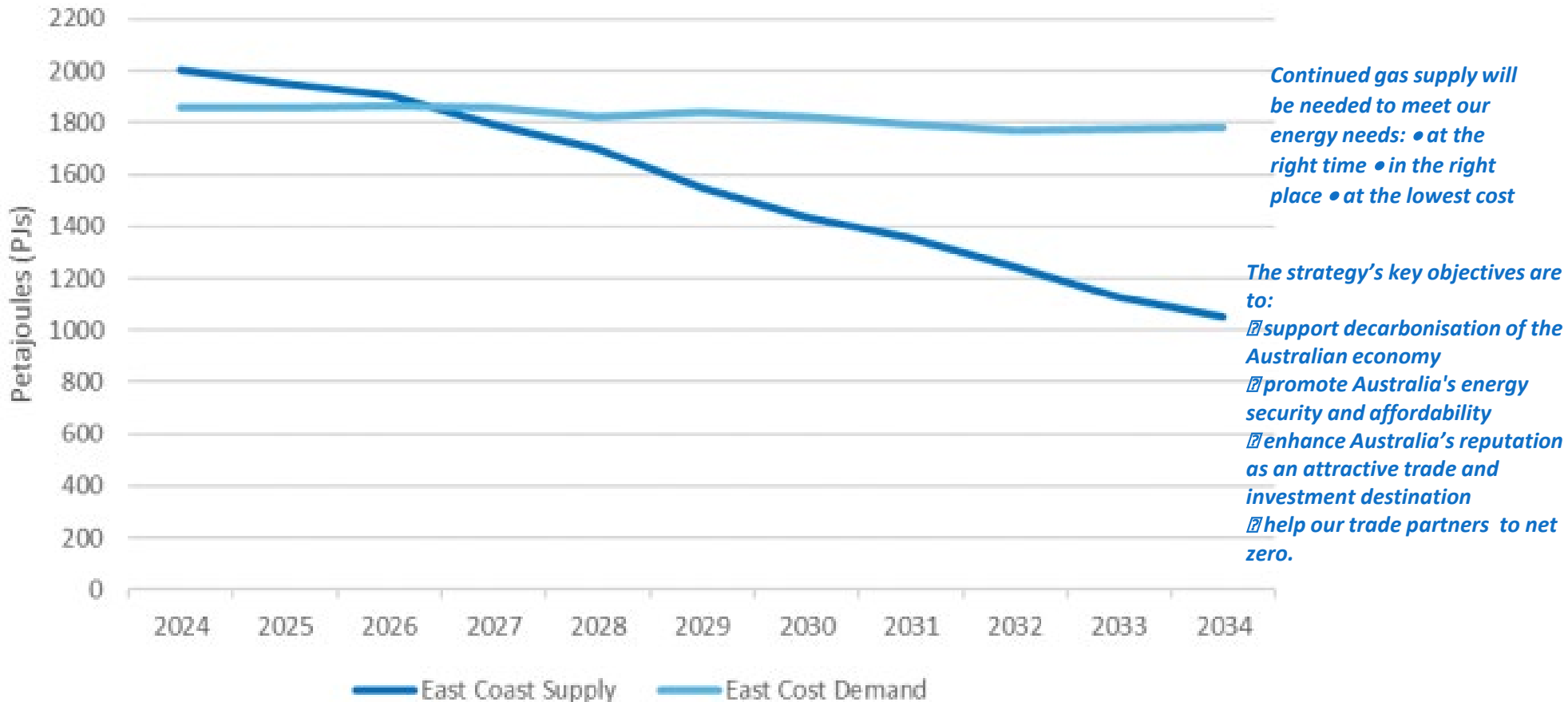
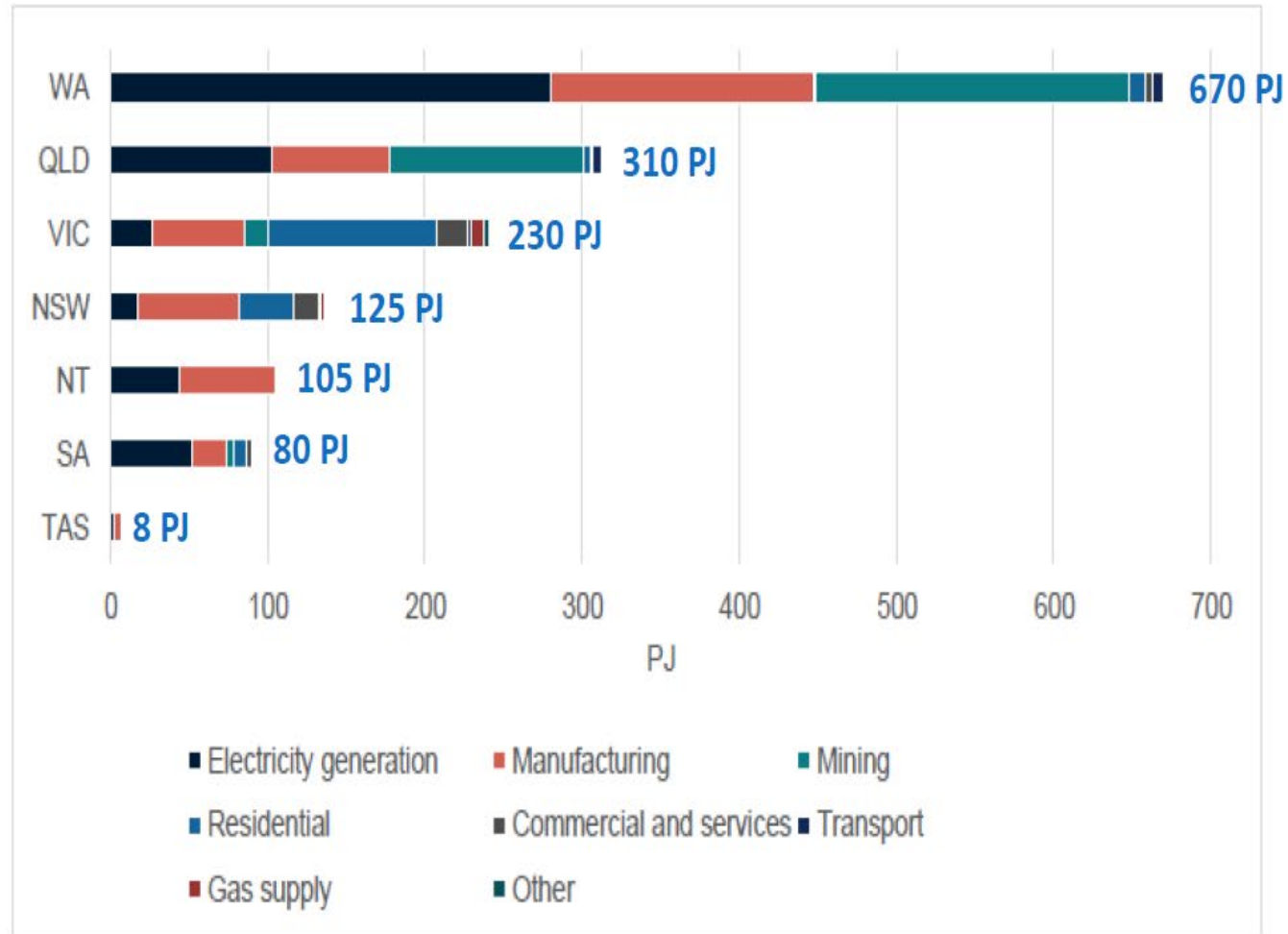




Figure 2: Domestic gas use by jurisdiction 2020-2021<sup>4</sup>

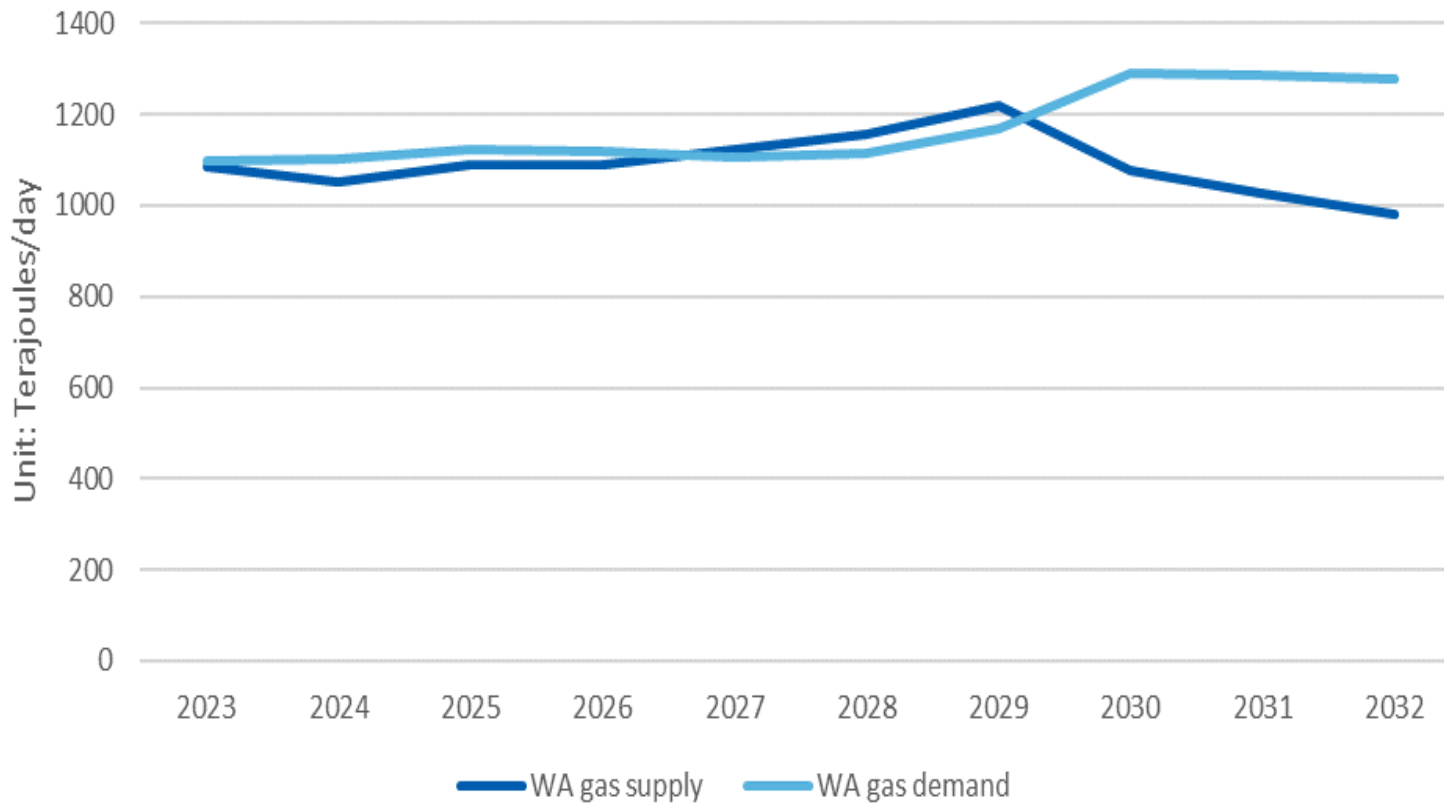


Vic & N.S.W, households & manufacturers consume the most gas..

W.A.& Qld, electricity generators, manufacturers and mining consume the most gas.



Gas supply and demand for Western Australia

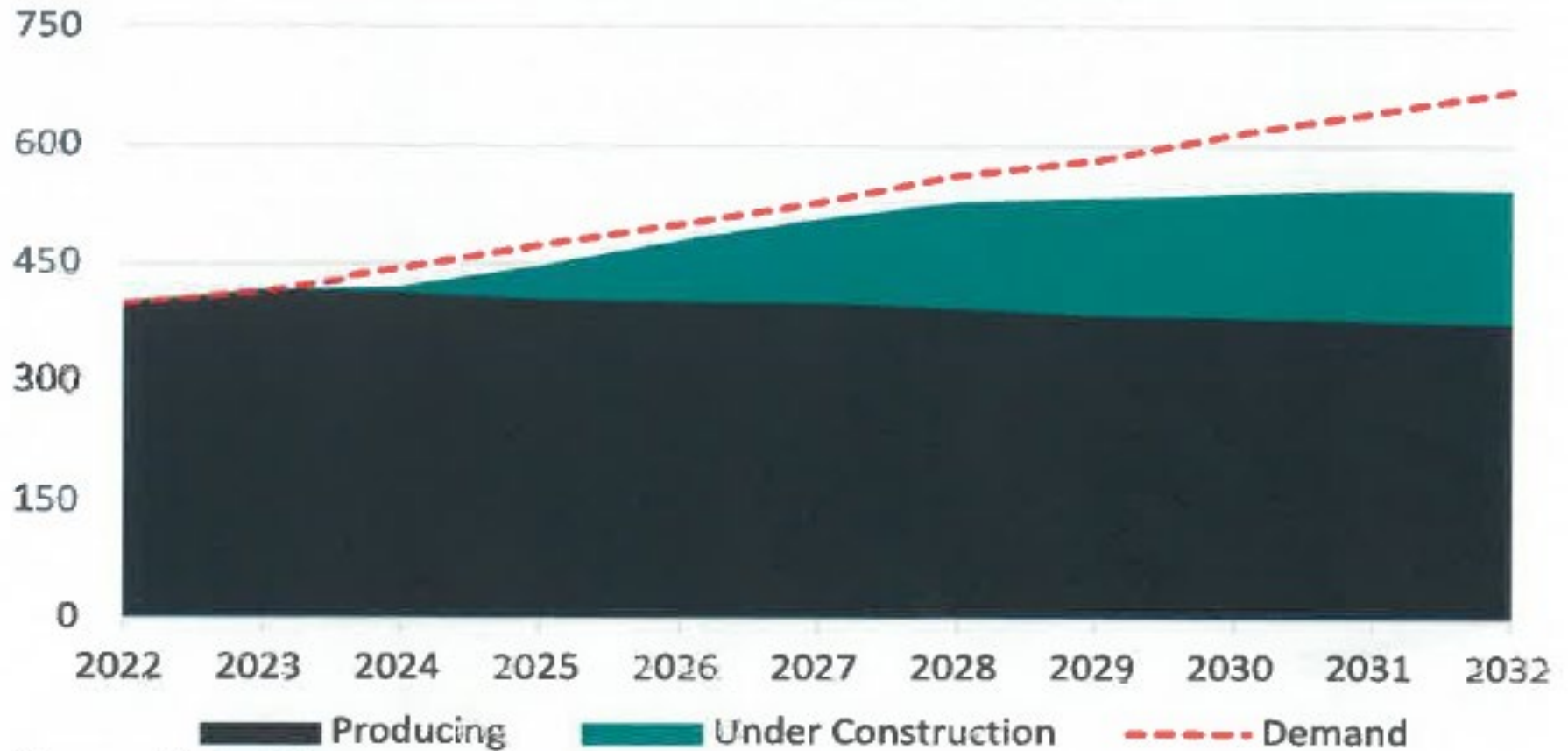


*Gas supply is also forecast to decline on the west coast of Australia*



## Rystad Energy Gas Market Cube 2023

### Global LNG Demand by Region and Supply Status (mt)

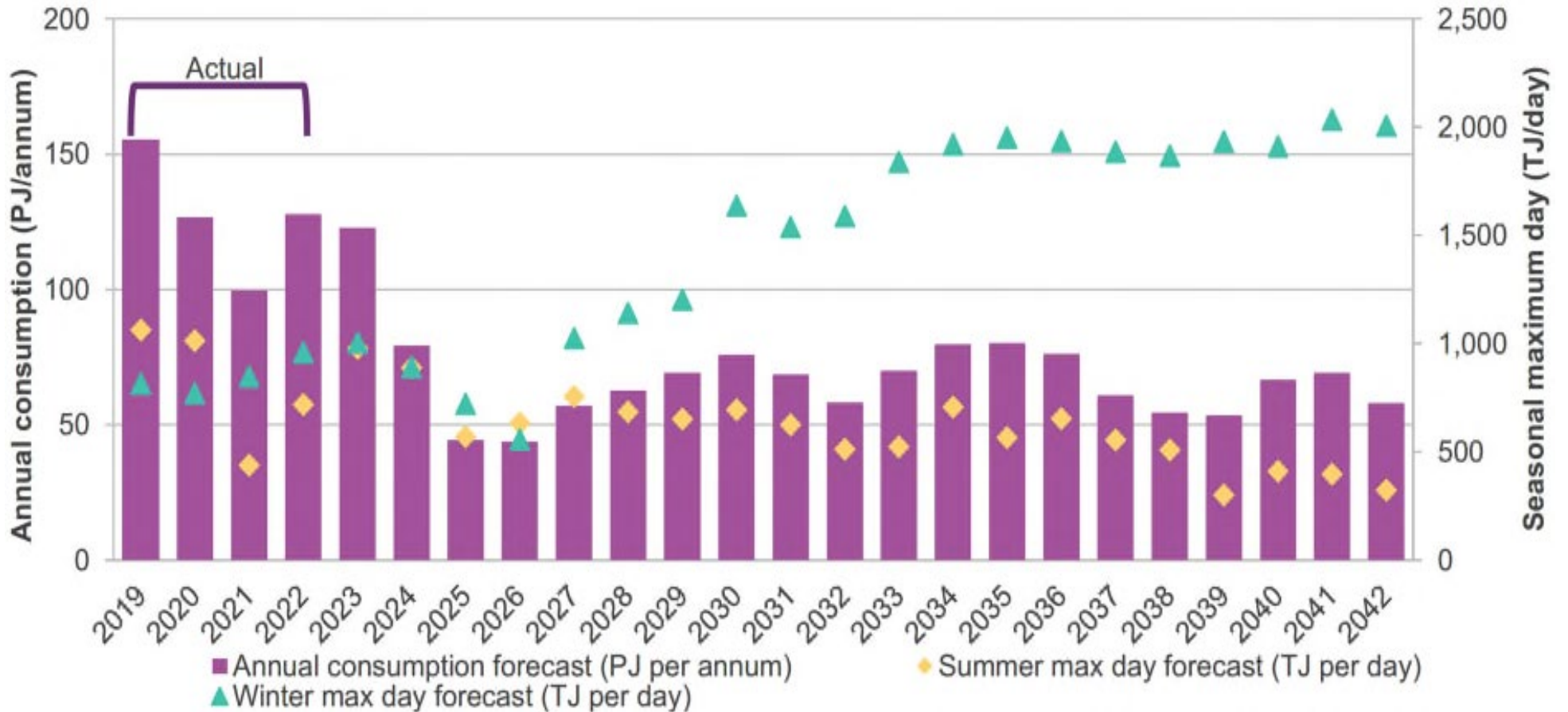


Source: Rystad Energy





# Future Gas Strategy consultation paper 03 10 2023



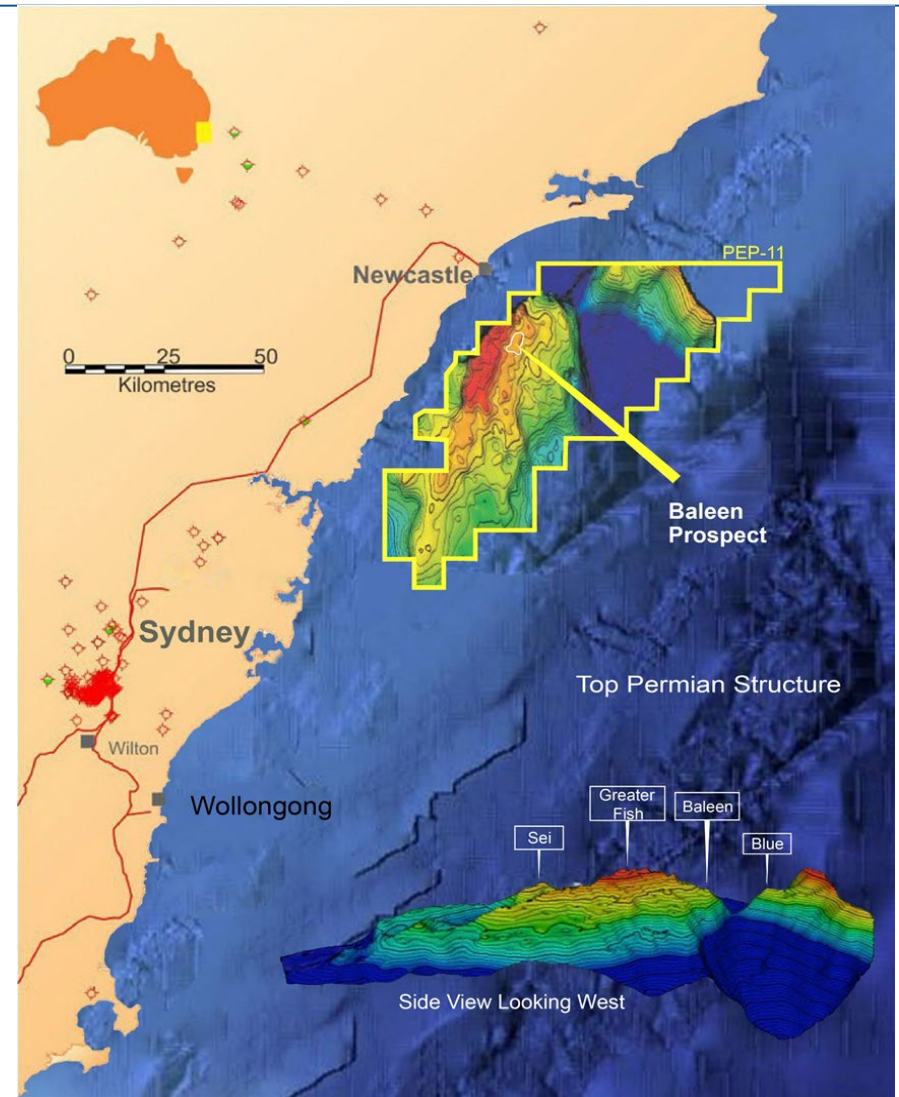




## PEP11-85% Interest

### PEP11– Offshore Sydney Basin:

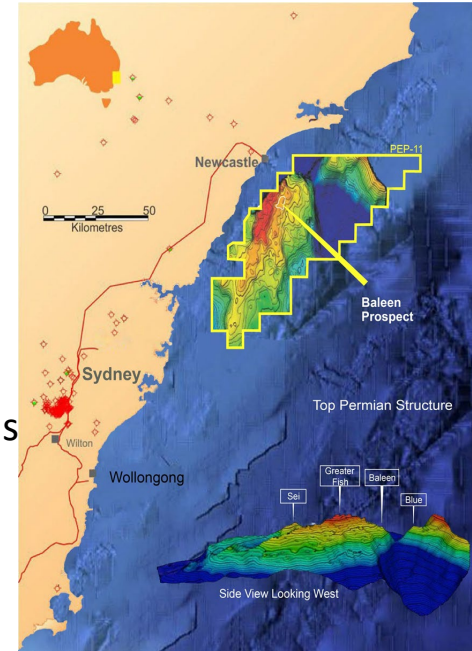
- The Sydney Basin is a proven hydrocarbon basin with excellent potential for further discovery of natural gas / significant multi-Tcf natural gas project
- PEP11 covers 4,649 km<sup>2</sup> on the doorstep of Sydney-Newcastle & extensive gas infrastructure (<50km).
- Analogues to major discoveries -the offshore Sydney Basin contains all the elements seen in other producing world class petroleum basins, including Prospective Resources of 5.7 Tcf (P50) in structural targets.
- Current application to NOPTA to enable drilling as next step –
- Significant interest in the project is driven by the gas market dynamics Shortfall forecast in gas supply east coast
- Two new gas fired power stations for NSW firming generation
- CCS potential (independently verified)
- Key attributes for Hydrogen role
- Significant potential employment driver





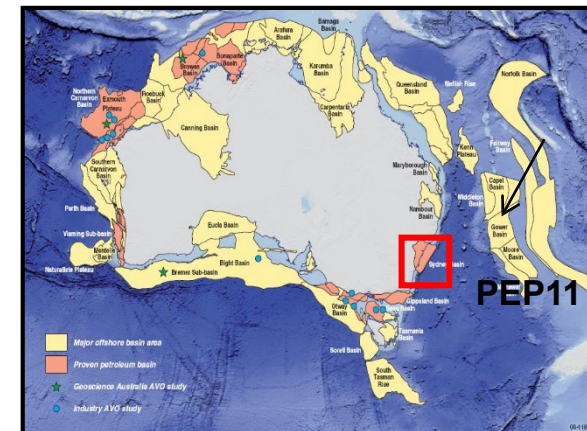
## ADVENT ENERGY LIMITED

- The PEP 11 Gas and proposed CCS Project at Baleen ( Seablue1 well) in the Offshore Sydney Basin has potential national significance.
  - It addresses both forecast gas shortages and the objective of Net Zero Emissions. Advent has committed all gas from the project to Australia domestic supply
- Gas-Base load power ,Energy costs and employment**
- In NSW, est. 300,000 jobs rely on gas supply. Gas supplies around 1.3 million households and 33,000 businesses.
  - NSW's manufacturing sector, which is approximately 84% of the state's Industrial gas load, adds \$33 billion in industry value.
  - Without addressing NSW's looming gas shortfall these could be at risk. (NSW Business Chamber)
  - This prediction has now become a reality in the current global energy crisis
  - Confidence in Australia's main electricity market has suffered its sharpest ever collapse as the crisis engulfing the east coast energy industry hits home for consumers. (ABC 30082022)



## CCS

- Carbon Capture, Usage and Storage (CCUS) technology is one of the priority technologies in Australia's Technology Investment Roadmap.
- Identified by the IEA as the only large-scale mitigation option available that can deliver the additional CO<sub>2</sub> emissions reductions to meet climate goals in 2050.
- The PEP11 project is the closest potential carbon storage area to the major Australian carbon sources- 30% of the entire Australian CO<sub>2</sub> output.





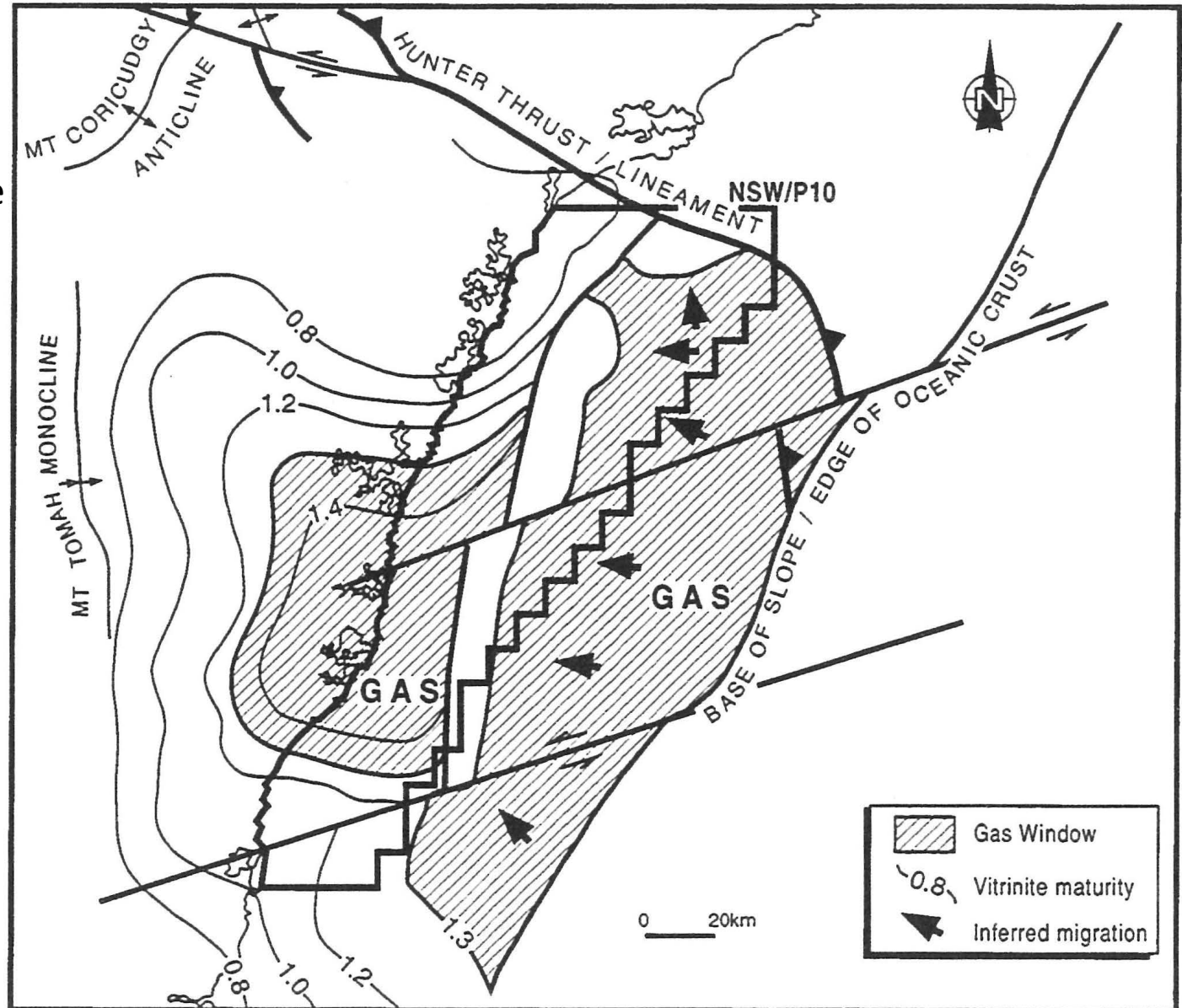


“The late Permian coal measures could provide a viable ,mature ,gas /condensate source along the length of the Offshore Uplift with simple migration pathways updip to the crest of the uplift....”

“This model results in all of the Late Permian Coal Measures being in the gas window”

Figure-Offshore Sydney Basin –Inferred Maturity and Migration Pathways

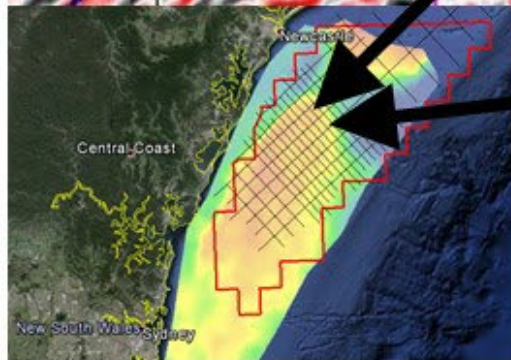
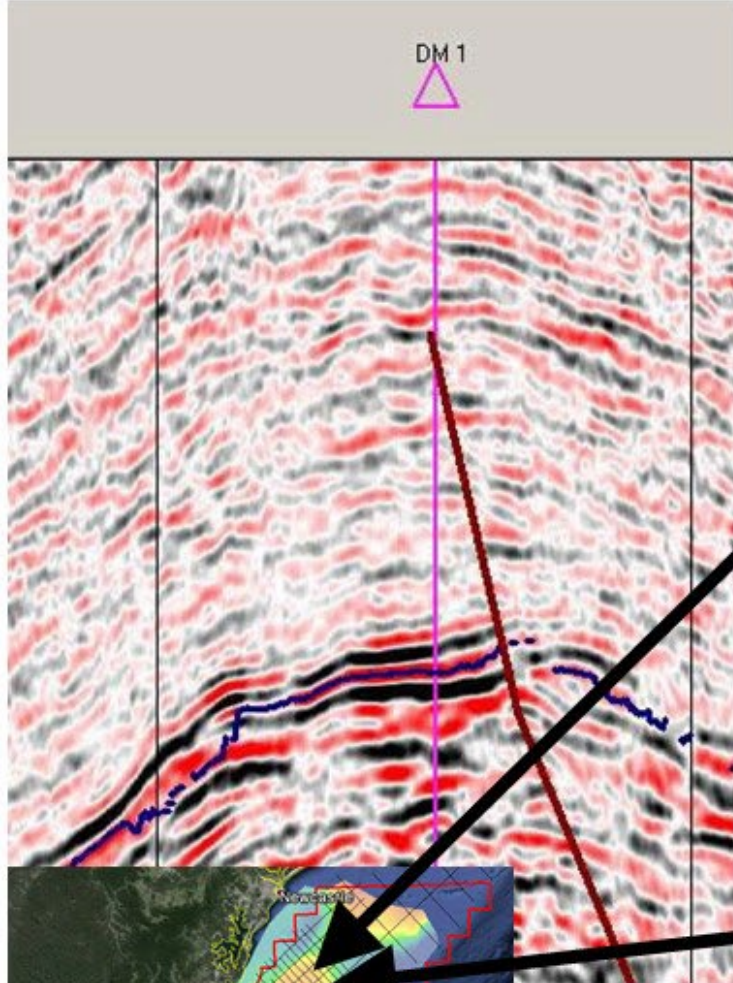
Source “Evolution and Hydrocarbon Prospectivity of the Offshore Sydney Basin  
Bradley G New Petroleum Symposium 1993”





# Near Top Permian / Base Triassic amplitude extraction

Estimate: 6196 acres of estimated amplitude closure

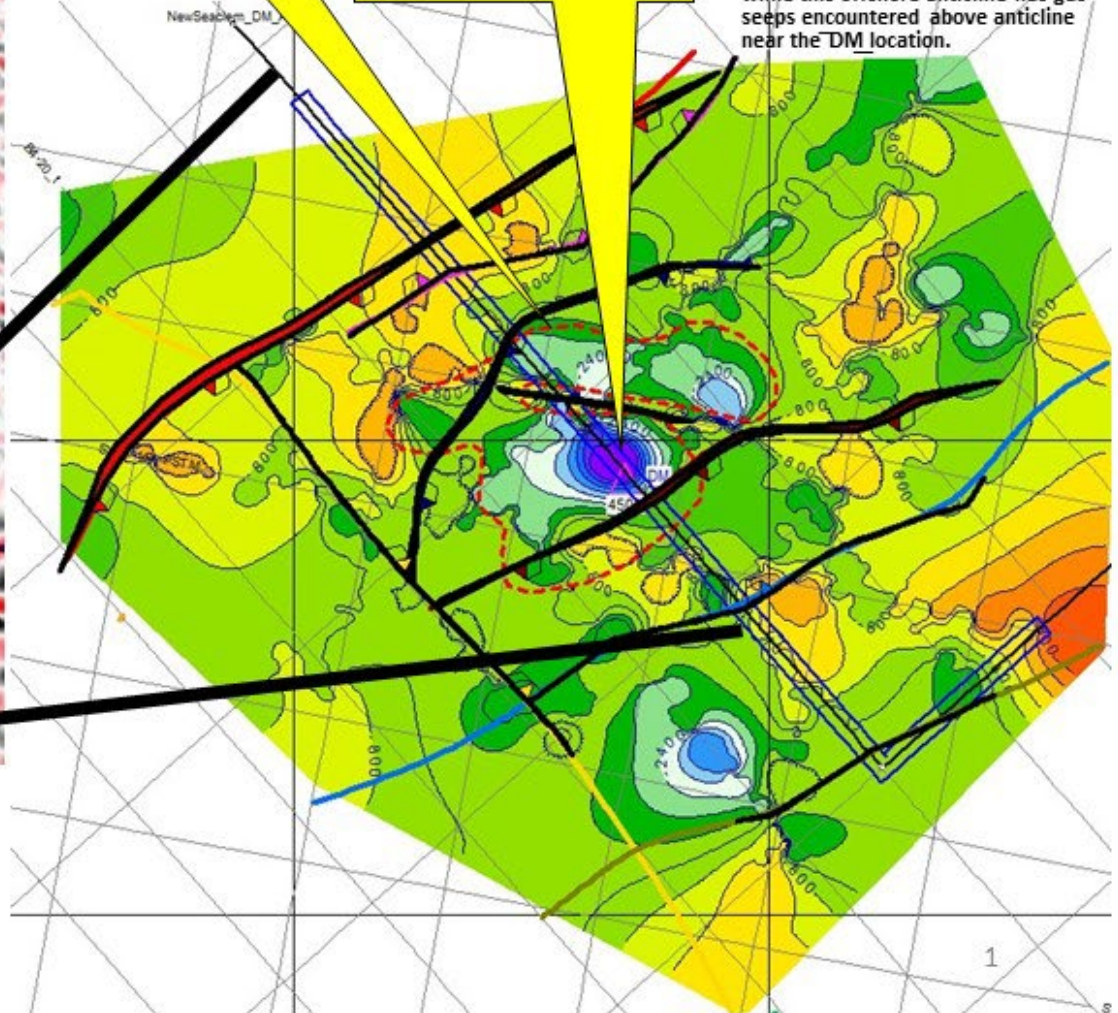


6196 ac  
Amp Area

Suggested  
LOCATION  
398578mE  
6328774mN

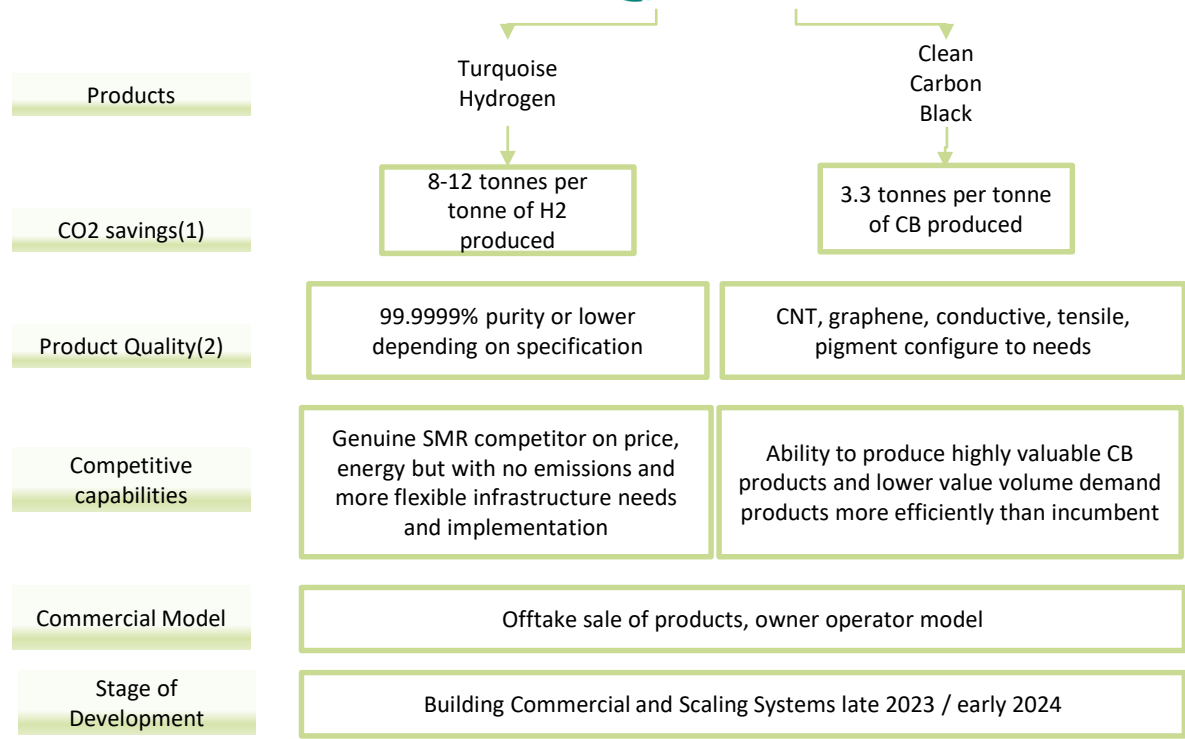
Suggested Target: Test 2D seismic line amplitude anomaly at DM1 on North end of ~Late Permian anticline formed on the upper plate of easterly dipping thrusts fault (red).

Onshore Sydney basin Permian provides some coal seam gas (CSG) while this offshore anticline has gas seeps encountered above anticline near the DM location.



(25 sq km)\*

# CHT in a snapshot



(1) [https://rmi.org/wp-content/uploads/2020/01/hydrogen\\_insight\\_brief.pdf](https://rmi.org/wp-content/uploads/2020/01/hydrogen_insight_brief.pdf)  
 (2) <http://www.fukuzawa.co/Hydrogen.html>  
 Department of Chemical Engineering and Technology Indian Institute of Technology (BHU) Varanasi Varanasi-221005, Uttar Pradesh India  
[https://rmi.org/wp-content/uploads/2020/01/hydrogen\\_insight\\_brief.pdf](https://rmi.org/wp-content/uploads/2020/01/hydrogen_insight_brief.pdf)  
<http://www.fukuzawa.co/Hydrogen.html>

# CHT Vs Competition



Solutions	Feedstock	Efficiency (1)	Water kg / kg H <sub>2</sub> (2)	Electricity kwh / kg H <sub>2</sub> (3)	Estimated production \$/kg (4)	CO <sub>2</sub> Emissions (5)	Space	Infrastructure
CHT - Cracking	Hydrocarbons	90%	0	~8	>\$2.00	None	Low	Majority Existing
Electrolysis	H <sub>2</sub> O + electricity	50–70%	9.1– 18.04	30+	\$7.7 – \$11.1	None	High	Mostly New
Carbon Capture Storage	Hydrocarbons	NR	NR	++++	\$++++	some	Low	New
Steam reforming	Hydrocarbons	70–85%	21.869	8+	\$2.00	12T per H <sub>2</sub> T	Medium	Existing

1 <http://www.fukuzawa.co/Hydrogen.html>

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2 Nuria Sánchez-Bastardo\*, Robert Schlögl, and Holger Ruland\* *Ind. Eng. Chem. Res.* 2021, 60, 32, 11855–11881 <https://pubs.acs.org/doi/10.1021/acs.iecr.1c01679>

3 <https://thebulletin.org/2022/01/whether-green-blue-or-turquoise-hydrogen-needs-to-be-clean-and-cheap/>

(4) <https://www.tno.nl/en/technologies-science/technologies/methane-pyrolysis/>

(5) <https://pubs.acs.org/doi/10.1021/acs.iecr.1c01679>

[https://rmi.org/wp-content/uploads/2020/01/hydrogen\\_insight\\_brief.pdf](https://rmi.org/wp-content/uploads/2020/01/hydrogen_insight_brief.pdf)



**The BARM™ System collects EEG data from the brain and expresses this information in the form of 2 indexes measuring depth of anaesthesia and analgesia**

**Technical Partners**

2022 -AIT/ENCIVIS: Vienna, Austria- EEG artifact removal and signal enhancements

2022- Lorgan Pty Ltd ,Sydney ,Australia– AI /data analysis/deep learning capacity being currently developed for BARM™ conjunctionally with Cortical Dynamics

**Commercial Partners**

Philips USA and global- plug and play agreement in place for BARM™ DAM Intellibrige OR Monitor

Global Luck – South Korean Distributor  
Innomed- Benelux Distributor



**ADVANCED BRAIN MONITORING**  
Cortical Dynamics Limited is a Perth based Neurotechnology company developing a novel depth of anaesthesia monitor named BAARM™

BARM™ will assist anaesthesiologists to deliver accurate TIVA (intravenous) and Inhalation based anaesthesia helping reduce intra and post operative complications relating to overdosing or underdosing of anaesthetic and analgesic drugs that can lead to serious health and psychological conditions or even death.

BARM™ version 1 is FDA,CE,TGA and Korea MFDS Approved.





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