

# T/49P – Southern Offshore Otway Basin

Tasmania, Australia June 2018

An Exciting New Frontier Gas Province

Seapex, London



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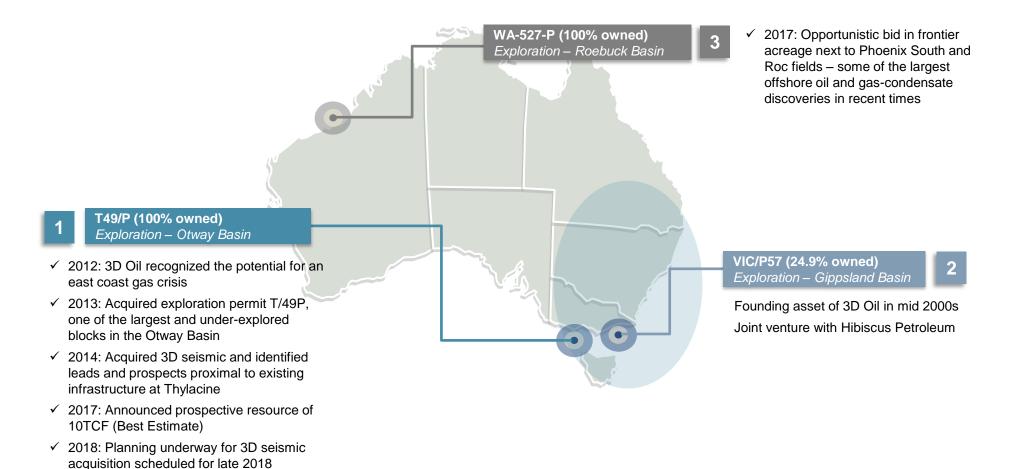
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# **PORTFOLIO OVERVIEW**

3DOIL

# 3D Oil has opportunistically built a portfolio of significant positions in some of Australia's most prospective offshore exploration basins



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# EAST COAST AUST GAS SUPPLY CRISIS



# The supply crunch on the east coast of Australia has resulted in a sharp increase in wholesale gas prices across 2017 and into 2018

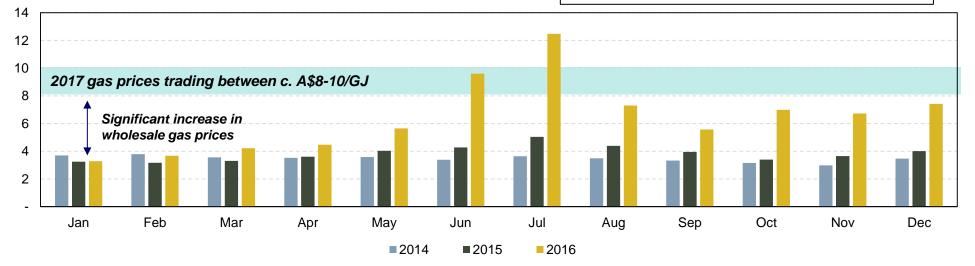
#### Shortfall of supply...

- Post 2017 there is a forecast growing imbalance of gas supply/demand on east coast
- The completion of significant gas supply contracts is exacerbating the supply issue
- 3D Oil is set to benefit from increasing east coast gas prices

#### ...and high political focus...

# Gas crisis 'three times bigger' than thought, Malcolm Turnbull says

The looming gas crisis is three times worse than previously thought, according to Prime Minister Malcolm Turnbull, who has ordered gas giants and state governments to shore up gas supplies to east coast consumers or face strict export limits. - The Age, 25 September 2017



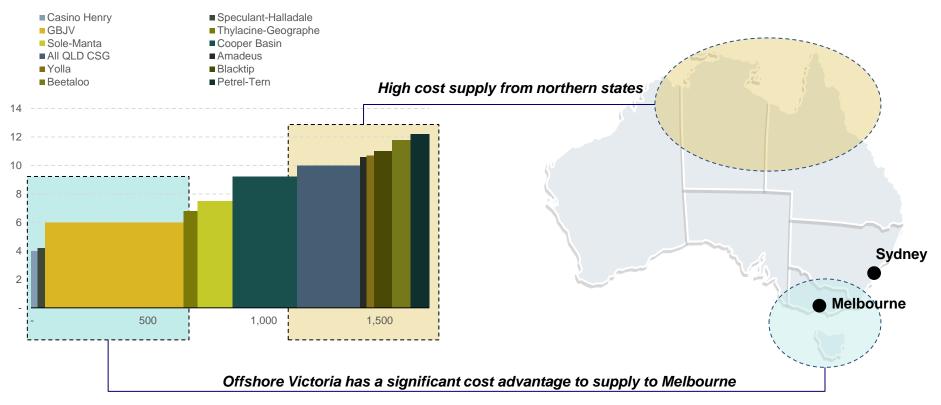
#### Source: AEMO (prices and withdrawals database)

#### ...resulting in higher wholesale gas prices (A\$/GJ)

# MEETING VICTORIA GAS DEMAND SHORTFALL

# 3D Oil expects to be well placed to supply high margin gas production to the east coast gas market

#### Delivered cost to Melbourne (A\$/GJ)



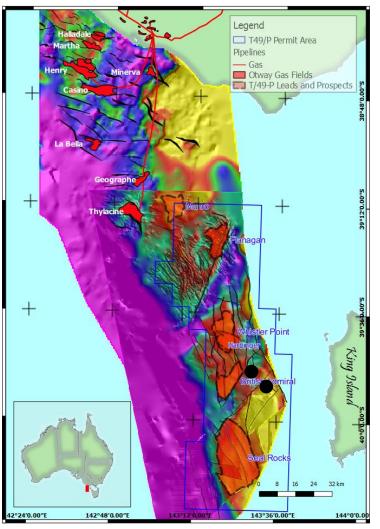


# T/49P OVERVIEW



#### A potentially significant new Australian gas province

- 3D Oil owns 100% equity in the flagship permit
- Large under-explored offshore block (4,960km<sup>2</sup>) in shallow water adjacent producing gas fields that are filled-to-spill
- Drill-ready 3D defined 1.3 TCF prospect with AVO support, and at least 5 other leads identified with a total best estimate prospective resource of 10.5 TCF recoverable<sup>1</sup>
- Offshore Otway success rate is 75% post 3D and 100% with AVO support
- 1 TCF has a wholesale value<sup>2</sup> of A\$4.6 billion (US\$3.5 bill) in Victoria area



- Australian energy Market Operator
- 2 Refer to ASX announcement dated 27 July 2017 for details on T/49P Prospective Resource estimate



#### T/49P : 3D Oil Limited 100% equity holder and operator \* Year 5 Variation granted

YEAR Grant 22 May 13 Anniversary 22 February *	ACTIVITY	INDICATIVE EXPENDITURE (A\$ MILLION)		
		GROSS	CUMULATIVE	
	MINIMUM GUARANTEED DR	Y HOLE WORK PROGRAMME		
Year 1	<ol> <li>Commence approval and planning process for seismic acquisition.</li> <li>G&amp;G Studies, Seismic mapping,</li> </ol>	\$0.150 \$0.200	\$0.400	
	sequence stratigraphic study, basin modelling.		<i><b>Q</b></i> <b>0</b> .100	
	3. Reprocess 500km of 2D seismic.	\$0.050	<b>•</b> • • • • • •	
Year 2	1. Acquire and process 755 km² of new3Dseismic.	\$12.000	\$12.400	
Year 3	1. Seismic Interpretation	\$0.250		
	2. Geological and Geophysical studies.	\$0.500	\$13.150	
		Sub-Total \$13.150		
	SECONDARY WO	RK PROGRAMME		
Year 4	1. Drilling planning and preparation	\$0.500	\$0.500	
Year 5	1. 750 sq km 3D seismic	\$10.000	\$10.000	
Year 6	1. Drill one (1) Exploration Well	\$21,000	\$21.000	

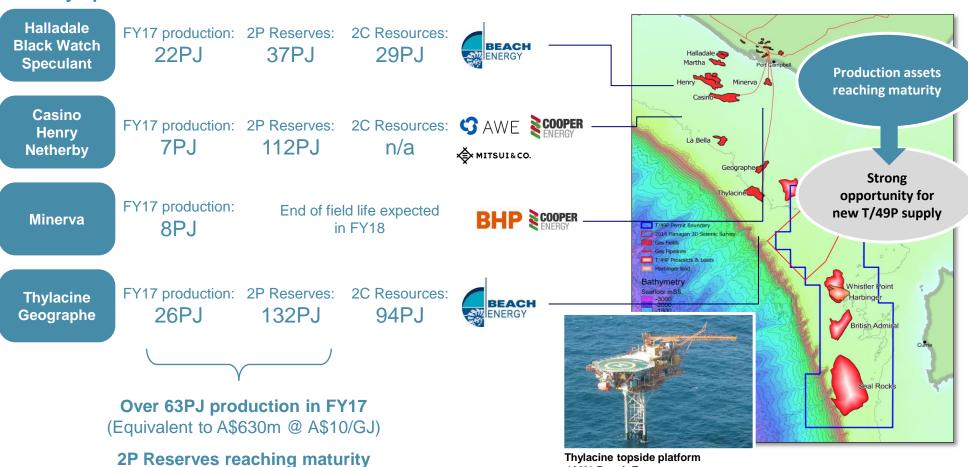


# **T/49P – LOCATION**

**Nearby operations** 



## T/49P is located next to existing domestic gas infrastructure owned by Lattice Energy, BHP, AWE, Mitsui and Cooper Energy



#### 100% Beach Energy

Source: Company announcements, Annual reports



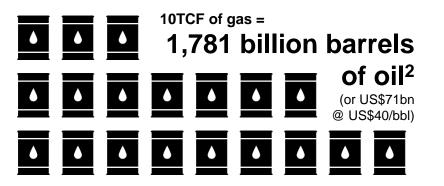
# There is significant value in a potential discovery of 10TCF of commercial sales gas as highlighted by numerous valuation approaches

#### **Prospective Resources (TCF)**<sup>1</sup>

Illustrative gas in place value (A\$ billion)

Resource	Status	Best		A\$4.0/GJ	A\$6.0/GJ	A\$8.0/GJ	A\$10.0/GJ	A\$12.0/GJ
Flanagan	Prospect	1.34	Potential value of gas	5.7	8.5	11.4	14.2	17.1
Munro (T/49P Part)	Lead	0.19		8.1	12.1	16.2	20.2	24.2
Whistler Point	Lead	2.04		11.5	17.2	23.0	28.7	34.4
British Admiral	Lead	1.03		16.3	24.5	32.6	40.8	48.9
Seal Rocks	Lead	4.64		23.2	34.8	46.4	57.9	69.5
Harbinger	Lead	0.79		32.9	49.4	65.9	82.3	98.8
T/49P Total (Arithmetic	)	10.03		97.7	146.5	195.3	244.1	293.0

#### **Energy equivalents**



#### **Recent market transactions**

September 2017: Origin Energy (ASX: ORG) acquired the remaining 30% interest in VIC/P43 and T/30P (Thylacine and Geographe) for A\$190m



Acquisition highlights the significant value of discovered gas in the Otway Basin and around T49/P

#### Notes:

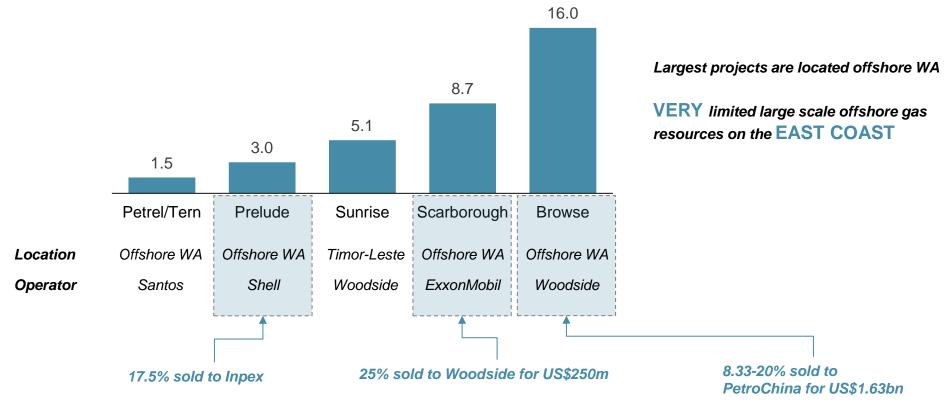
- Refer to ASX announcement dated 27 July 2017 for details on T/49P Prospective Resource estimate
- 2 Converted from boe to cubic feet using SPE conversion factor of 5.66

# **POTENTIAL SCALE OF T/49P VOLUMES**

# 3Doll

# 10TCF is a significant volume and fits within the realm of some of the largest exploration prospects in Australia

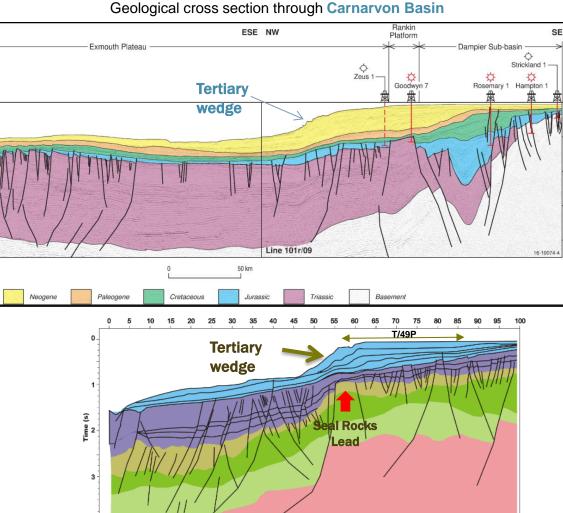
Australia's largest offshore undeveloped projects (TCF)

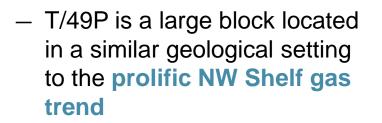


Note:

Reserves and continent resources have been converted at a rate of 1 PJ = 0.172 MMboe

## T/49P NW SHELF COMPARISON



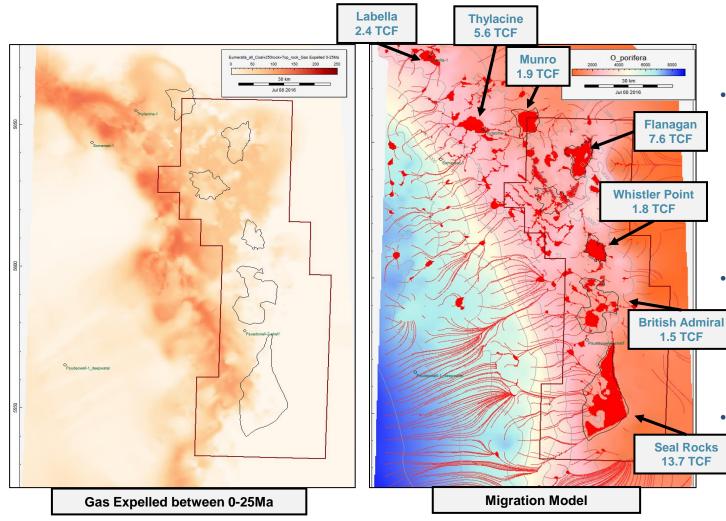


- Both are charged from late **Tertiary loading**, post Oligocene
- Examples of proven gas fields resulting from this system are Goodwyn of the Carnarvon Basin and **Thylacine** in the Otway Basin

Geological cross section through southern Otway Basin



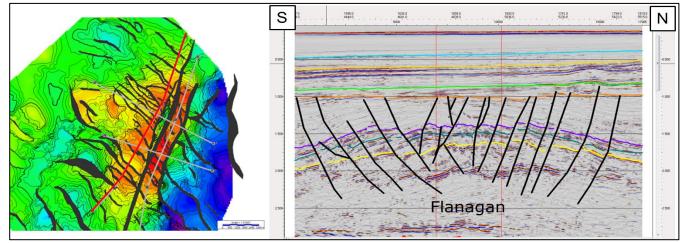
## **OFFSHORE OTWAY BASIN MODELLING**



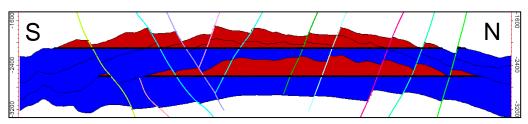


- This migration scenario aimed to test a likely case that hydrocarbons generated from a mixture of clastic and coal source rocks throughout the upper 500m of the Eumeralla
- These SRs have provided hydrocarbons to the existing fields and mapped leads/prospects within T/49P
- In this model, all structures
   are full to either structural
   spill or top-seal capacity (set at 500m)

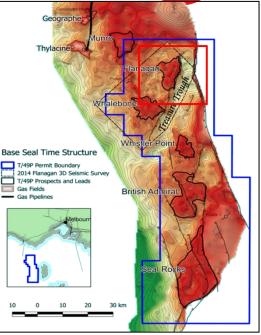
## FLANAGAN PROSPECT SUMMARY



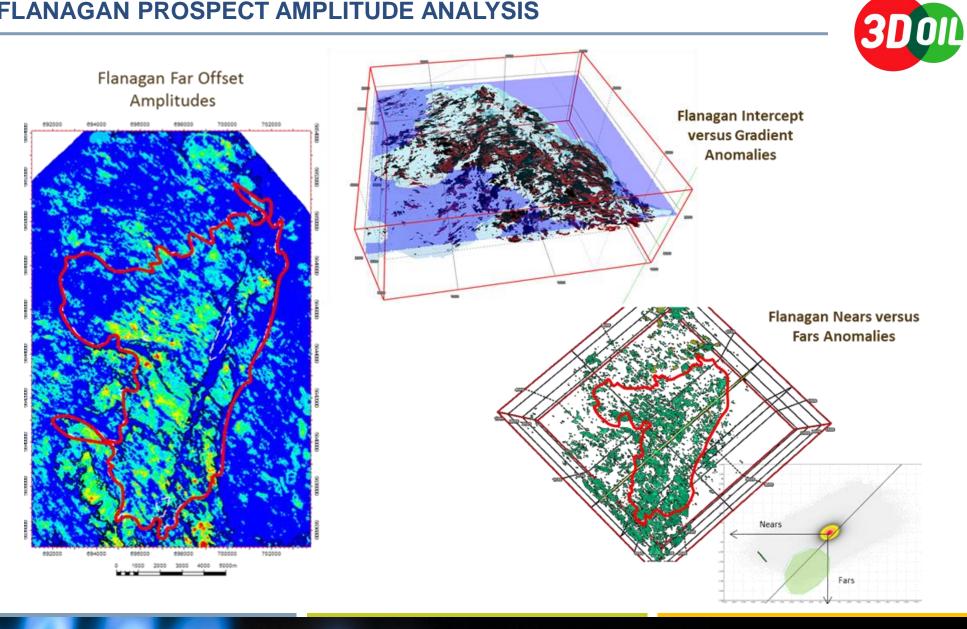
- The Flanagan Prospect is a Late Cretaceous structure that was formed by NE-SW extension and later segmented by NE trending trans-tension.
- The Prospect is nearby and analogous, to the to the largest Otway Basin gas fields, Thylacine and Geographe.
- Supported by a Type III AVO anomaly,
- Flanagan is drill ready;
  - located in less than 100m of water,
  - best estimate of 1.4 TCF recoverable,
  - near to existing infrastructure and,
  - well positioned to take advantage of Australia's East coast Gas Market.



**Cross-Section through the Western side of the prospect** 

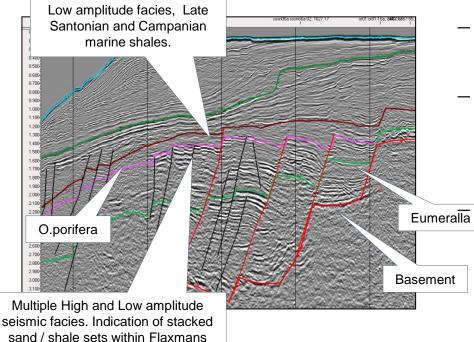


## FLANAGAN PROSPECT AMPLITUDE ANALYSIS



## SEAL ROCKS LEAD SUMMARY

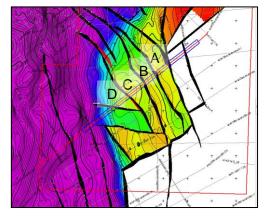




and Waarre reservoir section

- Seal Rocks is a large lead at the Thylacine Mbr level consisting of a series of tilted fault blocks in the south of T/49P
- Top Seal is provided by Santonian marine shales that are intersected in nearby wells in the offshore Otway Basin (notably at Thylacine, Geographe and Labella) and appear as a low amplitude seismic facies

Examples of proven gas fields resulting from this system are **Goodwyn** of the Carnarvon Basin and **Thylacine** in the Otway



Fault Block	Block A	Block B	Block C	Block D	Block E	Total
Number of levels (250m column)	1 Sand Level	2 Sand Levels	3 Sand Levels	3 Sand Levels	2 Sand Levels	
Stacked Case GIIP (TCF)	2.09	3.03	4.90	2.58	3.04	15.63
Stacked Case Recoverable (TCF)	1.15	1.67	2.69	1.42	1.67	8.60

Basin

# T/49P – POTENTIAL FLANAGAN DEVELOPMENT

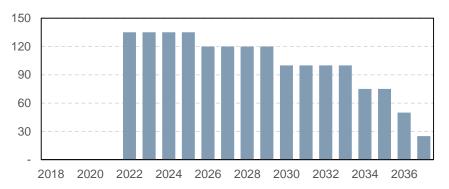


# A development at Flanagan could be highly economic based on Worley Parsons analysis, even with conservative development and pricing scenarios

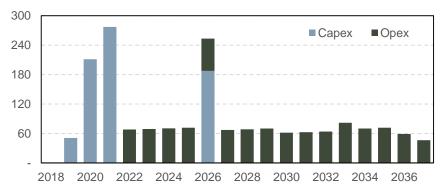
#### Flanagan NPV assessment

- 3D Oil commissioned an economic study by Worley Parsons in 2017 to assess a development at Flanagan
  - Best Estimate Prospective Resources at Flanagan are 1.34TCF (or 237mmboe<sup>1</sup>)
  - Flanagan is a small proportion of total T/49P prospective resources of 10TCF (Best Estimate)
- Economic assessment highlighted significant upside:
  - NPV = A\$541m (at 10% discount rate, pre-tax)
  - IRR = 33.4% (pre-tax)
  - From only 600BCF recovered and at a conservative sale price of A\$6/MCF
- A tie-in development was considered where a subsea well at Flanagan is tied in to Lattice Energy's Thylacine-Geographe infrastructure
  - Total pre-production capex estimate of A\$539m
  - Conservative economic analysis based on stand alone development and excluding condensate

#### **Production forecast (mmcfd)**



#### **Expenditure forecast (A\$m)**



Notes:

Converted from boe to cubic feet using SPE conversion factor of 5.66

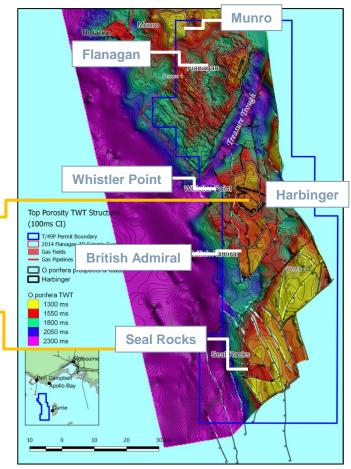
## Preparation has commenced for 3D seismic acquisition planned for late 2018



#### **Seismic overview**

- Focus for 3D seismic is the central and southern part of T/49P
  - Design parameters for the acquisition have been agreed subject to securing a farm-in partner and funding
  - Estimated costs of A\$10m
- 3D seismic survey will target a series of significant leads
  - Intention is to mature several of these to prospect status
  - Insight from the new data will be combined with that gleaned from 3D Oil's existing seismic database of the region
- One of the key leads to be targeted by the seismic program is the Harbinger lead, supported by a Type III AVO anomaly, indicating gas
  - Independent analysis estimated that Harbinger contains 790 BCF Best Estimate Prospective Resources
- Another target for 3D seismic acquisition is the Seal Rocks lead, with a Best Estimate Prospective Resource of over 4 TCF
- Following successful completion, the seismic data is expected to help determine the location of the exploration well
  - Exploration well is currently planned for the CY 2019

#### **Target areas**



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Brochure available at Australian Government booth