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# +13.7 TCF Gas Play in Australia's Premier Onshore Gas Basin

REAL ENERGY

**Real Energy Corporation Limited (ASX: RLE) Investor**
**ENERGY & BATTERY MINERALS CONFERENCE**
**March 2018**

# Overview

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## An extensive gas portfolio with significant development potential

- Holds 100% of 2,761km$^2$ of permits near infrastructure in the Cooper Basin – Australia's premier onshore gas field
- **Independent Estimated Total Mean Gas in place of 13.76 TCF** in ATP 927P
- **Maiden 3C gas resource of 672 BCF** from two discoveries – Tamarama-1 & Queenscliff-1
- MOU with Santos for gas processing

## Near-term value catalysts

- Tamarama-1 gas well will be on production when flow lines into the SWQJV network are established
- Current gas resource yet to be contracted
- MOU for gas sales with Weston Energy and strong interest from gas buyers – key value driver
- The Company has circa $8.4M in cash and funded through the pending 2-well drilling program
- Drilling Tamarama-2 and Tamarama-3 to commence in April 2018

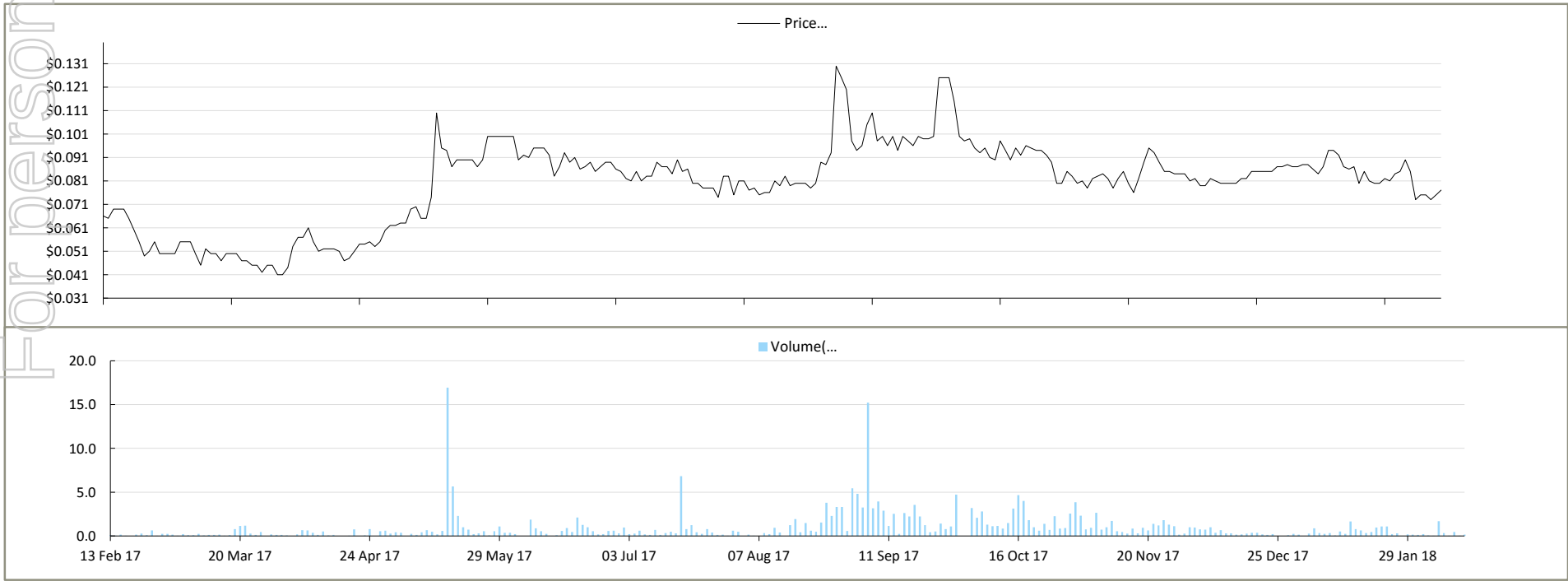
# Corporate snapshot

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| | Number of shares |
|---|---|
| Shares on issue | 255.4m |
| Market capitalisation @ 0.077 | $19.7m |
| | |
| Cash position ~ (31 Dec 17) | $8.4m |

| Major shareholders | % held |
|---|---|
| Scott Brown | 10.30 |
| Lan Nguyen | 8.03 |
| Sino Portfolio | 6.78 |
| **Total:** | **25.11** |

The Top 20 own 50.8%
Over 1,800 shareholders



# Experienced Board & Management

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**Scott Brown, B. Bus, M. Com**
**Managing Director and Founder**

Extensive background in finance and management of public companies and an experienced company director. Formerly CFO of **Mosaic Oil NL**, Director of Objective Corporation, Executive **with Allegiance Mining, Turnbull and Partners** and has also worked for **Ernst Young and KPMG**. Scott was instrumental in putting together a Scheme of Arrangement for AGL Energy Ltd to acquire Mosaic Oil for a consideration of $142 Million. Currently Scott is a Non Executive Director of Kairiki Energy Ltd.



**Lan Nguyen, B. Sc M. Sc**
**Non Executive Chairman and Founder**

A geologist & engineer with an extensive technical & commercial background in the oil & gas sector and the management of public companies. Lan currently provides consulting services to energy & resources companies in Australia & Asia-Pacific region. Formerly an Executive Director & Managing Director of **Mosaic Oil N.L.**, and has also worked for **PetroVietnam**.



**Norman Zillman, B. Sc, B. Sc Hons**
**Non Executive Director**

Professional geologist with more than 40 years experience in minerals, petroleum, coal, coal bed methane and geothermal exploration and production in Australia and internationally. Has held senior executive positions with **Crusader Limited, Beach Petroleum, Claremont Petroleum Limited** and was a founder and CEO of **Queensland Gas Company** Limited. He also founded Blue Energy Limited, Hot Rock Limited, Planet Gas Limited and Bandanna Energy Limited.

**Highly experienced Board with a track record of success discovering and developing large natural gas fields in Australia**

# Technical Team

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**Terry Russell, B.Sc PhD**
**Exploration Manager**

Petroleum geologist with over 30 years industry experience that has included technical and management positions with successful operating and non-operating companies involved in petroleum exploration, development and production projects both within Australia and internationally. From May 2007 he held the position of Exploration Manager for Mosaic Oil NL, until the takeover by AGL in late 2010, during which period the company was actively involved in successful drilling and seismic acquisition projects in Queensland.

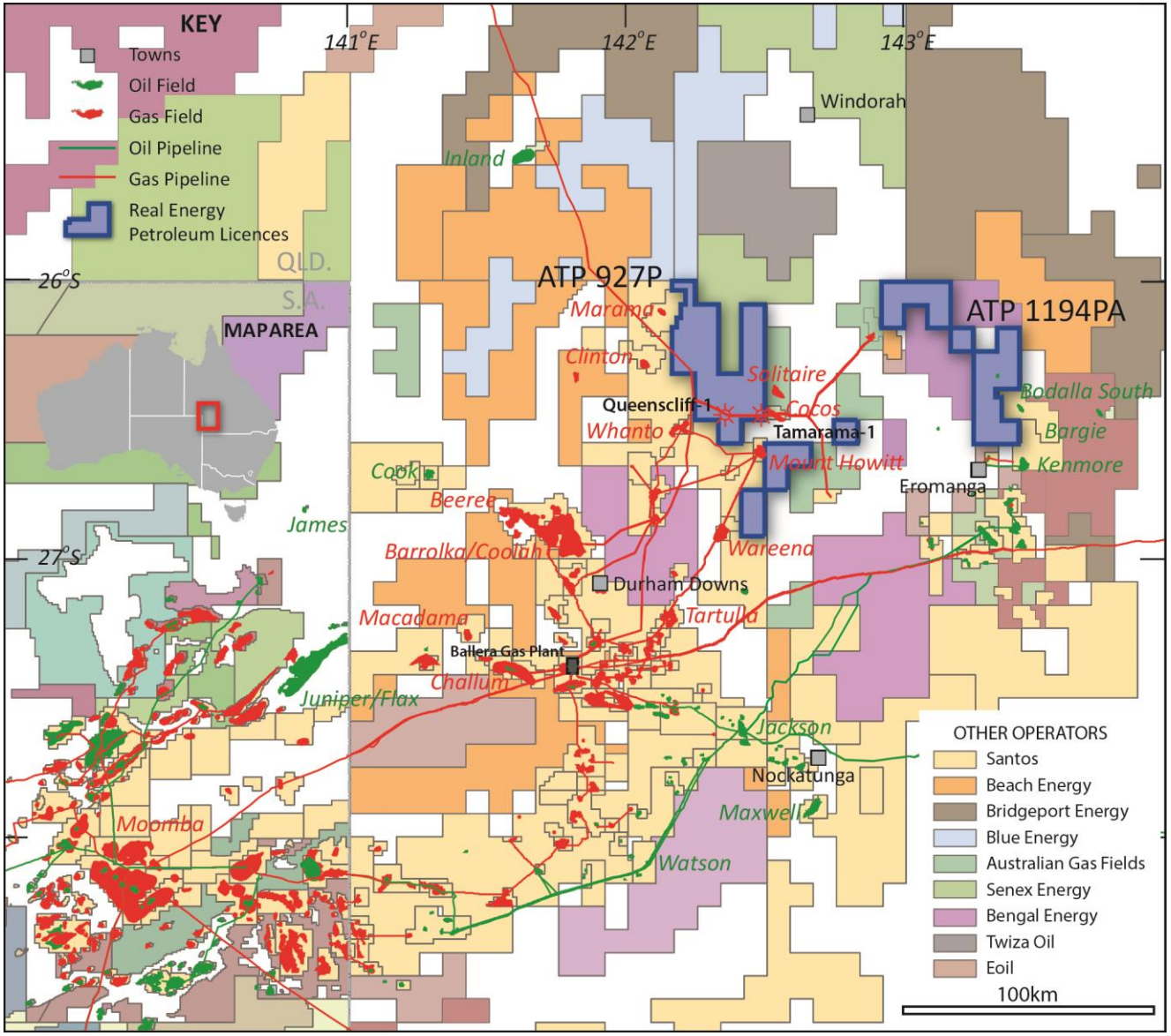


**Ray Johnson Jr. BA Chen, MSc Eng. Phd Min Eng.**
**Reservoir Stimulation Consultant**

Dr Ray Johnson, Jr., Principal at Unconventional Reservoir Solutions (www.unconreservoirs.com.au), has been involved with design, execution, and evaluation of reservoir stimulation treatments since 1980 and has a PhD in Mining Engineering relating to pre-drainage of fluids (i.e., gas and water) for coal mining. Prior to moving to Australia in 1998, Ray had 17 years' experience in engineering and management positions throughout the Central US involving fracture stimulation design, execution and evaluation of coals, shales and other naturally fractured reservoirs and in areas encompassing most currently producing US unconventional basins. Ray holds a MSc in Petroleum Engineering from the University of Texas at Austin where his 2000 thesis was one of the first published there on assessing shale gas resources. Ray is currently an Adjunct Associate Professor at the ASP, University of Adelaide and Professor of Well Engineering & Production Technology at the University of Queensland, School of Chemical Engineering.

## Highly experienced technical team

# Cooper-Eromanga – A World Class Location



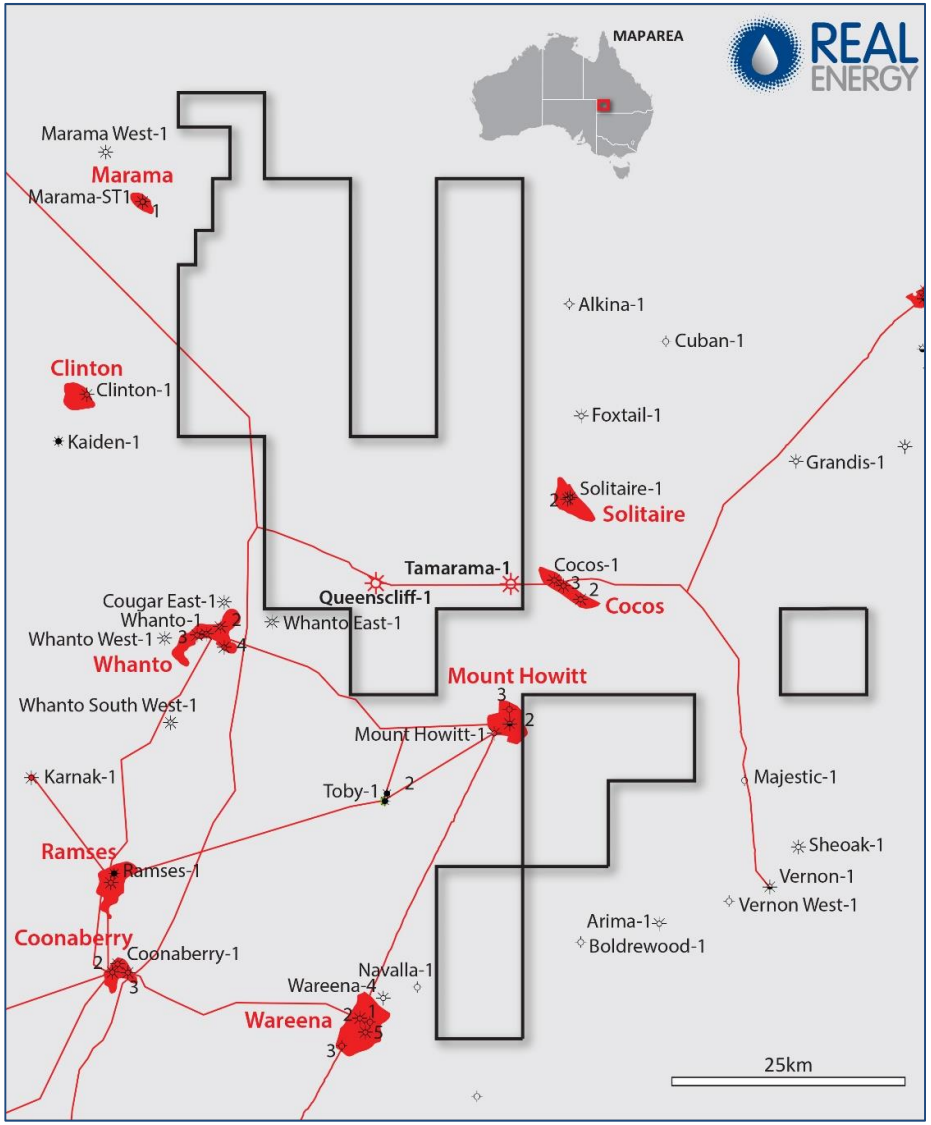

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# Significant Gas Resource in Place

| Permit | Area (Km²) | Estimated petroleum initially in place (Mean BCF) |
|---|---|---|
| ATP927P | 1,718 | 13,761 |
| ATP1194 PA | 1,043 | - |
| **Total:** | **2,761 (682,257 acres)** | **13,761** |

| Contingent Gas Resources | BCF |
|---|---|
| 2C | 276 |
| 3C | 672 |

Resource estimates independently made by DeGolyer & MacNaughton

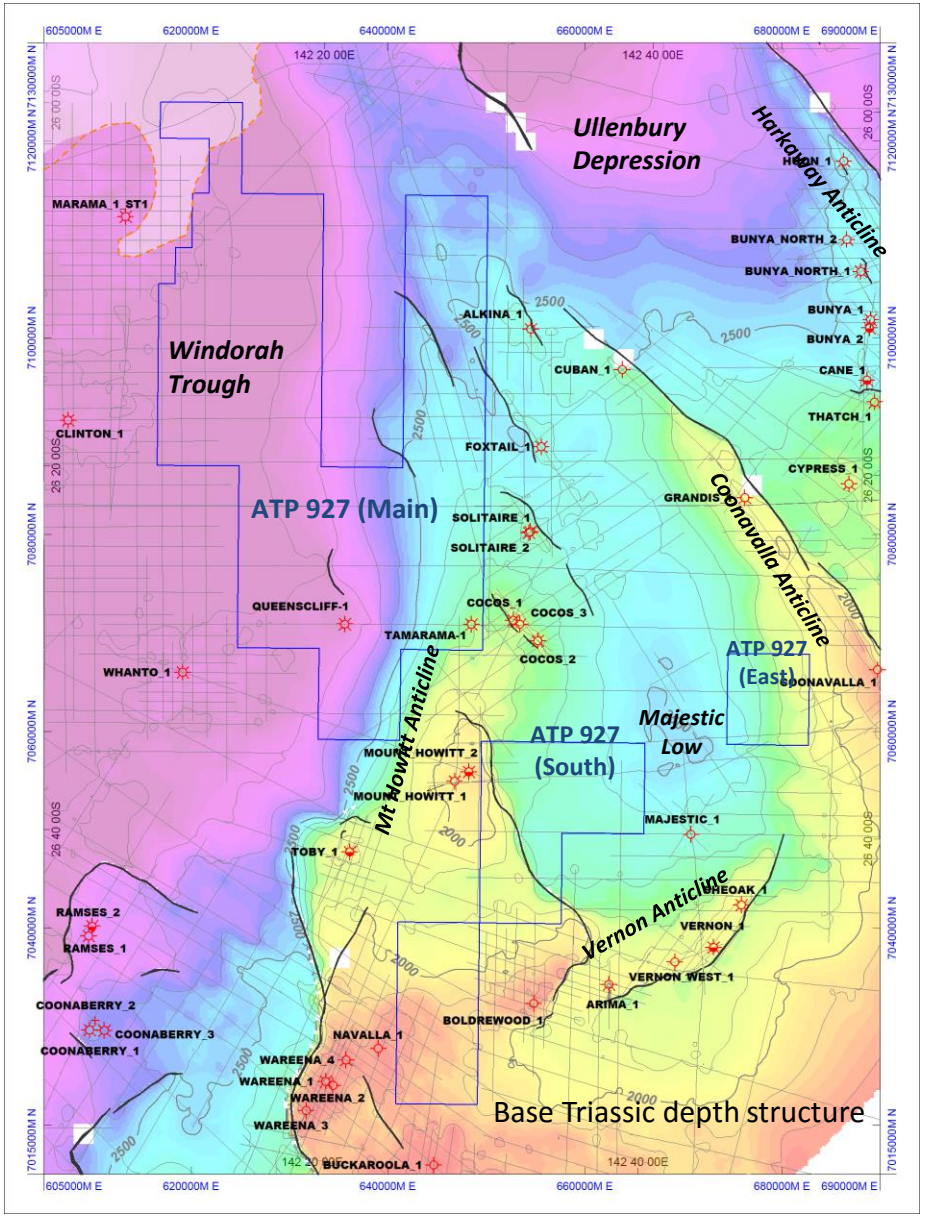



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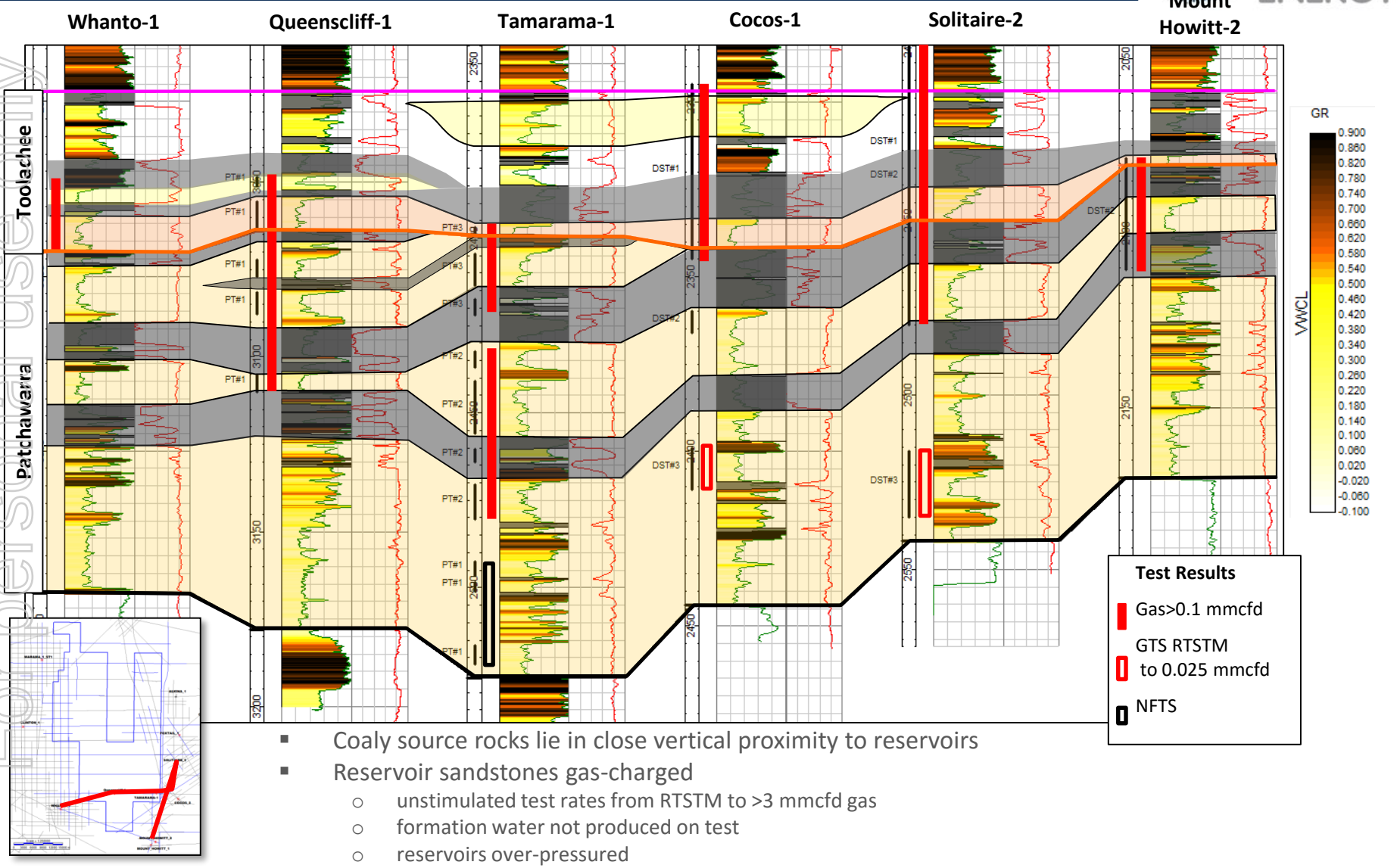
# ATP 927: Structural Setting

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- ATP 927 Main block overlies the Windorah Trough and west flank of the Mt Howitt anticline
- Windorah Trough contains a thick (c.2500m) Jurassic-Cretaceous Eromanga section, unconformably overlying a Permian-Triassic Cooper Basin section c.660m thick
- Cooper Basin section thins to N-NW & S-SE in response to
  - depositional onlap
  - erosion beneath the base-Eromanga unconformity
- Mt Howitt anticline is a prominent, latest Cretaceous – Early Tertiary structure (i.e., largely post-dates peak hydrocarbon generation)
- ATP 927 South and East blocks overlie the Majestic Low and shallower structural trends flanking the Thargomindah Shelf to the SE.



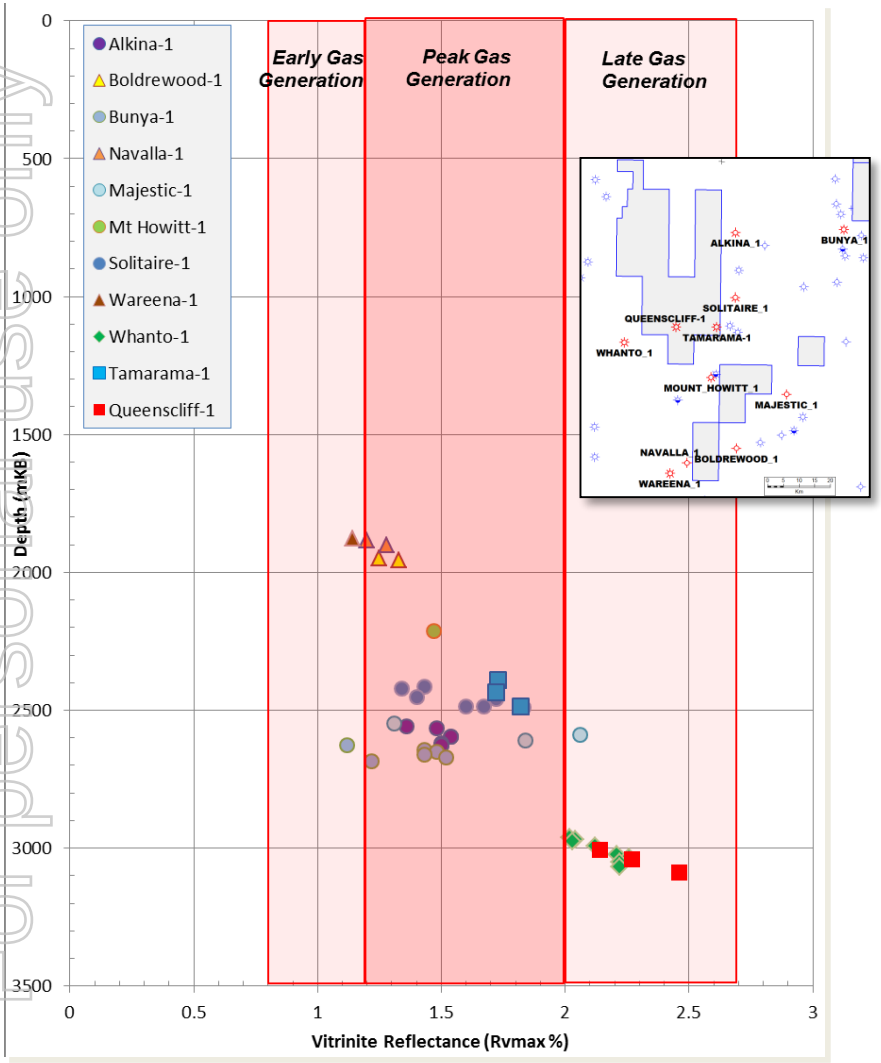
# ATP 927 Permian Stratigraphy - log correlation




- Coaly source rocks lie in close vertical proximity to reservoirs
- Reservoir sandstones gas-charged
  - unstimulated test rates from RTSTM to >3 mmcfd gas
  - formation water not produced on test
  - reservoirs over-pressured
- Reservoirs at structurally shallower depths on flank of Windorah Trough contain gas on water in conventional structural traps (e.g., Wareena)

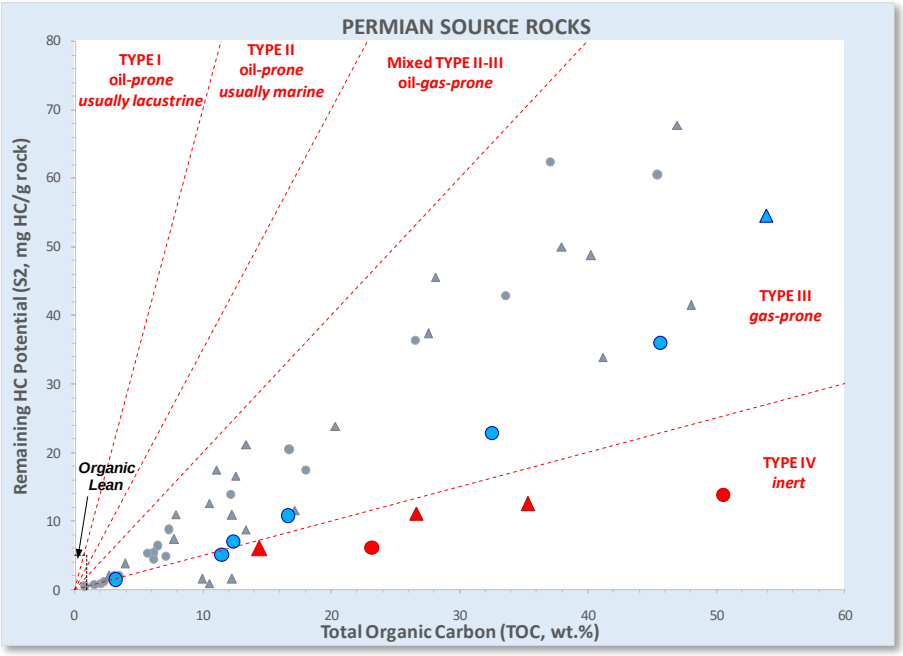
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# Presence of Mature Gas-prone Source Rocks




The VRmax v Depth plot gas generation zones are as per Dembicki (2009) for gas-prone source rocks.

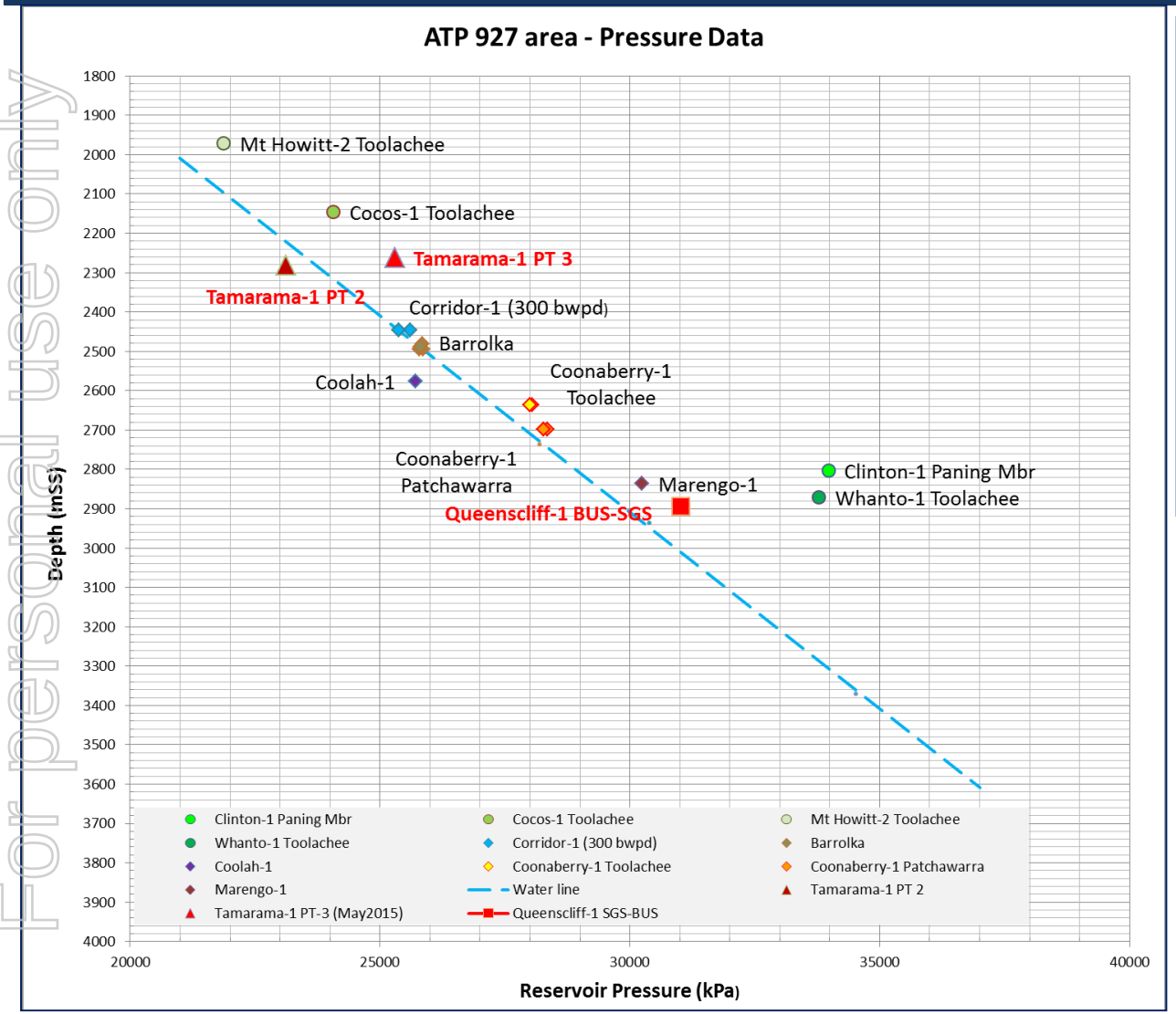
- Permian Toolachee (Δ) & Patchawarra (o) coaly source rocks are widespread in ATP 927 area:
- Typically contain Type III kerogens
- Peak Gas and Late Gas maturity
- Tamarama-1 (blue) & Queenscliff-1 (red) exhibit high levels of maturity

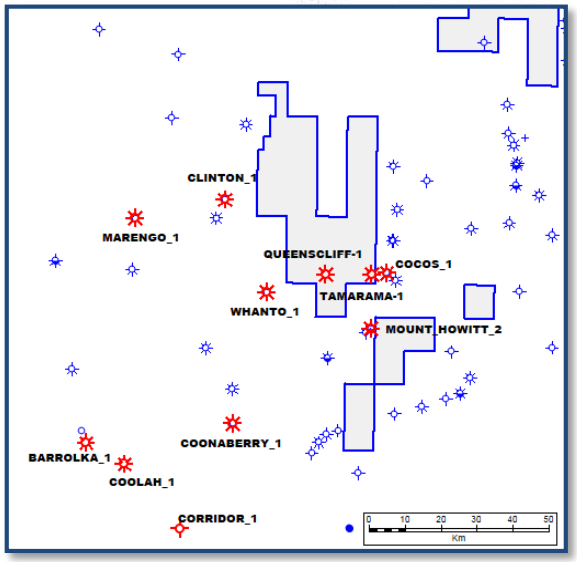



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# Overpressure - Pressure vs Depth Windorah

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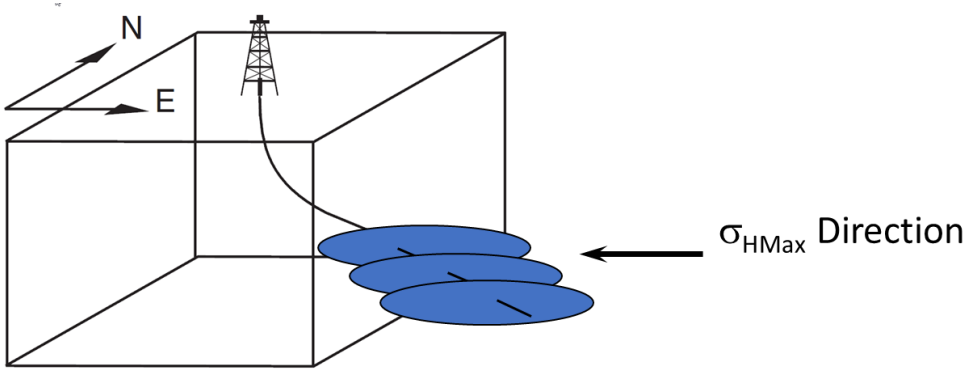



- The available data supports the occurrence of over-pressure in Permian reservoirs in Windorah Trough wells,
- a phenomenon commonly associated with basin-centred gas systems.

NB: Tamarama-1 PT2 from PBU test with incomplete build-up so pressures are underestimated

# Well Design – Windorah Gas Project




Well trajectory (∡) < 60° from vertical

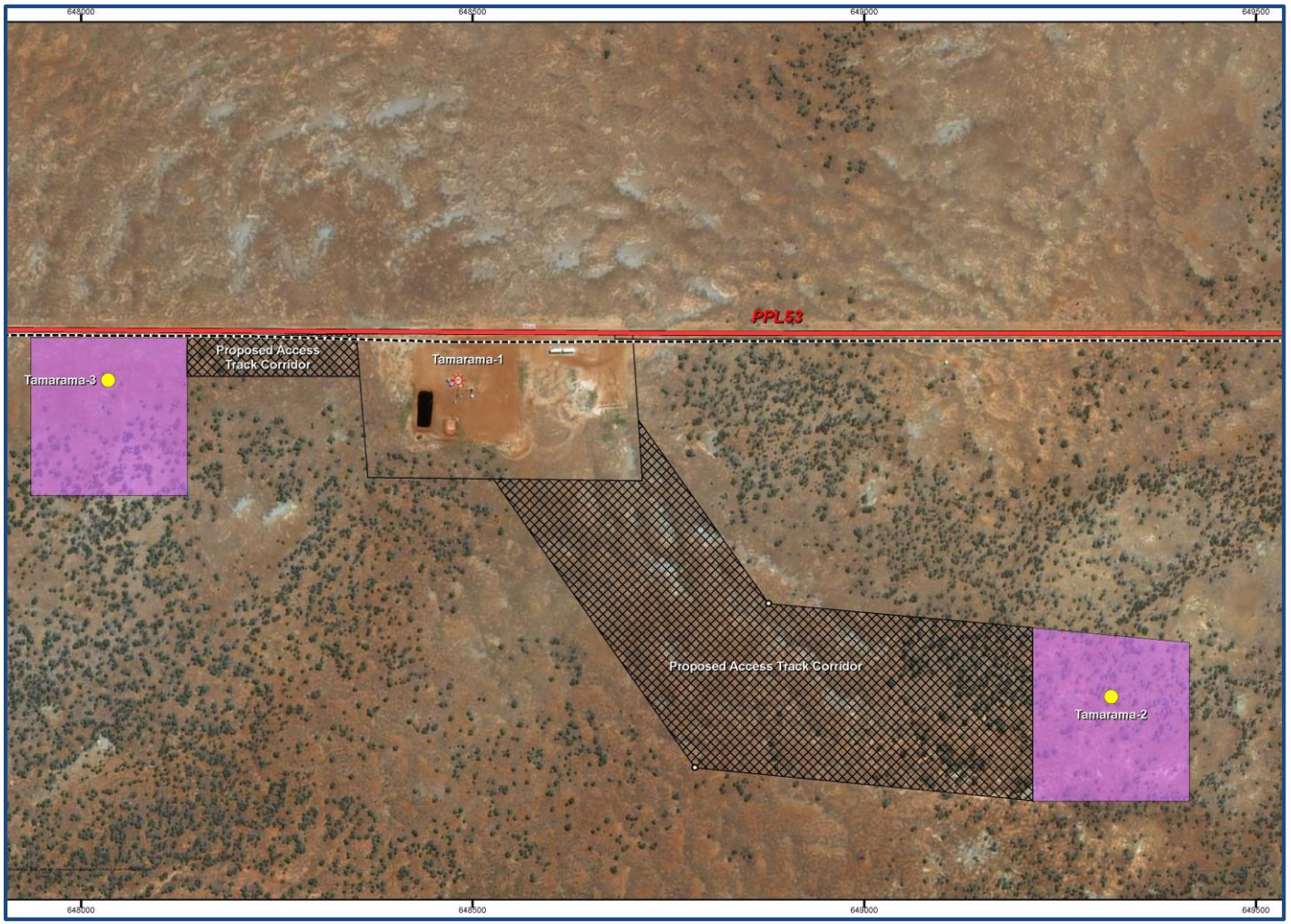
- Poor production in Australia resulting from successful North American style of drilling in $\sigma_{hmin}$ direction
- Past deviated drilling and frac operations have exhibited:
  - High intiation pressures near-wellbore tortuosity (i.e., pressure loss, frac fluid shear, proppant holdup)
  - Wellbore failures
  - Not unexpected from Australian strike-slip to reverse stress regimes
- By orienting wells within 0-45° from $\sigma_{HMax}$ direction will result in:
  - Improved aspect of reservoir
  - Improve hydraulic fracture height containment
  - Reduced initiation near-wellbore tortuosity (i.e., pressure loss, frac fluid shear, proppant holdup)

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# 2 Well Program - Tamarama 2 & 3

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- Tamarama-2 & 3 drilling will commence in the next several weeks
- Tamarama-1, 2 & 3 will be connected to flow lines and expected to be producers
- Tamarama-1 well performance is progressively improving. Variable rates up to 2 mmcf/d during flow periods




Source: AEMO (2015) National Gas Forecasting Report

# Tamarama-2 and 3 well site locations



Image: Tamarama-2 well site



Image: Tamarama- 3 well site

A 682,000 acre land bank in the prolific Cooper Eromanga Basins

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# Field development program

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**Pilot production**

- Appraisal drill and fraccing Tamarama-2 and Tamarama-3
- Design and engineering of surface facilities & flow lines
- Initial pilot production from Tamarama 1, 2 & 3

**Stage 1 development:**

- Drilling & development of 6 more wells near Tamarama
- Conservative production target of 20Tj/d

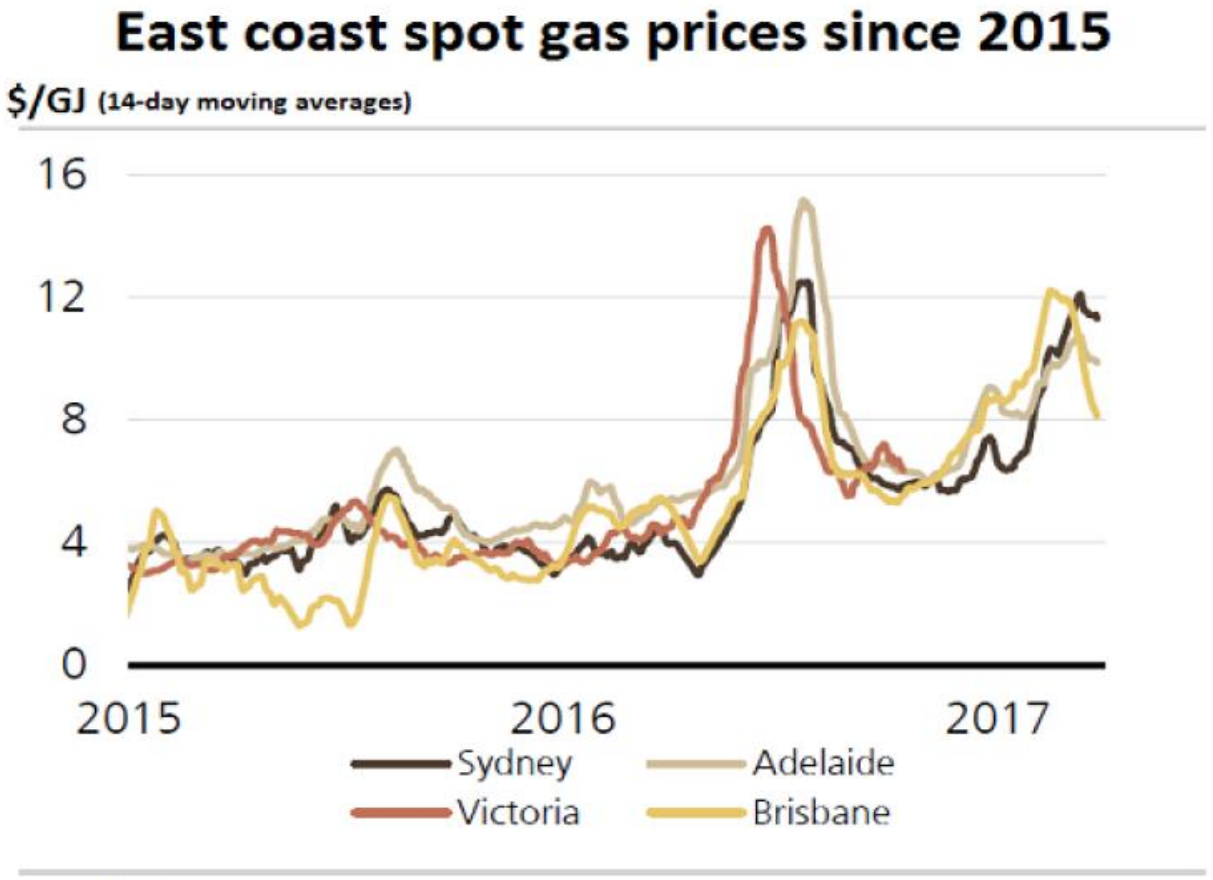
**Stage 2 development**

- Full field development of ATP927 as a tier one gas project – project target of 100Tj/d
- Real Energy's objective is to certify 3P (Proven, Probable and Possible) reserves in **excess of 2 Trillion Cubic Feet (TCF) of Gas.**

# Real Provides Exposure to the East Coast Gas Thematic

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- East Coast gas market is still in short supply for the next 5 years
- There is strong and growing gas demand from LNG exporters
- Gas prices forecast to remain between $8.00 and $12.00/Gj




Source:AEMO/UBS

Developing a Tier 1 gas resource

# A Compelling Value Proposition

- One of the best exposures to the East Coast Gas thematic
- Potential near-term production with MOU in place with Santos for gas processing
- One of the largest uncontracted gas resources on the east coast - Independent Estimated Total Mean Gas in place of 13.76 TCF in APT927P
- Will funded with $8.4M to unlock significant value from drilling of Tamarama-2 and Tamarama-3 wells
- An active field development program now in place - multiple near-term value catalysts
- Unchallenging market capitalisation




Image: Tamarama-1 gas metre and flaring

Developing a Tier 1 gas resource

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## Geological Information

*The geological information in this presentation relating to geological information and resources is based on information compiled by Mr Lan Nguyen, who is a Member of Petroleum Exploration Society of Australia, the American Association of Petroleum Geologist, and the Society of the Petroleum Engineers and has sufficient experience to qualify as a Competent Person. Mr Nguyen consents to the inclusion of the matters based on his information in the form and context in which they appear. The information related to the results of drilled petroleum wells has been sourced from the publicly available well completion reports.*

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Image: Tamarama-1 flaring