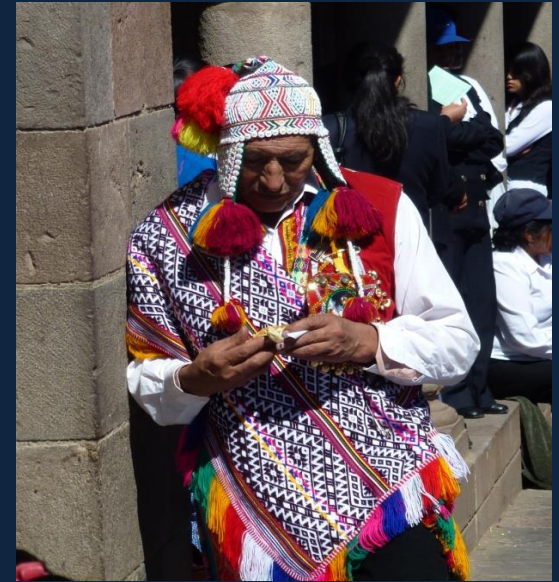


Karoon Gas Australia Ltd

# Annual General Meeting

30 November 2016



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# Resource Summary



**Prospective Resources Cautionary Statement:** 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 an associated 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 moveable hydrocarbons. There is no certainty that any portion of the prospective resource estimated on behalf of Karoon will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the prospective resources evaluated.

Internal Management Assessment					NET Contingent Resource		
Discovery	Interest	Basin	Country		1C	2C	3C
Kangaroo (S-M-1101, S-M-1165)*	100%	Santos	Brazil	Oil (mmbbls)	20	54	100
Echidna (S-M-1037, S-M-1102)*	100%	Santos	Brazil	Oil (mmbbls)	25	75	152
<b>Total</b>				<b>Oil (mmbbls)</b>	<b>45</b>	<b>129</b>	<b>252</b>
Independent Assessment - DeGolyer & MacNaughton					NET Un-risked Prospective Resource		
Block	Interest	Basin	Country		Low	Best	High
Block Z-38**	75%	Tumbes	Peru	Oil (mmbbls)	686	1,686	3,764

\* The Kangaroo and Echidna contingent resource volumes were prepared on a probabilistic basis and have been disclosed in Karoon's announcement 'Contingent Resource Volume Update: Santos Basin Brazil', 17 September 2015. Karoon is not aware of any new information or data that materially affects the resource estimates and all material assumptions and technical parameters underpinning these estimates continue to apply and have not materially changed.

\*\* Prospective resource volume estimates have been independently assessed by DeGolyer and MacNaughton on a probabilistic basis and disclosed in Karoon's 30 April 2014 announcement. Karoon is not aware of any new information or data that materially affects the resource estimates and all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

## Australian Exploration Permits WA-482-P and WA-314-P

Following the drilling of Levitt-1 (WA-482-P) and thermal modelling and interpretation of the final Kraken 3D seismic survey data (WA-314-P), new data is available that could materially impact assumptions and technical parameters underpinning previously announced prospective resource estimates. Karoon needs to interpret and consider this new data prior to publishing revised prospective resources estimates.

# CORPORATE REVIEW

Robert Hosking,  
Managing Director

# Corporate Overview

Karoon's strategic vision is to transform into a global independent E&P with material production underpinning a highly prospective exploration portfolio

- Karoon is a global oil and gas explorer incorporated and listed in 2004
- Market cap A\$466 million (as at 29/11/16)
- A\$449 million cash at bank (30/9/16), no debt
- 245 million ordinary shares on issue, 6.4 million unlisted rights and options

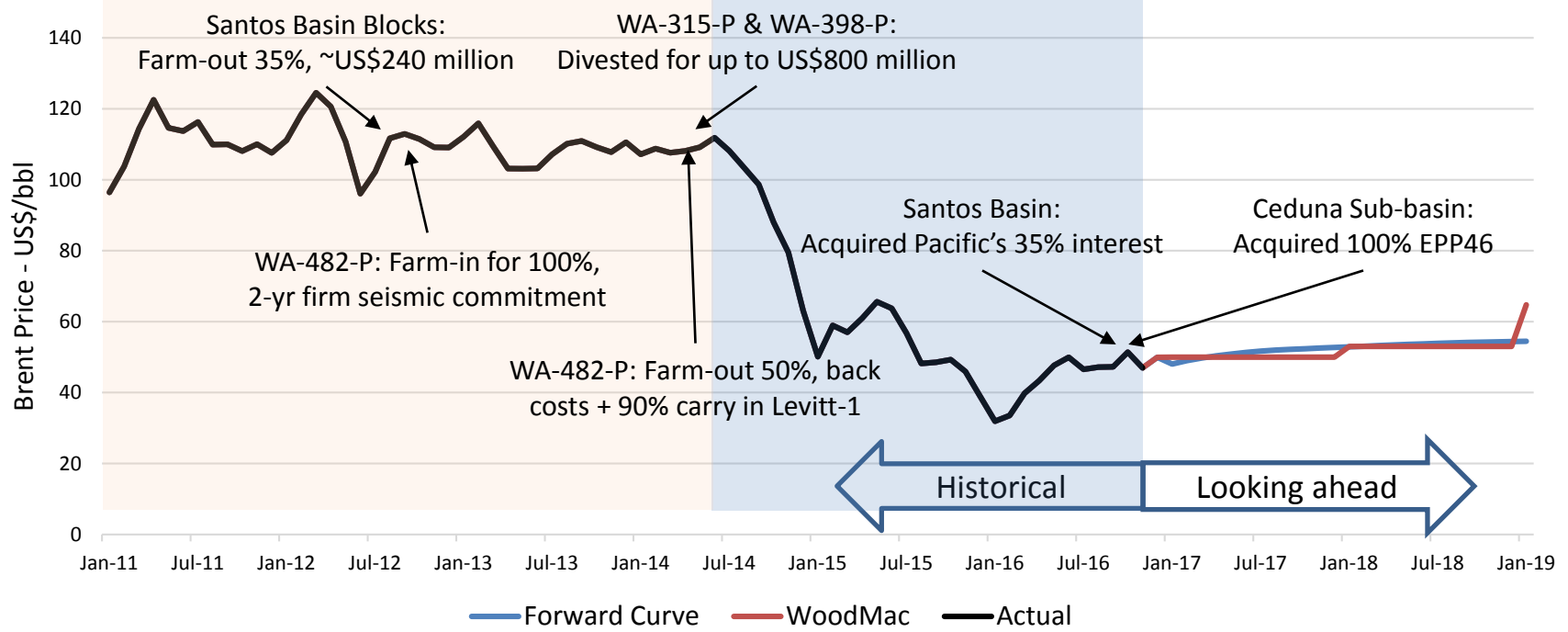


Exploration led growth, focussed on large potential targets in proven petroleum systems

Looking to capitalise on current market conditions to acquire production and develop organic production opportunities

# Industry Environment

<ul style="list-style-type: none"> <li>- Flat oil price</li> <li>- Rising costs</li> <li>- Declining industry returns</li> <li>- Increasing indebtedness</li> <li>- Acquisition cycle unwinding</li> </ul>	<ul style="list-style-type: none"> <li>- Falling oil price</li> <li>- Lagging costs</li> <li>- Returns crunch</li> <li>- Focus shift to cash flow</li> <li>- Divestments</li> </ul>	<ul style="list-style-type: none"> <li>- Oil stabilising</li> <li>- Moderating costs</li> <li>- Focus on cash flows and returns</li> <li>- Divestments continue</li> </ul>
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# Oil Market Outlook



- Global installed oil production capacity decline rate approximately 3-5% YoY, or 3-4mmbpd
- Industry currently underinvesting in existing production, greenfield development and exploration
- Marginal supply highly sensitive to current oil price
- Industry heavily indebted, likely to remain focused on cash flow over volume
- Reduced exploration activity and lack of reserve replacement inhibit long term growth
- OPEC jawboning / action (possible Russia co-operation) key to near term oil price

The reserve replacement cycle will return

Conventional off-shore will remain an important source of supply

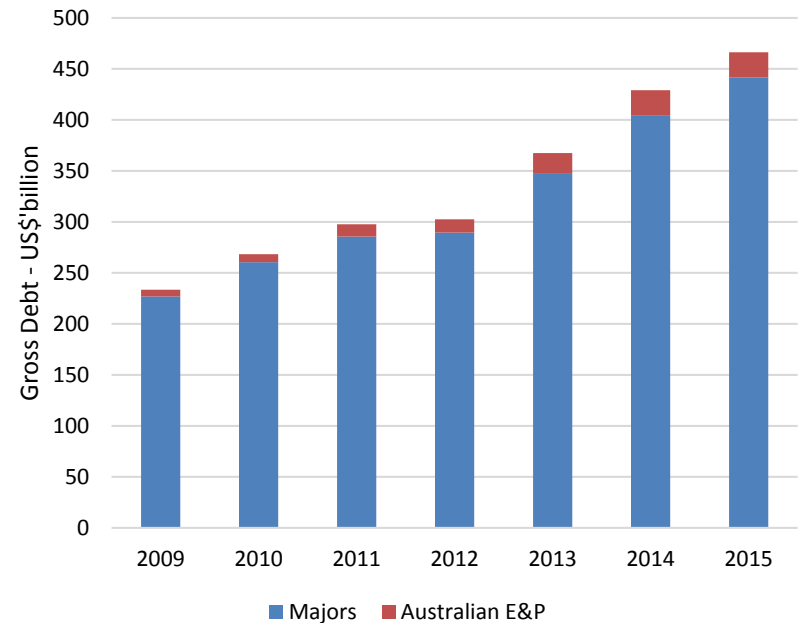
# Australian Industry Context



Since 2014:

- Australian E&P's have reported losses of \$9.1 billion\* (since YE14), down from peak earnings of \$4.4 billion during 2012
- Dividends reduced collectively by 70%\*
- \$9 billion in new equity raised to reduce debt, not fund future growth
- The industry had limited financial capacity to reinvest for growth in the current environment

Oil & Gas Industry Indebtedness\*



Majors: Exxon, Shell, BP, Chevron, Conoco, Statoil, Total, ENI, Petrobras

Australian E&P: Woodside, Oilsearch, Origin, Santos

\* Data taken from company Annual Reports

In contrast, Karoon has zero debt and capacity to capitalise on current conditions

# Putting the Balance Sheet to Work

# Capital Allocation



- Focused on acquiring production:
  - Looking to capitalise on the current divestment cycle
- Echidna discovered oil resource appraisal and potential development opportunity:
  - Falling appraisal and development costs providing favourable backdrop to build
  - The majority of expected exploration and appraisal spend is focused on Echidna
- Positioning the exploration portfolio for a rebound in the investment cycle:
  - Exploration opportunities focused on highly prospective acreage with multi-year tenure and relatively low firm capital requirement
- Refining the portfolio:
  - Block 144 to be relinquished: Perupetro has been advised of Karoon's intention to relinquish the block, which is expected to be effective prior to year end

# Potential Acquisition of Production



The Board considers a successful acquisition of production would be transformational

- Negotiating a final agreement with Petrobras for the acquisition of:
  - a 100% operated interest in concession BM-S-40, the Baúna oil project, and
  - a 50% non-operated interest in concession BM-C-36, the Tartaruga Verde oil development project
- The Baúna oil project is ~40 km south west of Karoon's existing Santos Basin blocks and offers the potential for logistical synergies
- An injunction has suspended the divestment process; Petrobras announced it will appeal the injunction
- The Petrobras assets are being considered and evaluated alongside several other acquisition opportunities

# Ceduna Sub-Basin: EPP46



## Sticking to our knitting: Exploration led growth

- Exploration permit EPP46 awarded during October 2016
- Australia's most prospective and active frontier oil exploration province
- 3 year firm commitment estimated A\$26 million (comprising 2D and 3D seismic acquisition)
- Preliminary geological studies underway, 2D seismic acquisition proposed 1H 2018
- Karoon has a track record of upholding high standards with respect to its regulatory, environmental and social obligations in regions in where Karoon operates. All operational plans are designed to minimise the impact on the environment and local fishing industry

# Santos Basin: Development Pathway



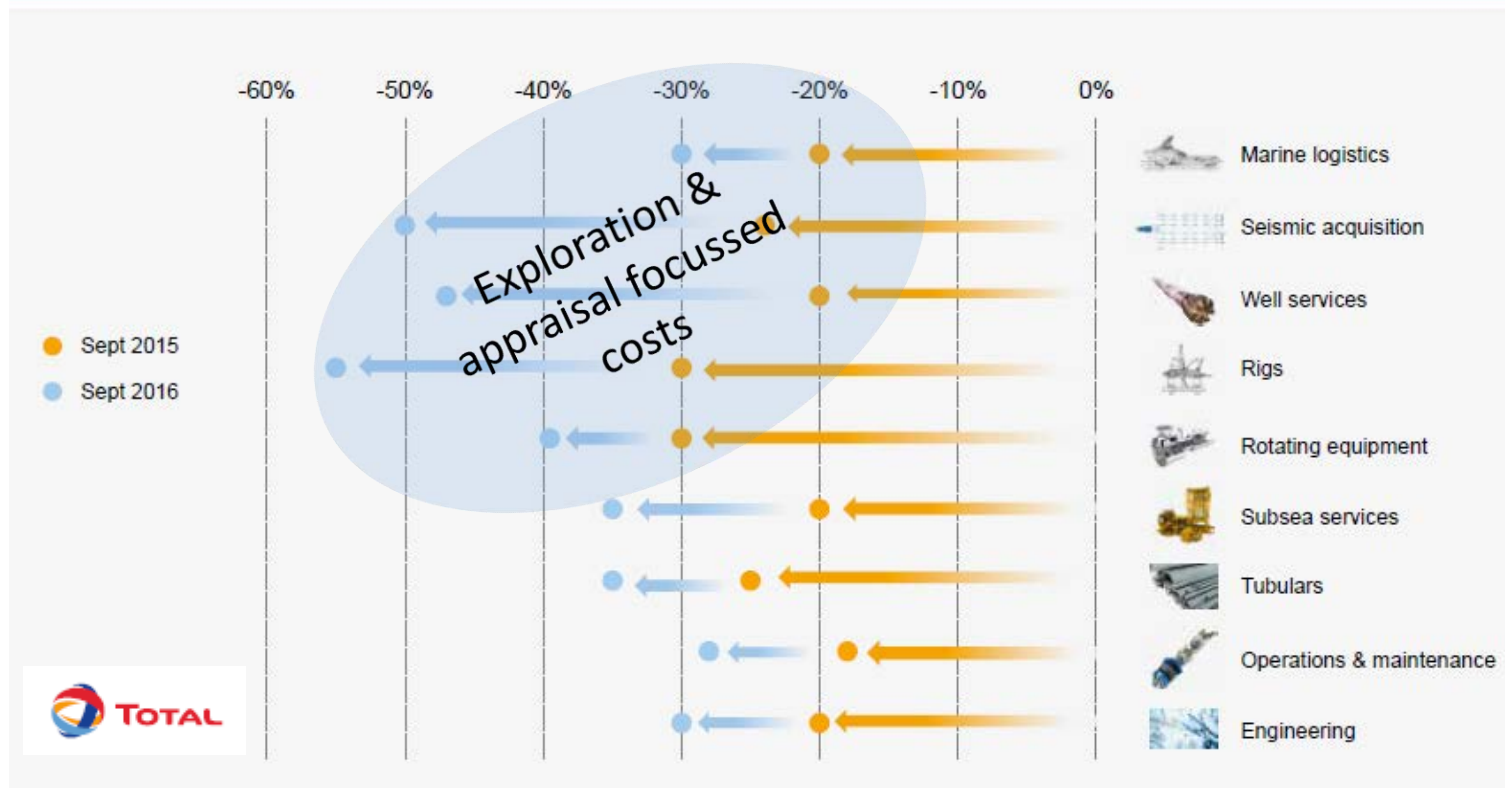
## Clearing the way forward for Echidna Appraisal Campaign

- JV partner Pacific Exploration and Production Corp. ('Pacific') filed for insolvency protection (April 2016)
- Acquired Pacific's 35% interest for up to US\$20.5 million, US\$0.45/bbl 2C contingent resource
- Farm-out planned prior to appraisal drilling
- 2 well Echidna appraisal campaign planned for 2017; rig in country on warm stack
- Looking to take advantage of low utilisation rates and falling cost environment
- Additional discoveries at Kangaroo and Bilby provide potential future tie back opportunities

# Cost Environment

## Capturing further cost deflation in 2016

Examples of reductions achieved through renegotiation and new tenders

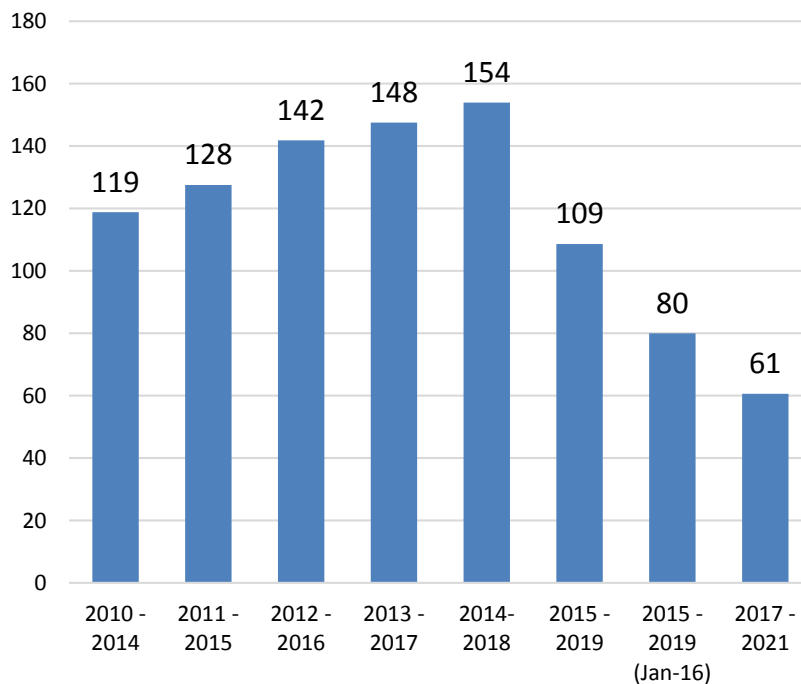


Reference: Total's September 2016 Strategy & Outlook Presentation

# Brazilian Cost Environment

Significant drop in capital spend is expected to result in continued moderation in costs

Petrobras 5 Year Business and Management Plan - Exploration and Production Spend (US\$'billion)



Reference: Petrobras company reports

- Petrobras current rolling 5 year upstream capital spend plans fell 60% to US\$61 billion since June 2014

- Significant flow-on effect for utilisation rates and costs

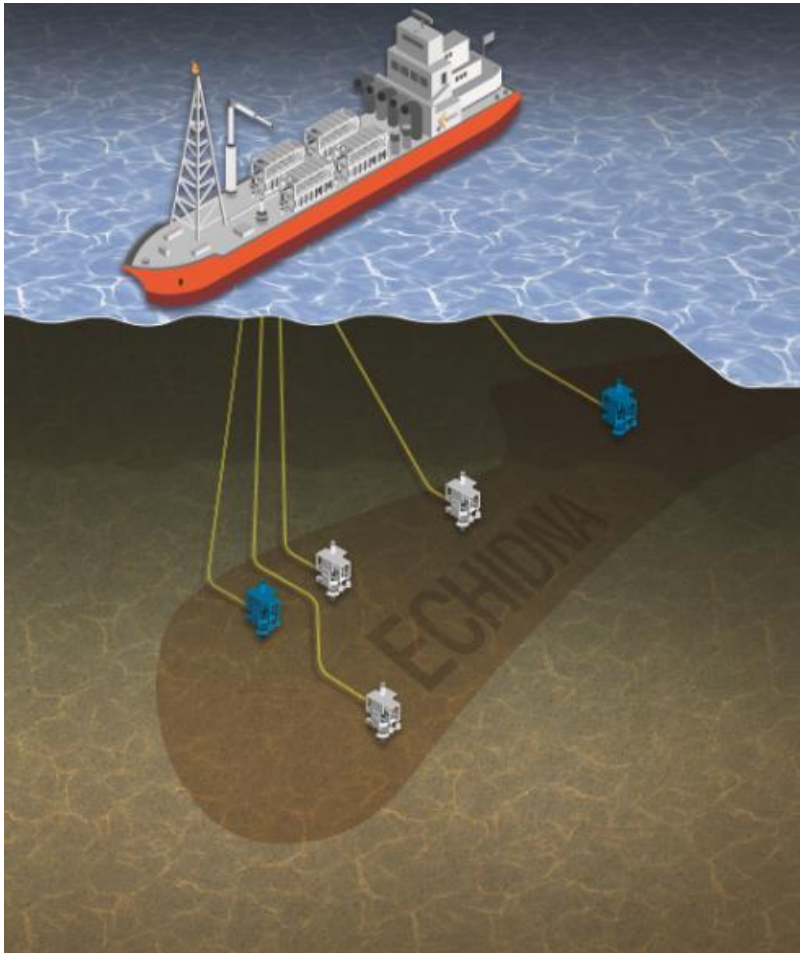
**In a Karoon Context, since September 2015:**

- Production wells, completed and connected fallen 35% to ~US\$90 million per well

- Injection wells, completed and connected fallen 24% to ~US\$75 million per well

- OPEX expected US\$350kpd from ~\$400kpd driven mainly by falling logistics and off-shore support vessel costs

# Development Concept Optimisation



## Current Echidna Development Concept

- Falling costs and optimisation work support a full field development without using an Early Production System
- 3x production wells, utilising extended reach horizontals (from 5 wells)
- 2x injection wells, utilising combined water and gas injection (from 4 wells)
- Leased FPSO; suitable FPSO's identified which require limited investment
- Targeted peak production ~30kbopd

# 2017 Operational Objectives



The forward program is focussed on bringing the Echidna resource to a final investment decision, expected during 2017 / 2018

## **Santos Basin, Brazil:**

- 2 well Echidna discovery appraisal campaign, expected to commence during 2017
- FEED studies to commence post Echidna appraisal, aiming for successful FID

## **Tumbes Basin, Peru:**

- Farm-out and begin final drilling preparations for initial exploration wells
- Continue amplitude versus offset work over the prospects

## **Carnarvon Basin, Australia:**

- Complete the Chrysalids and Capreolus 3D seismic data interpretation
- Rank and risk identified prospects prior to any further exploration drilling

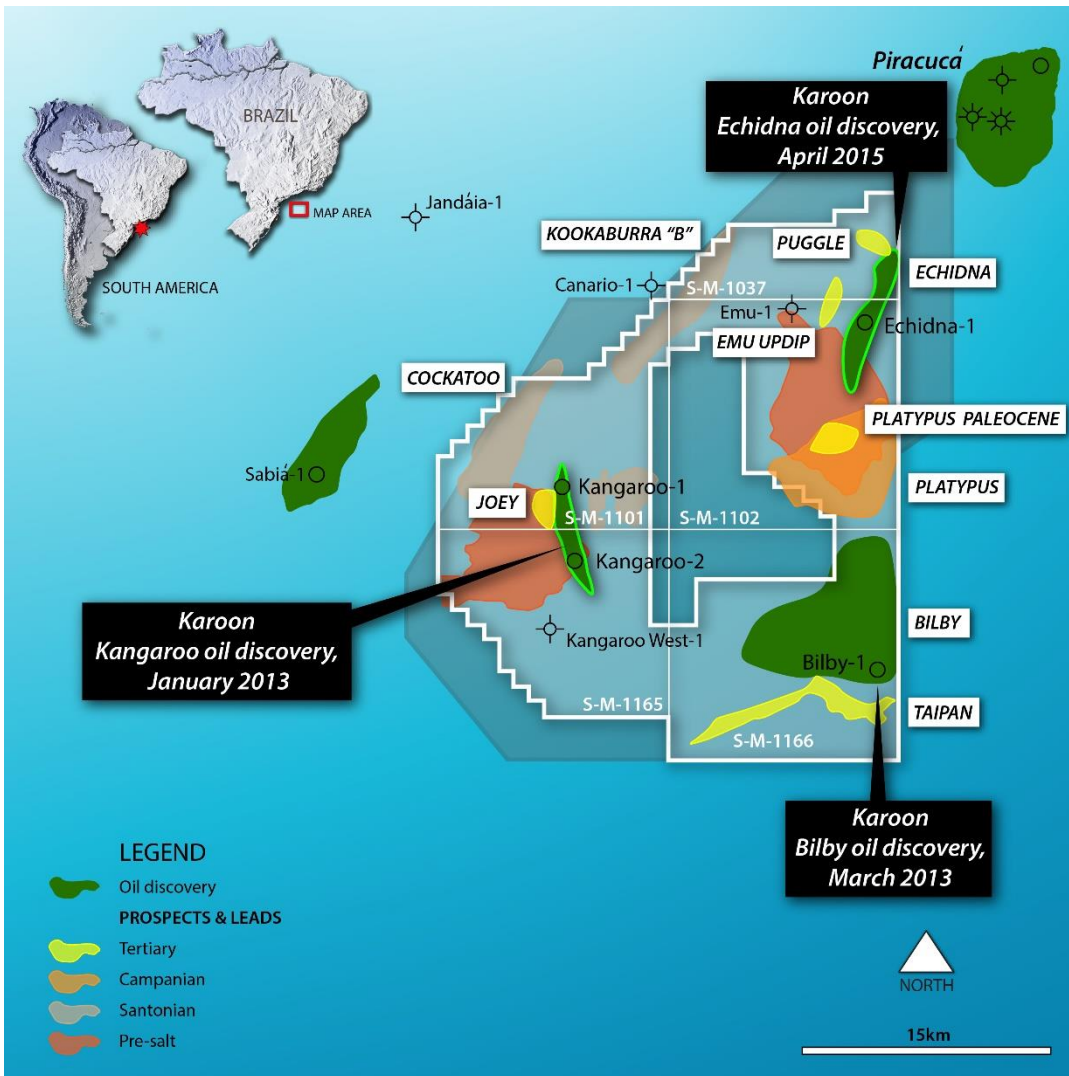
## **Ceduna Sub-Basin, Australia:**

- Commence regional technical studies
- Commence planning for seismic data acquisitions

# TECHNICAL REVIEW

Mark Smith,  
Executive Director of Exploration

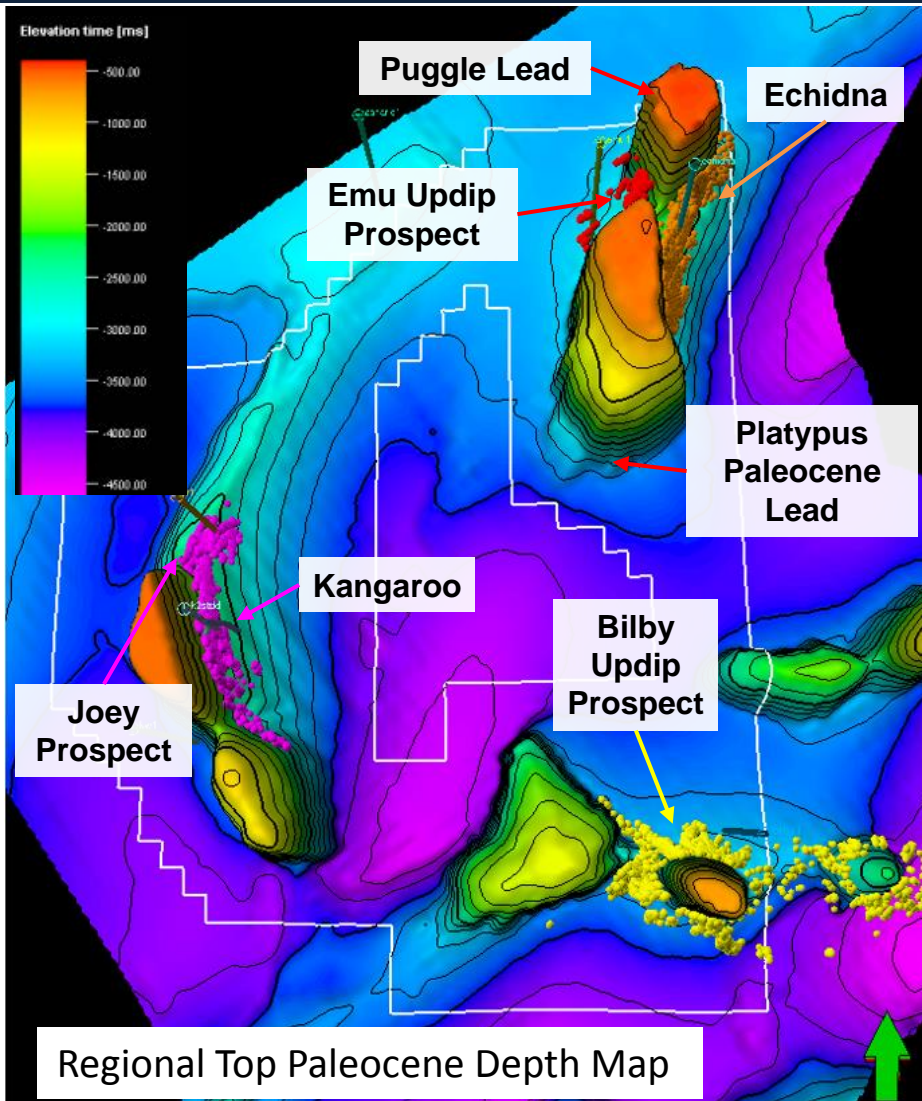
# Brazil: Santos Basin



- Acquired 100% in 5 blocks in 2008, in mid-water-depth (400m)
- Farmed-out 35% to Pacific (2012), for cash & carry on wells costs
- Three oil discoveries: Kangaroo, Bilby & Echidna
- Net 2C contingent resource estimates of 54mmbbls at Kangaroo, and 75mmbbls at Echidna\*
- High quality oil, no gas, in excellent “post salt” sandstone reservoirs confirmed by logging and flow-rate testing
- Several undrilled prospects
- Pacific’s 35% interest acquired in Sept 2016 for up to US\$20.5 million, equating to US\$0.45/bbl of 2C contingent resource

\* Refer Resource Summary, page 3

# Mapping and Seismic Attributes



AVO (amplitude versus offset) calibrated at Paleocene level shows:

- Excellent match of AVO anomaly results with mapping and pressure data defining the distribution of oil at Echidna and Kangaroo
- Additional potential identified at the Emu Updip, Joey and Bilby Updip prospects to date
- Additional prospectivity possible at Puggle Lead and Platypus Paleocene Lead

# Field Mapping: Kangaroo and Echidna

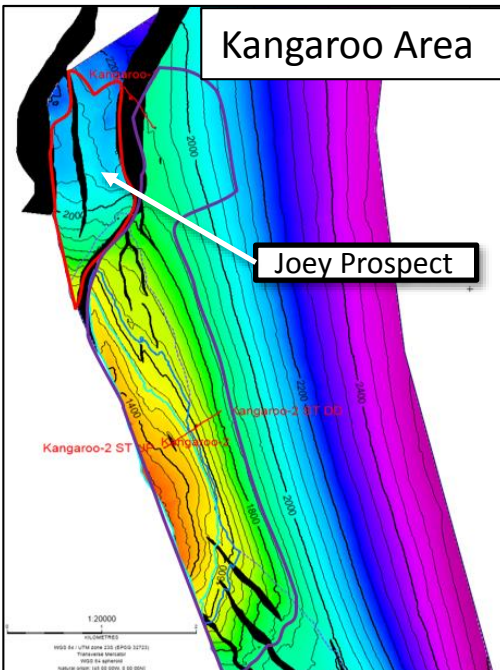
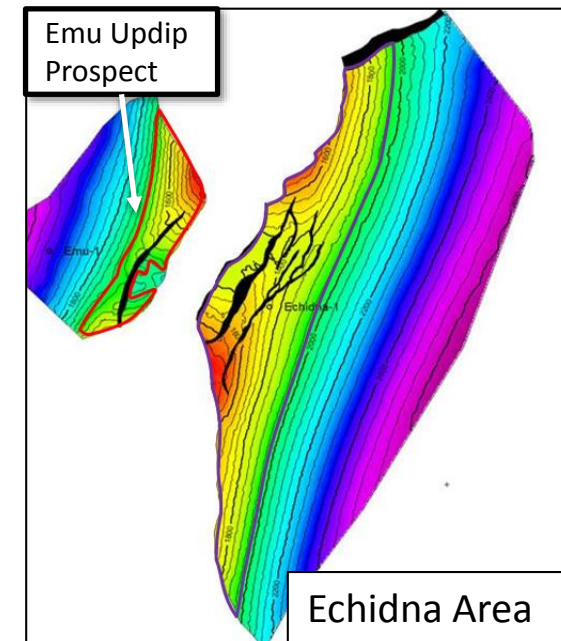
Greater confidence in resource certainty due to:

## Kangaroo Area Top Paleocene Depth Map

- Core samples (MSCT\*) provide good reservoir characteristics data
- Greater well control and higher quality 2 millisecond 3D seismic data
- Good match between seismic amplitude anomalies and oil water contacts ('OWC') calculated from pressure data

This new data results in a model that shows a close correlation between the observed oil columns and the seismic attributes

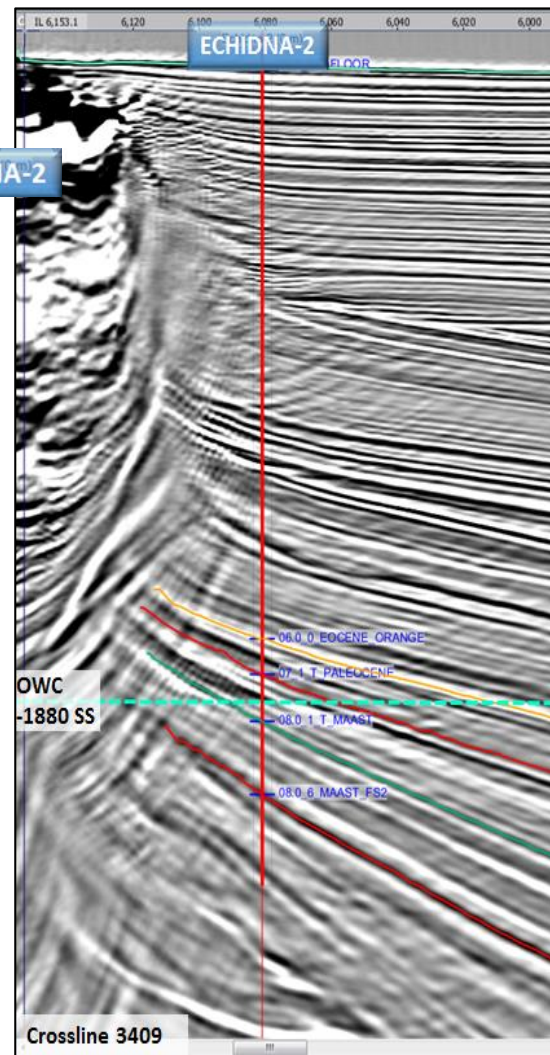
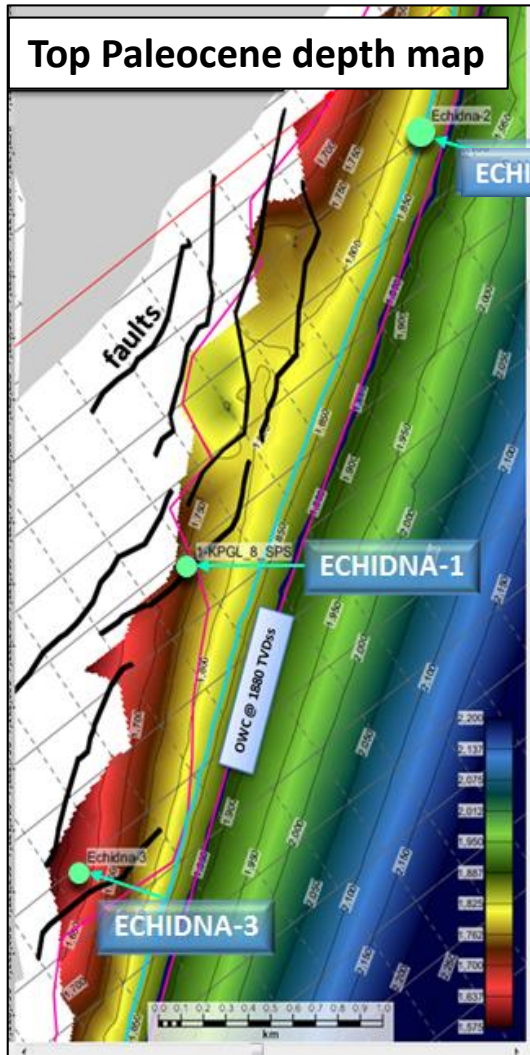
Note: Poorer quality seismic data near salt wall due to lower reliability seismic attribute



## Echidna Area Top Paleocene Depth Map

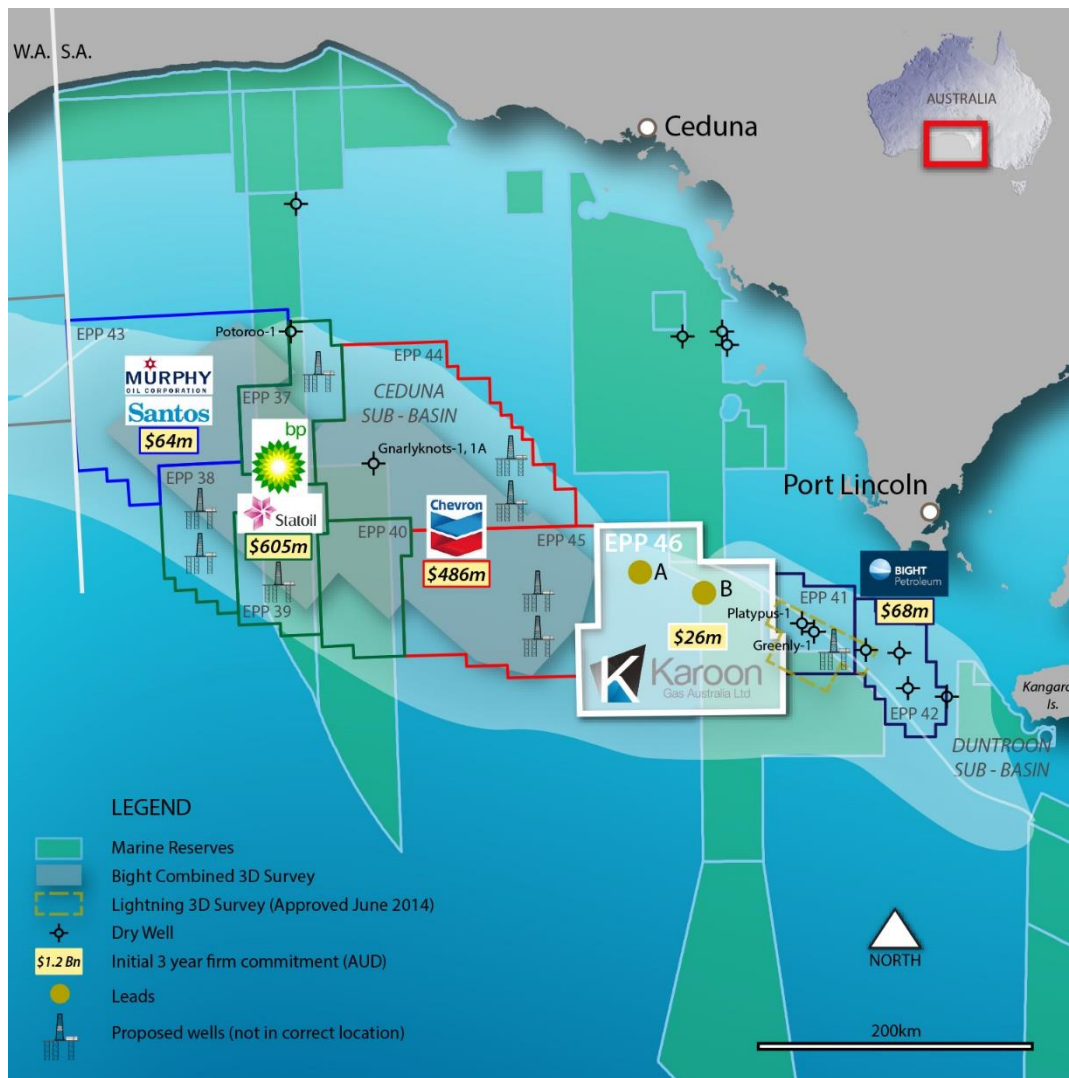
- Higher quality seismic indicates faulting intensity and steepness of dips significantly less than at Kangaroo
- Core samples (MSCT\*) provide good reservoir characteristics data

# Echidna Appraisal Well Locations



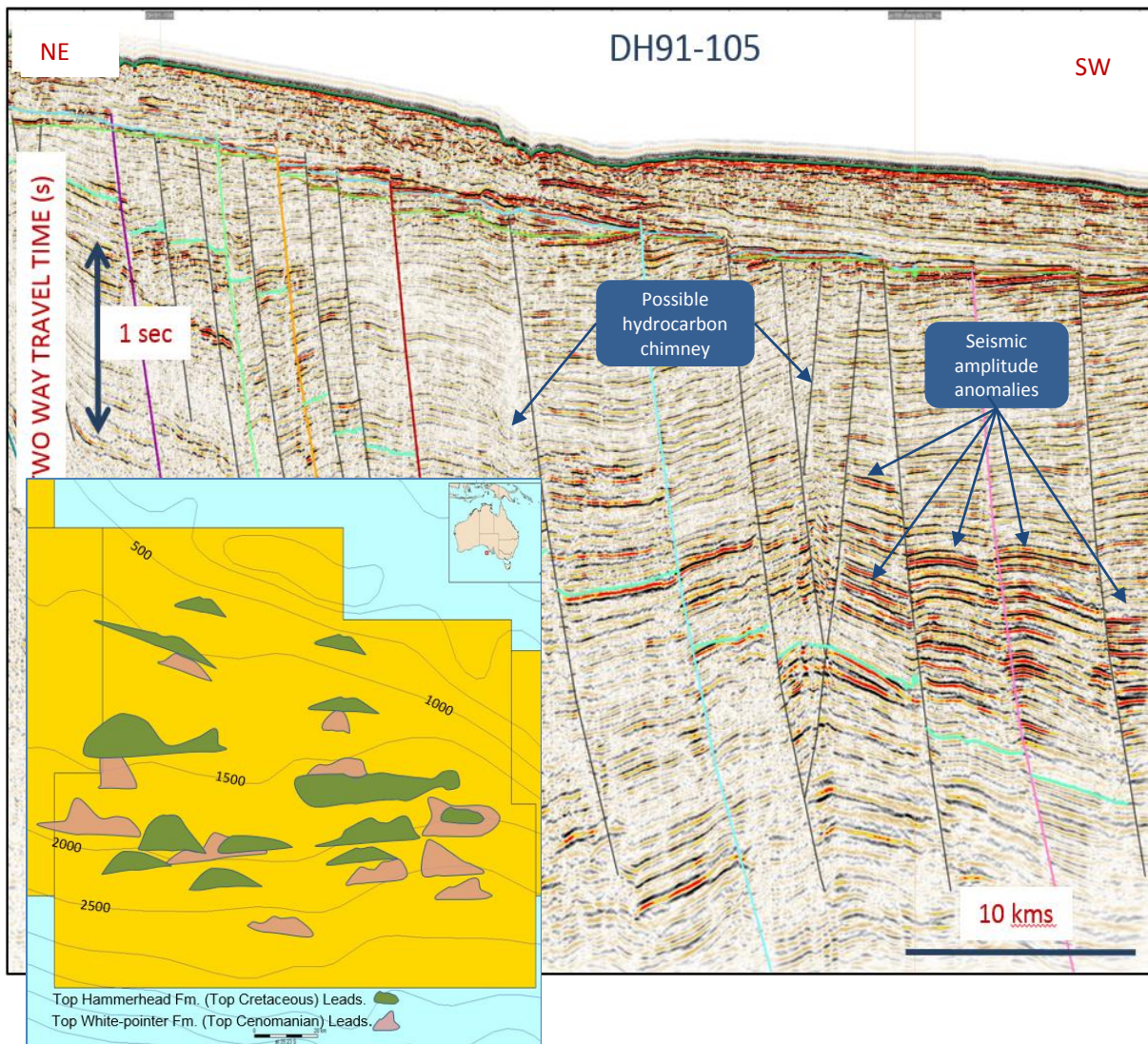
- Two appraisal sites selected
- Echidna-2, positioned downdip and designed to penetrate and define the OWC
- Possible shallower onlap sands not penetrated in Echidna-1 may be seen in this well
- Echidna-3, designed to penetrate reservoir in an updip position
- A conventional coring program will be carried out to gain detailed data on reservoir properties
- Production testing equipment will be available for an optional flow test

# Australia: Ceduna Basin, EPP46



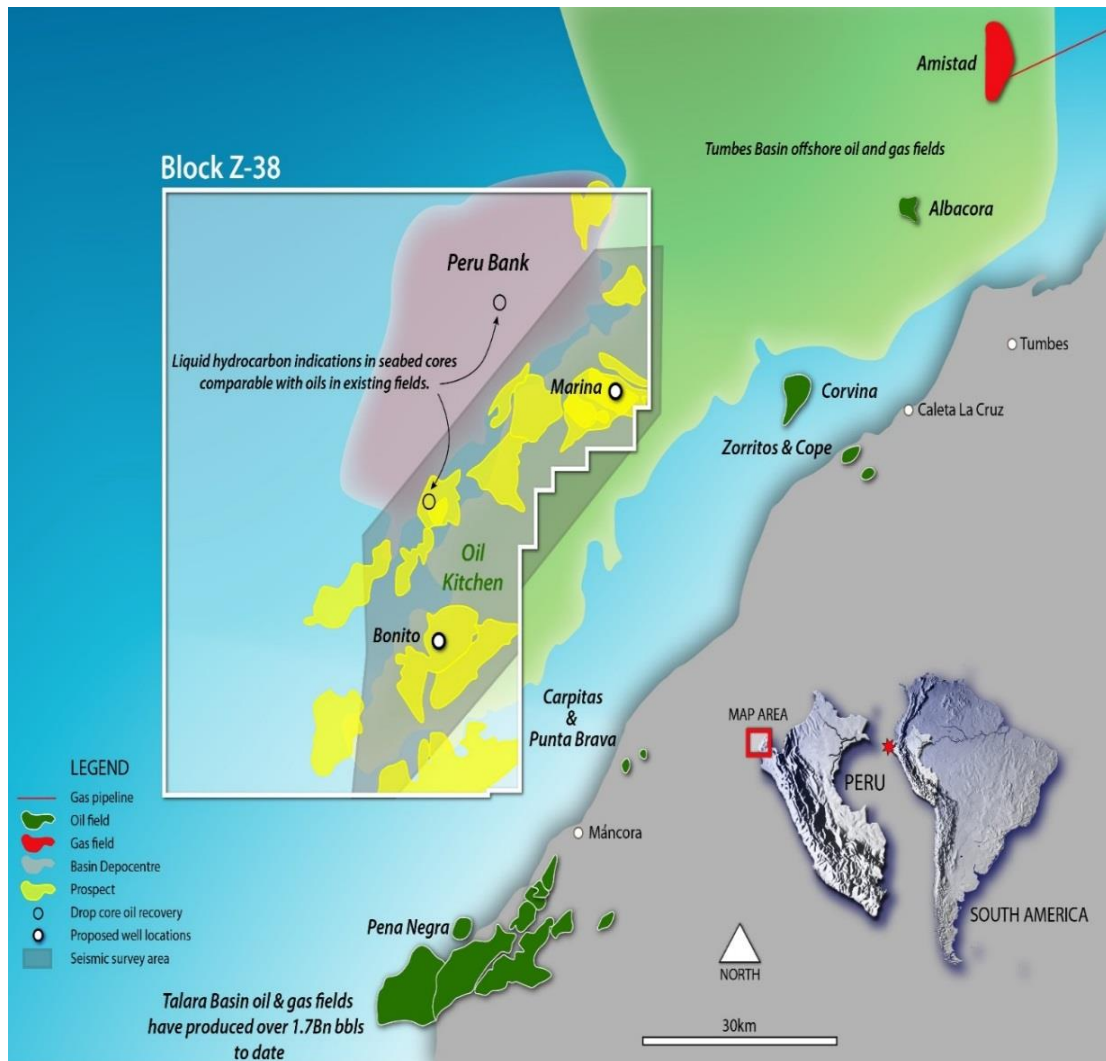
- KAR 100%, Operator, awarded Oct-2016
- Large 17,793 square kilometre permit, in lightly explored emerging frontier
- Prospective for oil and gas
- Industry majors have committed approximately A\$1.2 billion to drill 9 exploration wells in the surrounding permits during the next 24 months
- Initial firm 3-year firm commitment, indicatively A\$26 million, requires the acquisition of 2D and 3D seismic surveys and no well commitment

# Australia: Ceduna Sub-Basin



- Multiple trap types
- Seismic amplitude anomalies possibly indicating hydrocarbons at multiple levels
- Oil shows recorded in wells drilled in adjacent acreage
- Large leads over 80 sq. km
- Large fault blocks up to 8km wide
- Possible hydrocarbon chimneys
- Good reservoir and seal packages correlated from offset wells and seismic character
- Water depths 500 to 2500m

# Exploration Peru: Tumbes Basin

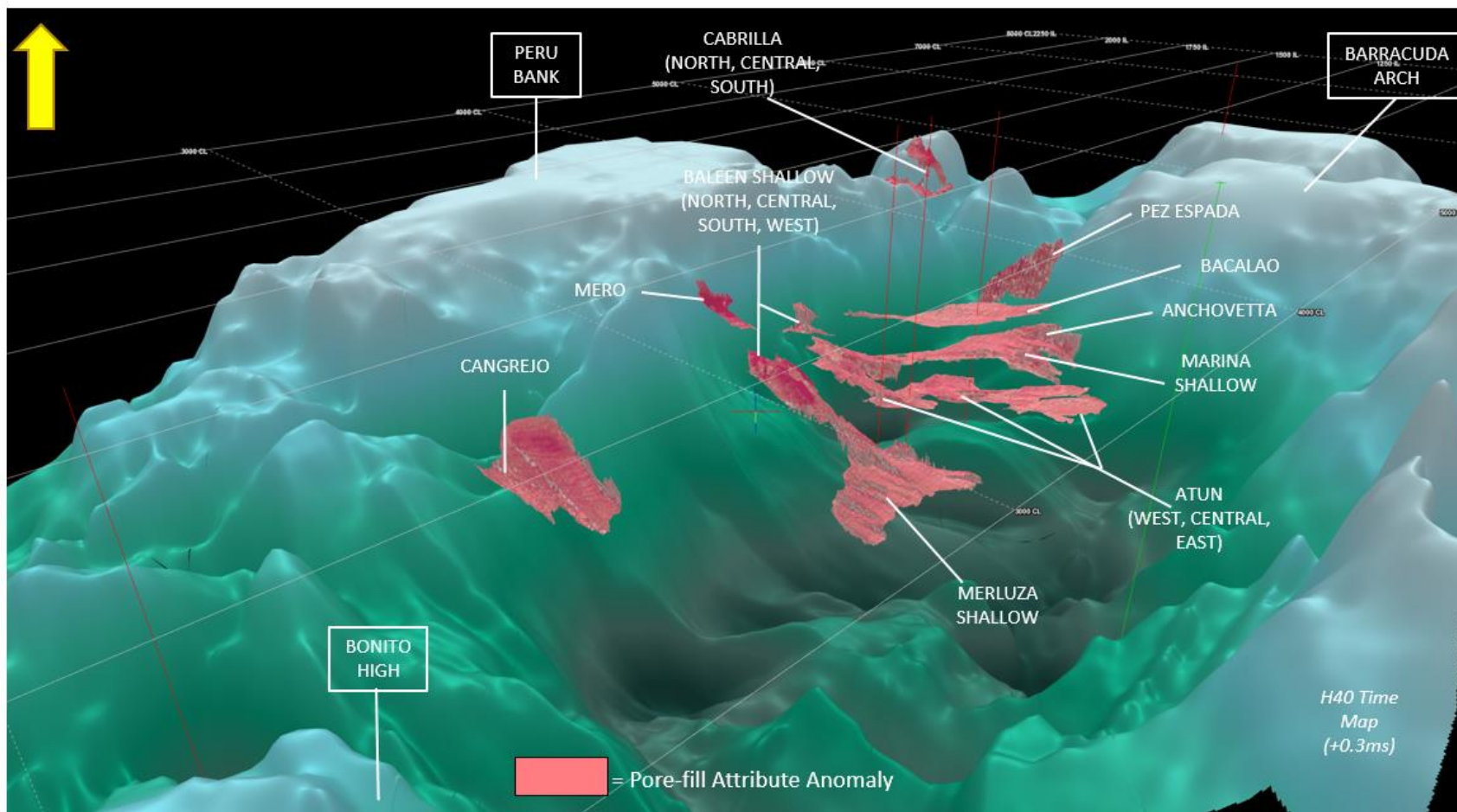


- KAR 75% (Operator), Pitkin 25%
- Proven hydrocarbon basin with Large prospects well defined by 3D seismic and attribute analysis
- Drop cores show significant oil seeps
- Falling rig rates are likely to reduce the cost of drilling, increasing the interest in the area for farm-out
- Marina, 240mm bbls and Bonito, 415mm bbls unrisked net Best estimate prospective resource\*
- Farm-out discussions continue
- Currently in force majeure

\* Refer Resource Summary, page 3. Bonito and Marina included in the total block prospective resource estimate

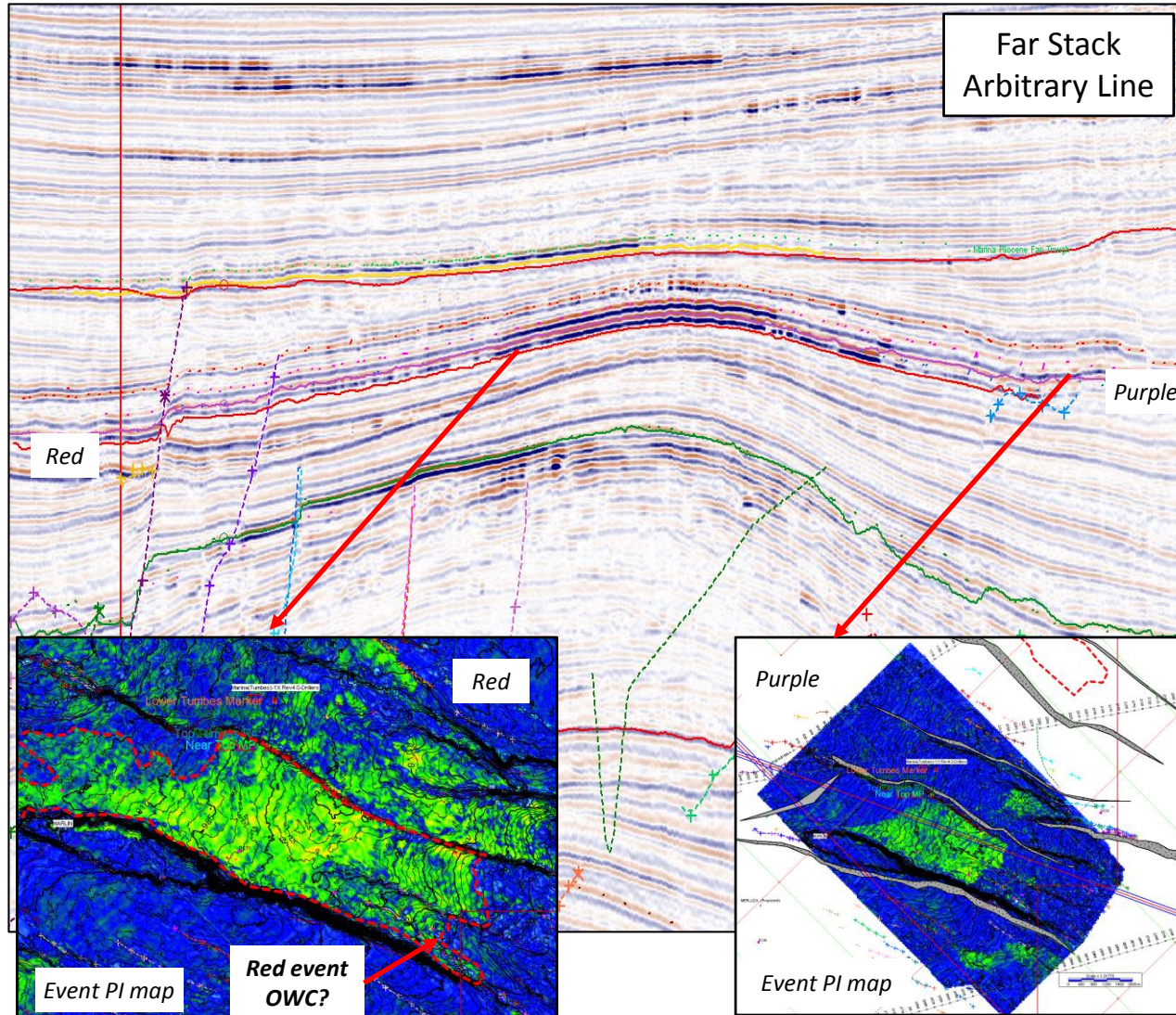
# Z-38: New Data Supports Prospectivity

New seismic work has identified multiple new leads at the Mal Pelo level



New data: Work program focused on seismic attribute analysis over the last 12 months

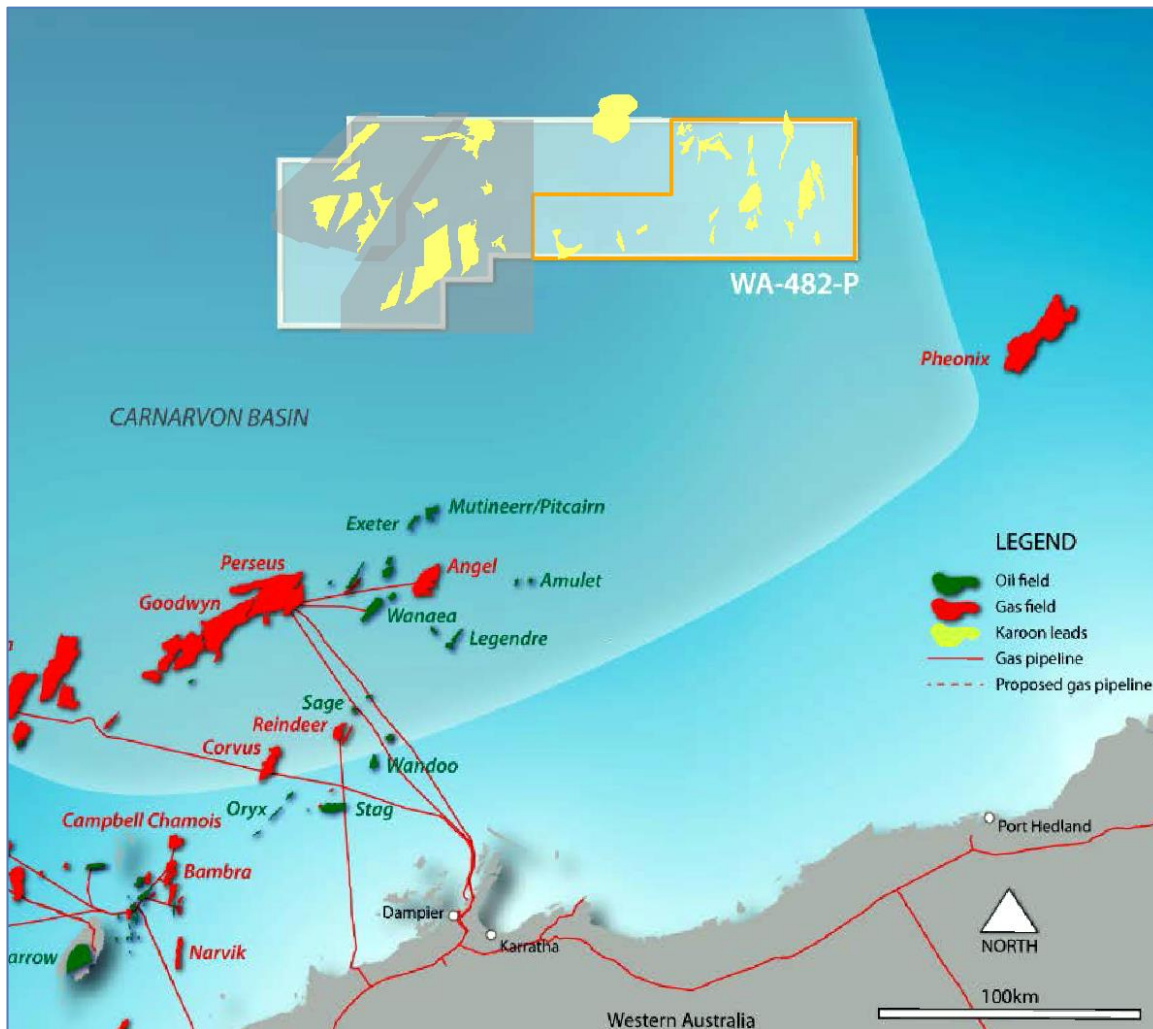
# Z-38: New Data Supports Prospectivity



Detailed mapping and seismic pore-fill attribute extraction strongly support the presence of trapped hydrocarbons

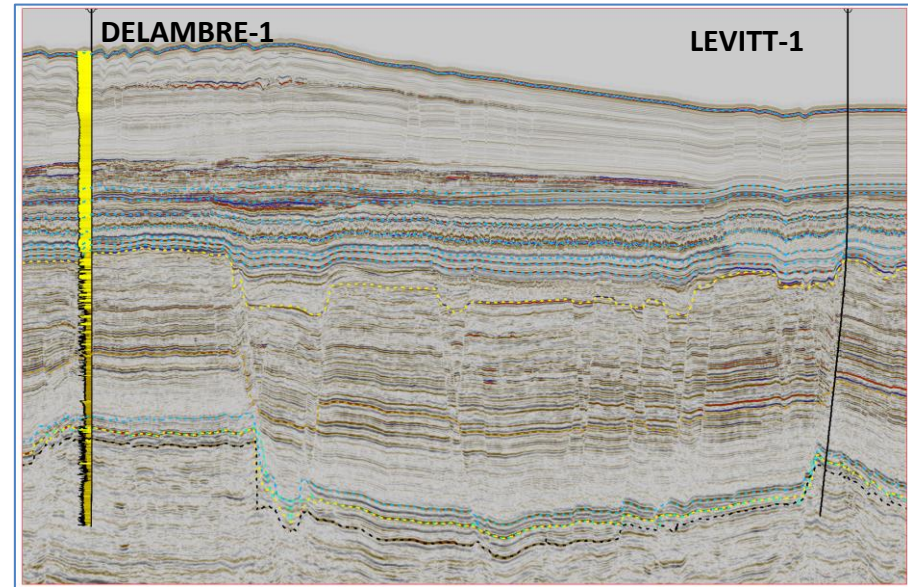
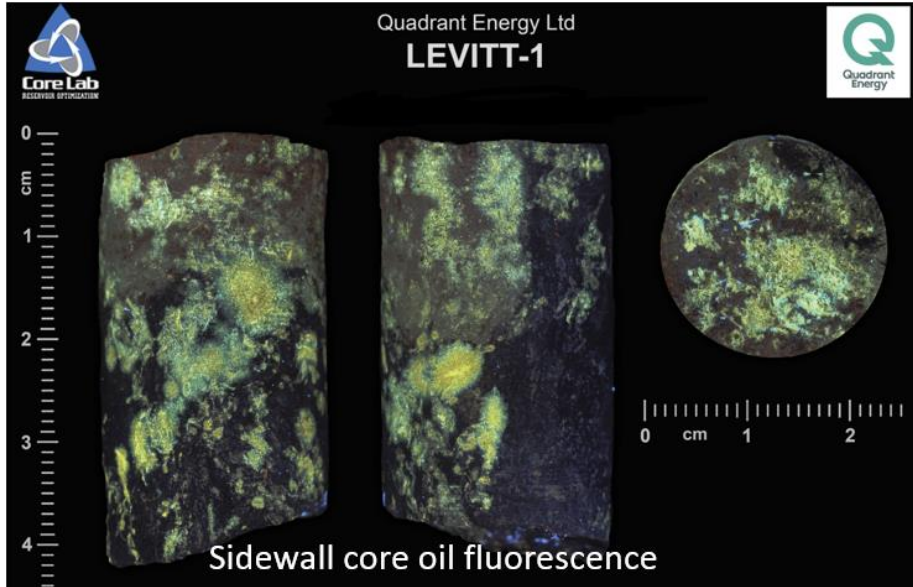
- Reservoirs are stacked, ponded turbidite sands
- Trap also appears to have some stratigraphic controls consistent with the depositional model
- Conformance of anomalies with mapped contours could indicate oil water contacts

# Exploration Australia: Carnarvon Basin



- KAR (50%), Quadrant (Operator) 50%
- Large 13,539 km<sup>2</sup> block in an emerging oil prone area, acquired by KAR in 2012
- Farmed out 50% to Quadrant in 2014 for US\$5 million back costs & 90% carry in Levitt-1 well
- Levitt-1 drilled mid-2015, dry hole but proves geological model with oil shows
- Currently interpreting new data on eastern section of the block adjacent to BHP, REPSOL, CNOOC to the north

# WA-482-P: Levitt-1 Results



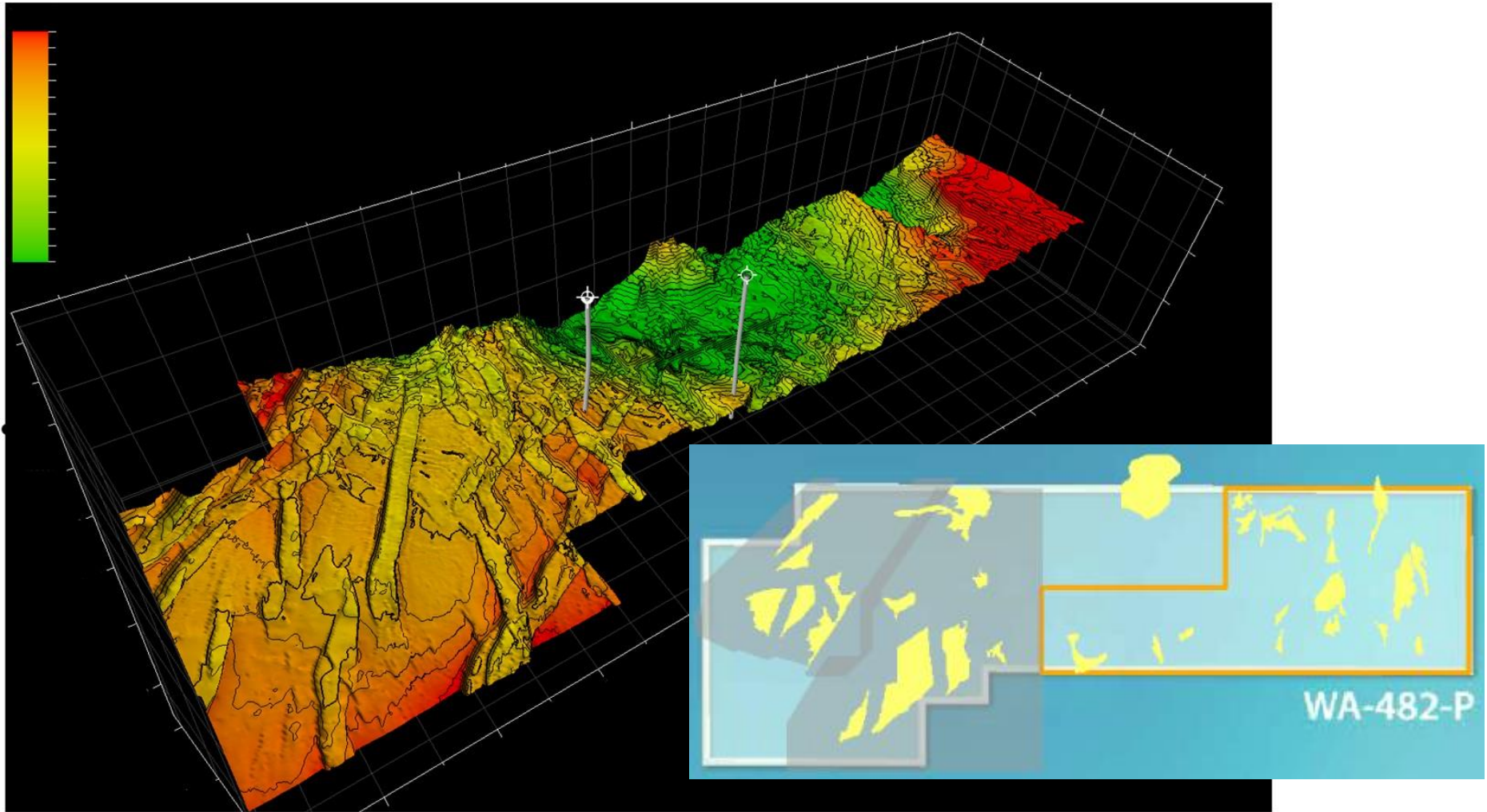
## Charge Risk Understanding Improving

- Oil fluorescence seen in side wall cores and GC-MS studies indicative of generated and migrating oil in a working hydrocarbon system
- MS-GS chromatographic studies indicate good quality oil

## Reservoir and Seal Risk Understanding Improving

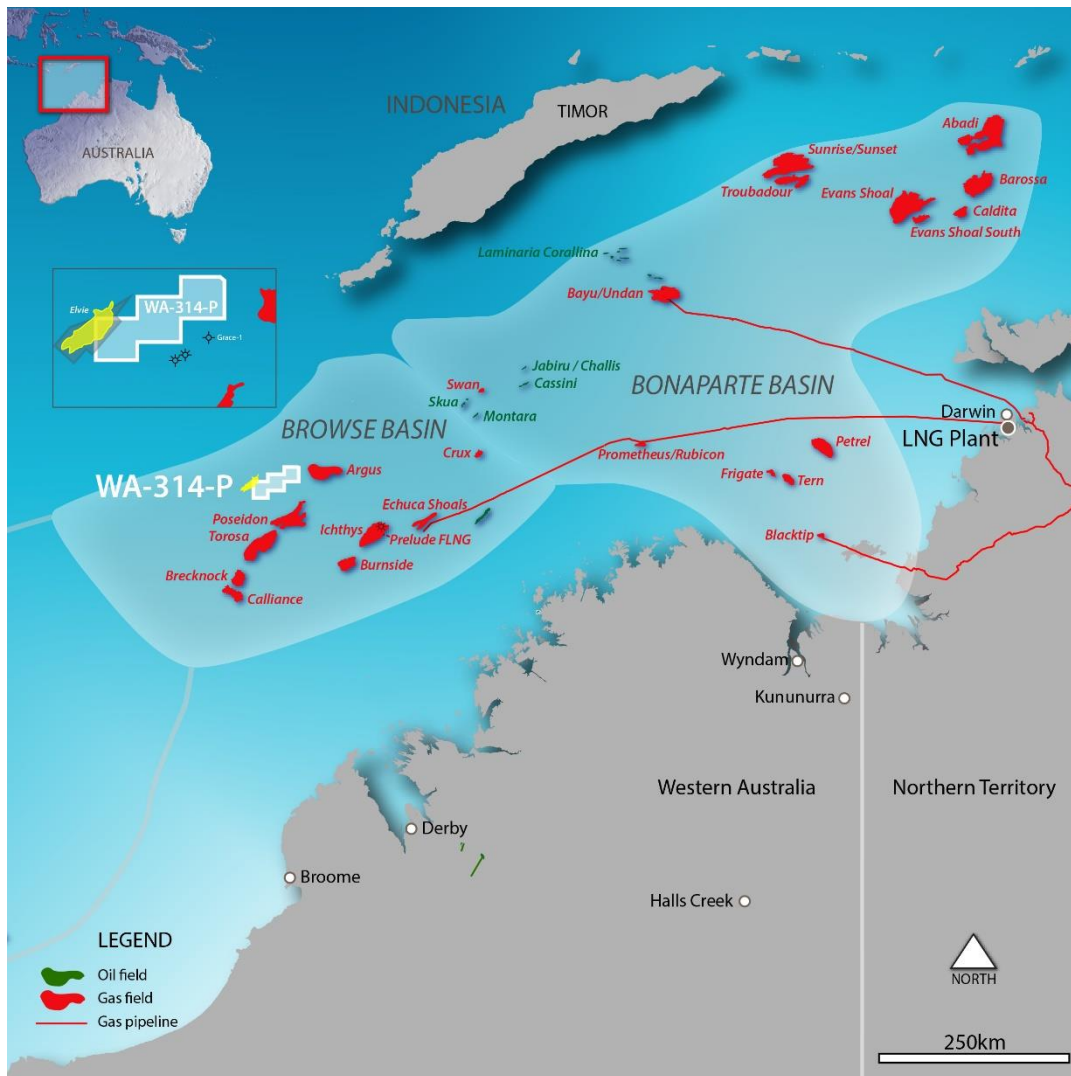
- Good quality reservoirs and seals encountered
- Good evidence from wells and seismic that these extend across the permit

# WA-482-P: Exploration Upside



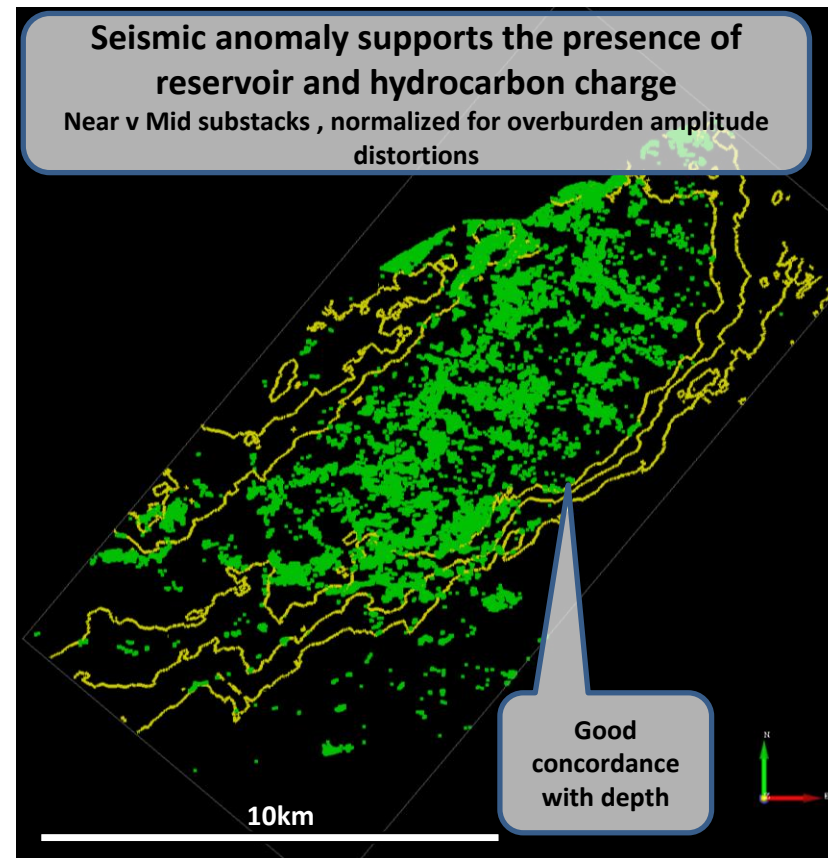
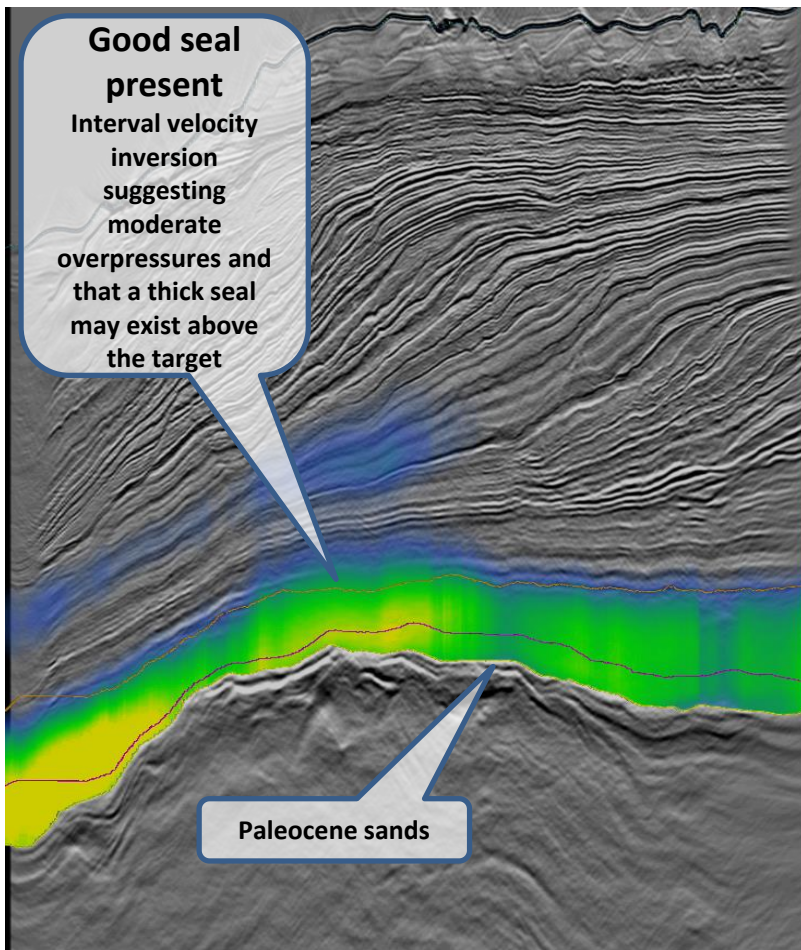
Numerous additional prospects and leads are emerging from the Chrysalids and Capreolus area seismic data

# WA 314-P: Browse Basin



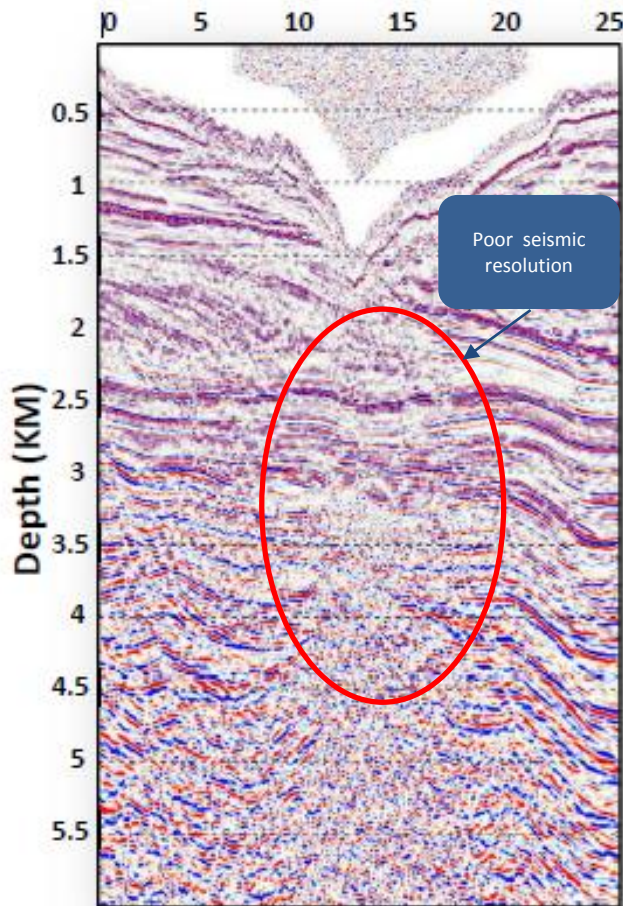
- KAR 100% , Operator
- Permit retained for exploration upside following divestment of Poseidon gas discoveries in 2014
- Recently renewed 3 year term with no well commitment
- Prospect evaluation underway, with 3D seismic identifying Tertiary turbidite fairway
- Large Elvie prospect being high graded for drilling, supported by seismic anomalies and likely oil
- Future drilling subject to farm-out

# WA-314-P – Elvie Prospect Geophysics

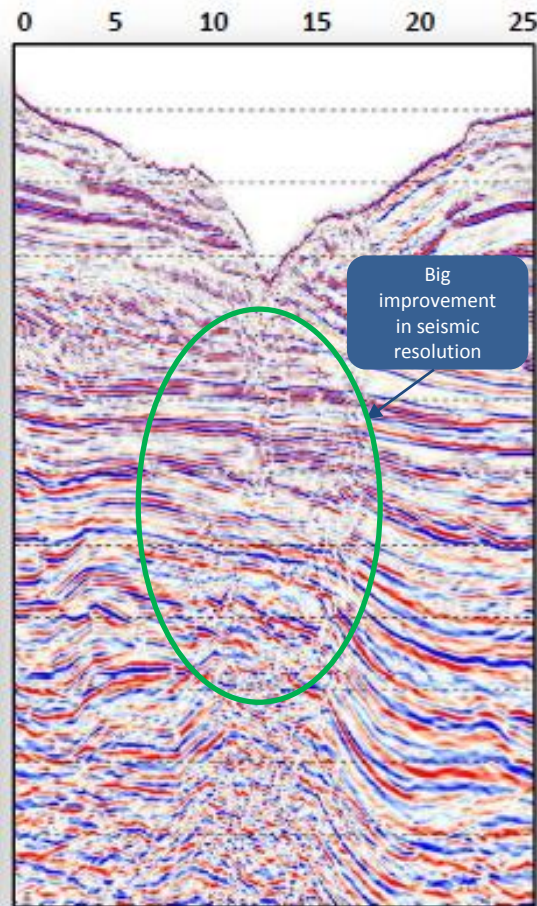


New 3D seismic and analysis provides dramatically improved resolution, and increases the confidence in the presence of reservoir, seal and hydrocarbon charge in the Elvie Prospect

# WA-314-P Elvie Seismic reprocessing



Contractor Kirchhoff PSDM



Paradigm ES360 PSDM-Specular

Big improvement in seismic resolution at the target levels

- The key to improvement is an In-house (geomechanical) method for supplying an improved shallow velocity model
- Better resolution means better risk and prospective resource definition