

# Corporate Presentation

4 October 2013



## ASX ANNOUNCEMENT

Carnarvon Petroleum Limited ("Carnarvon") (ASX:CVN) is pleased to provide shareholders with the attached Corporate Presentation given by Mr Adrian Cook, Carnarvon's Managing Director, at the 19<sup>th</sup> Asia Upstream Conference in Singapore, on Friday 4 October 2013.

For this presentation and further information on the Company please visit the CVN website at: [www.carnarvon.com.au](http://www.carnarvon.com.au)

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Yours faithfully

A handwritten signature in black ink, appearing to read "Thomson Naude".

**Thomson Naude**  
Company Secretary  
Carnarvon Petroleum



# Asia Upstream Conference

4 October 2013



**Adrian Cook**  
Managing Director  
Carnarvon Petroleum

# Introduction to Carnarvon



**Eleven exploration & production blocks in Western Australia and Thailand**

## Thailand

3 onshore Concessions containing **oil production** and exploration **CVN 40%**

## Western Australia

6 offshore exploration permits on the North West Shelf **CVN 13% to 100%**



## Thailand

2 onshore oil exploration Concessions **CVN 100%**

Listed on Australian stock exchange (**CVN**) with head office in Perth, Western Australia

# Snapshot

- **Near term North West Shelf (NWS) drilling targeting gas + condensate**
  - **Short term oil production growth from Thailand operations**
  - **Long term exploration opportunities in Thailand & NWS**
- 
- **North West Shelf**
    - ✓ **significant acreage holding over 28,000km<sup>2</sup>** in six offshore blocks, five of which are contiguous
    - ✓ Plans underway for a staged exploration program starting near **discovered gas** (Phoenix-1 well)
    - ✓ **farm-out completed** in 2012 to Apache and JX Nippon to fund two wells in two of five contiguous blocks
    - ✓ **first high impact well** (Phoenix South-1) to spud late Q4, 2013 (tentatively December 2013)
    - ✓ **second high impact well** (contingent) could be drilled in early 2015
    - ✓ **farm in opportunities** currently being prepared in the additional three blocks
  
  - **Thailand**
    - ✓ **oil production** from onshore fields around 300km north of Bangkok
    - ✓ **significant undeveloped reserves** supported by two independent reserves consultants
    - ✓ **large exploration** potential covering near field and frontier opportunities across 5 Concessions
    - ✓ current focus is on **technical work** around undeveloped reserves and new exploration
    - ✓ **farm in and investment opportunities** currently available

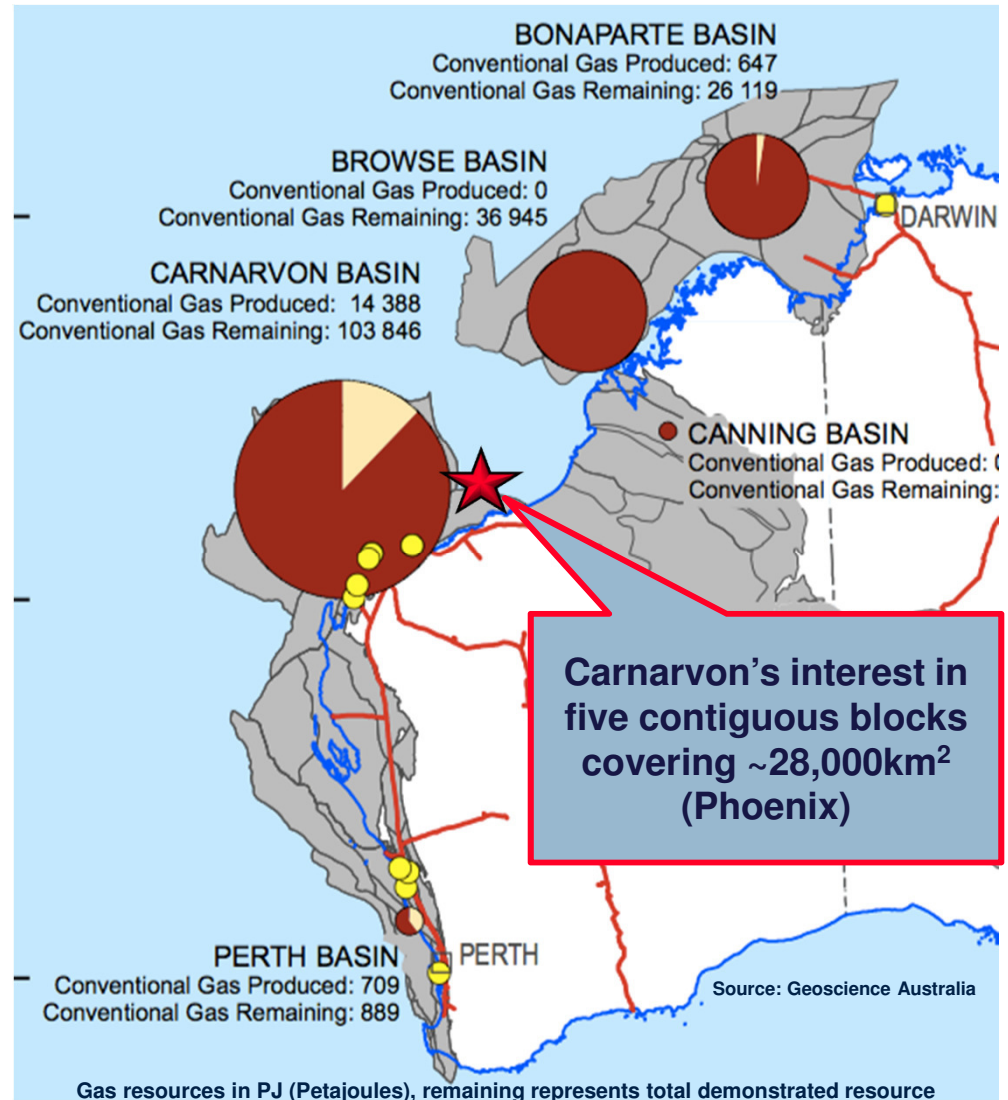


# North West Shelf

# Hydrocarbon province

## Western Australia contains world class hydrocarbon resources

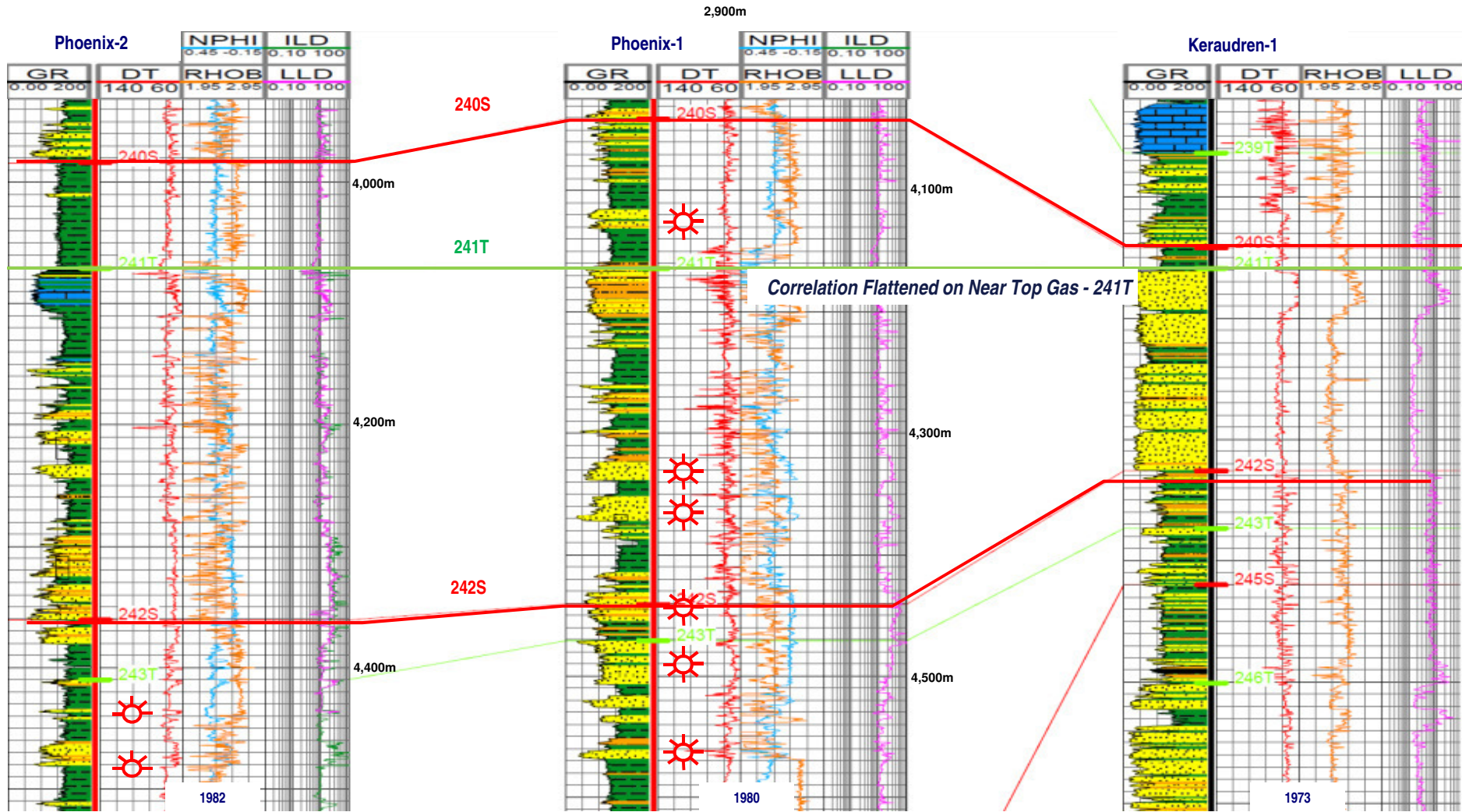
- Carnarvon's interests (Phoenix) are located around 250km from a number of **major gas fields in the Carnarvon Basin**, including:
  - Perseus / Goodwyn,
  - Wheatstone,
  - Pluto, and
  - Gorgon
- These and other fields in the area contain **in excess of 100 Tcf of remaining gas reserves**
  - Many with associated liquids
- These fields (like Phoenix) are located:
  - in around **150m water depth**, and
  - around **150km from shore**.
- **Existing LNG facilities** process gas from these and other fields in the area
- A **domestic gas pipeline** also connects these and other fields to **strong gas demand in WA** comprising retail, mineral processing and industrial customers. WA currently consumes around 1,000 TJ / day with a substantial amount of gas supply expected to be reduced from 2020.





# Past wells show prospectivity

Gas discovered in Phoenix-1 from 4,100m to TD at 4,800m



Improving reservoir characteristics



# Running Room

The plan is to explore this large and lightly explored region starting near discovered gas

## 1. Large area secured with growth potential

- 5 blocks awarded in 2008 covering 28,000km<sup>2</sup> (~40 times the size of Singapore)

## 2. New & additional data acquired

- Phoenix 3D seismic acquired in 2010/11

## 3. Drilling first well near discovered gas

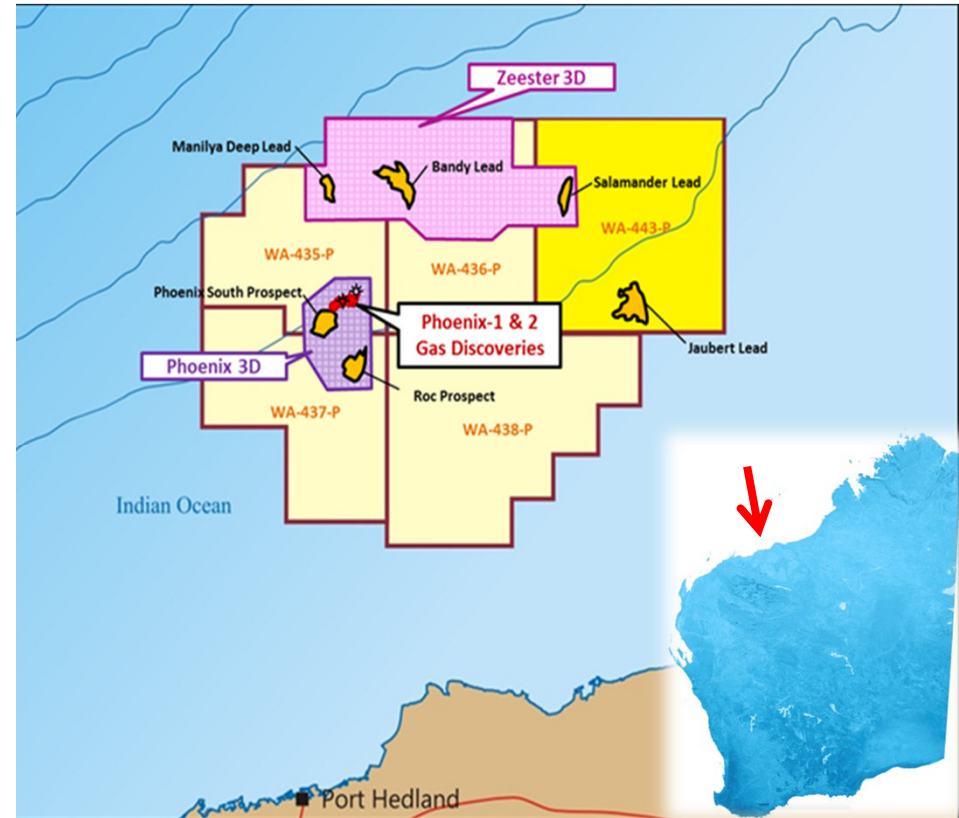
- Apache and JX Nippon farmed into WA-435-P in 2012
- Phoenix South well to spud Q4, 2013

## 4. Drill second well as step out

- Apache and JX Nippon also farmed into WA-437-P to drill Roc prospect
- Contingent well potentially in early 2015

## 5. Preparing to add additional value

- Zeester 3D acquired by CGG in 2012 covering several oil leads (to be licenced)
- Most particularly over the Bandy lead in WA-436-P, being the next permit to be offered for farm out

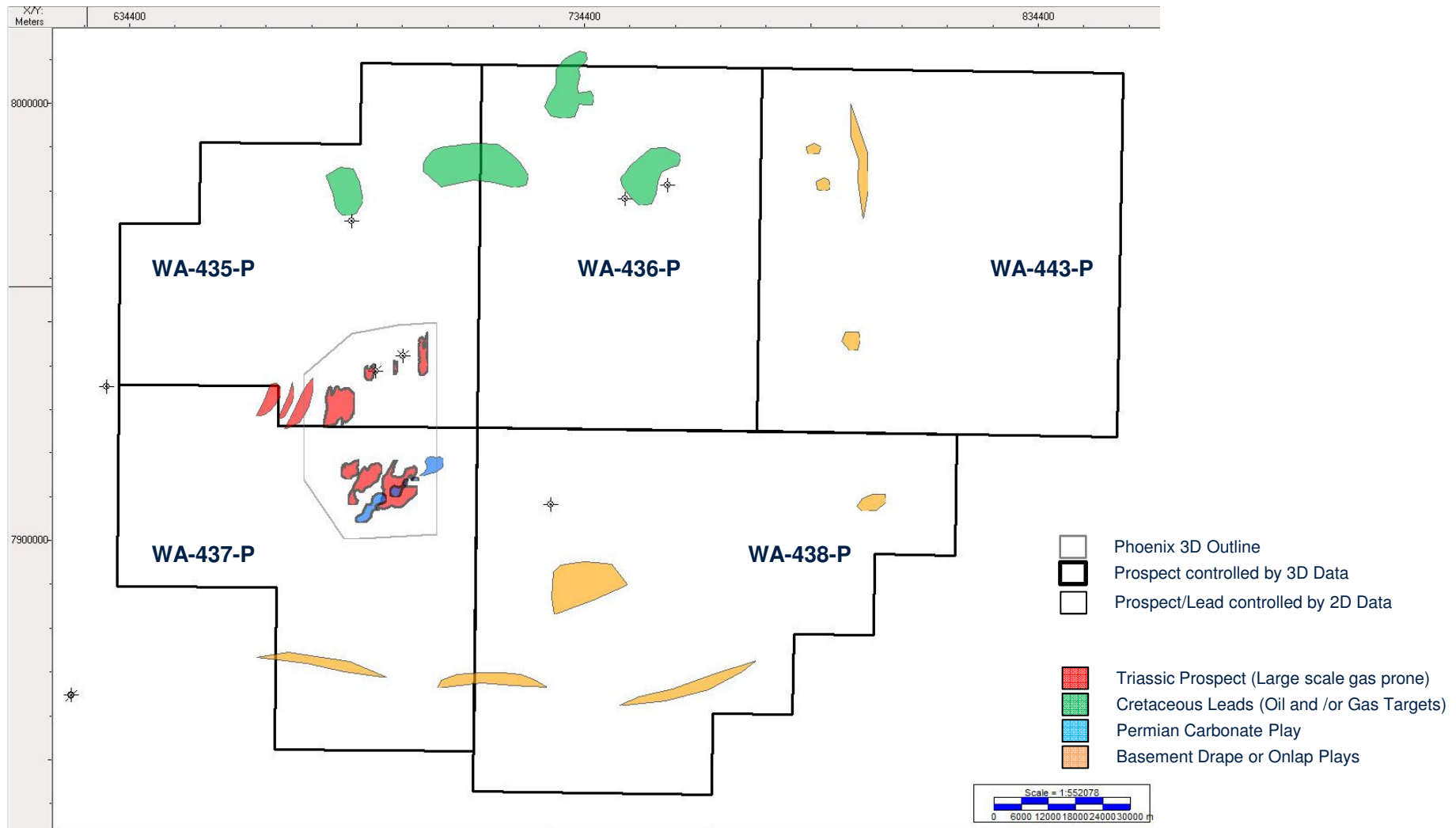


### Carnarvon's interests

- 20% WA-435-P and WA-437-P
- 50% WA-436-P and WA-438-P
- 100% WA-443-P

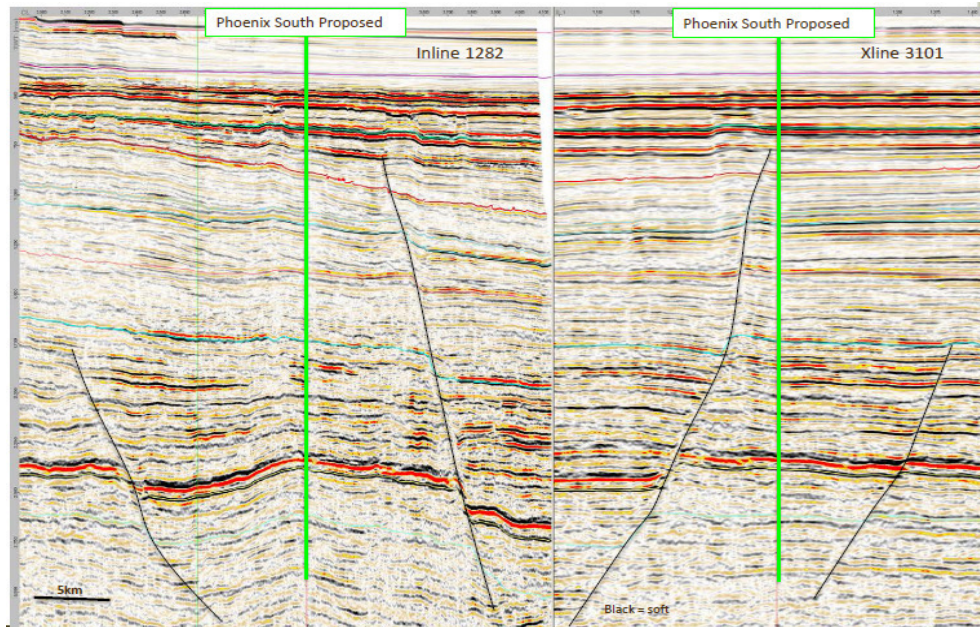
# Prospects and leads

Significant new prospects and leads in addition to Phoenix South and Roc prospects

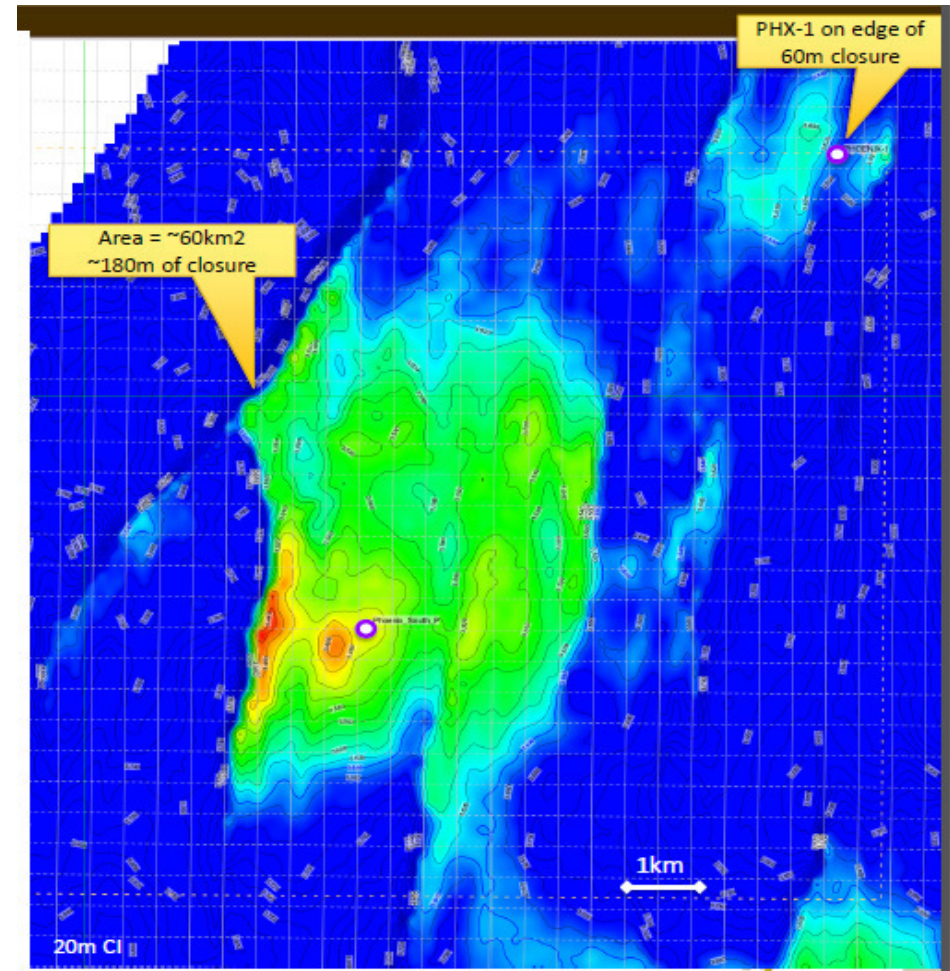


# Phoenix South Materiality

**Robust closure, large area and potential multiple gas sands (and oil potential)**



- Phoenix South-1 targeting gas sands logged in Phoenix-1
- Multiple gas sands expected to be encountered
  - If gas sands have independent contacts there is the potential for multiple discoveries
- Multiple Tcf gas potential with associated liquids
- Roc prospect is of a similar size



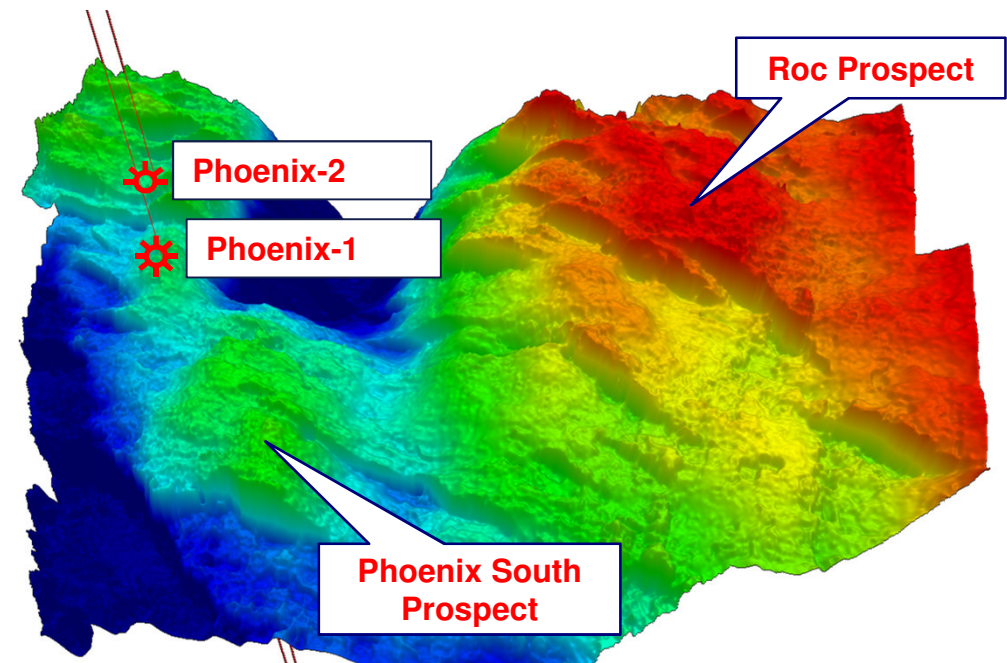
Base Cossigny limestone is good regional marker

# Timing

Phoenix South-1 well spudding in ~ 8 to 12 week's time



- Phoenix South-1 well expected to spud late 2013
- Atwood Eagle semi-sub drilling rig is under contract with Apache for Phoenix South-1 well
- Technical work supports significant gas volumes
  - condensate volumes projected at ~50 mmbbls/Tcf



Phoenix 3D seismic survey near top gas depth surface

# Development

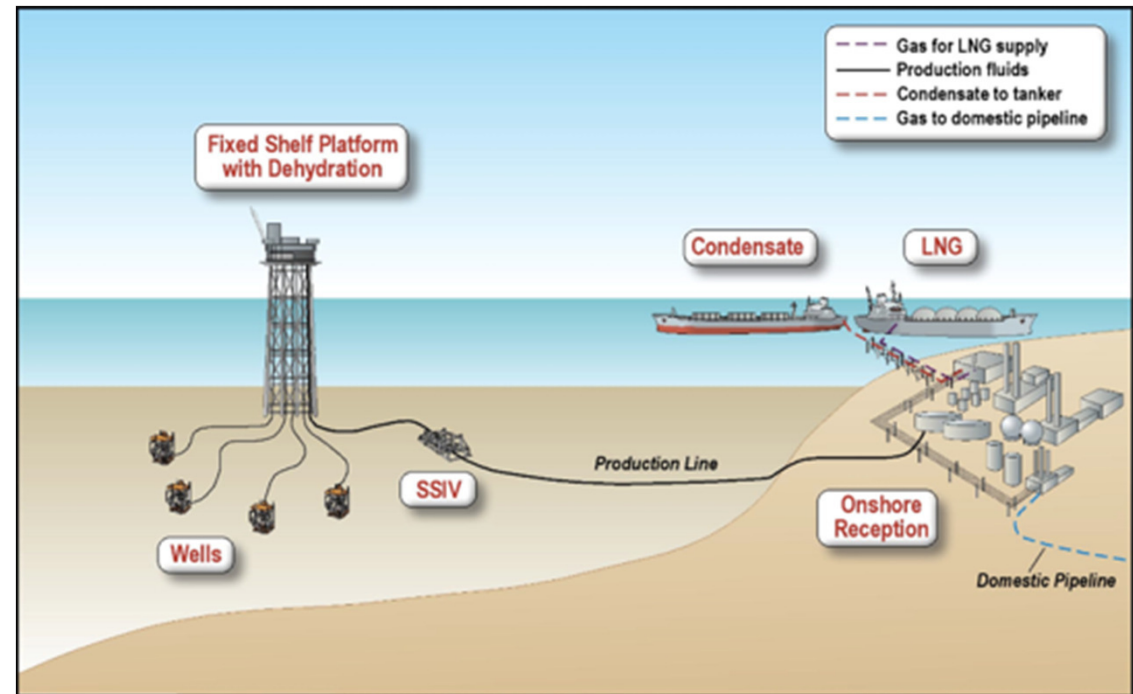
**Potential scale of the resource and proximity to infrastructure provides multiple options**

## Resource scale – multi Tcf fields

- Significant structures in Phoenix South and Roc prospects on 3D interpretation
- multiple hydrocarbon bearing sands on mud log analysis
- Additional prospects and leads of substance
- Reservoir quality sands are capable of flowing at prolific rates based on core and poro-perm data from Phoenix-1

## Development

- Shallow water depths support conventional development
- Reasonably close to existing LNG (<250km) and domgas pipeline (<150km) infrastructure



Domestic Gas

Liquids  
Stripping

LNG Feed  
Supply

LNG Project

Asset  
realisation  
(all or part)

Domestic Gas  
Swaps

Asset Swaps

## Gas supply volumes to drive prices, WA and Asian demand is projected to remain strong

### Western Australian domestic gas

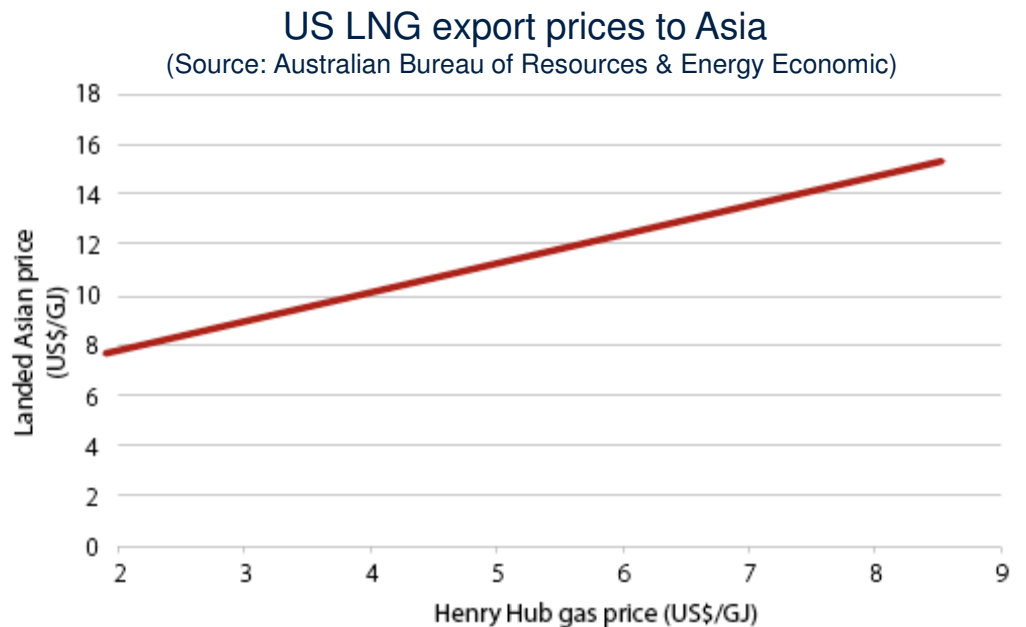
- Current gas pricing in WA is ~A\$8 / GJ
- Most of WA's gas supply comes from the North West Shelf Project (NWSP)
- The NWSP has shown limited interest in renewing its domestic gas supply contracts that expire around 2020 (source: Domgas Alliance)

### Conclusion

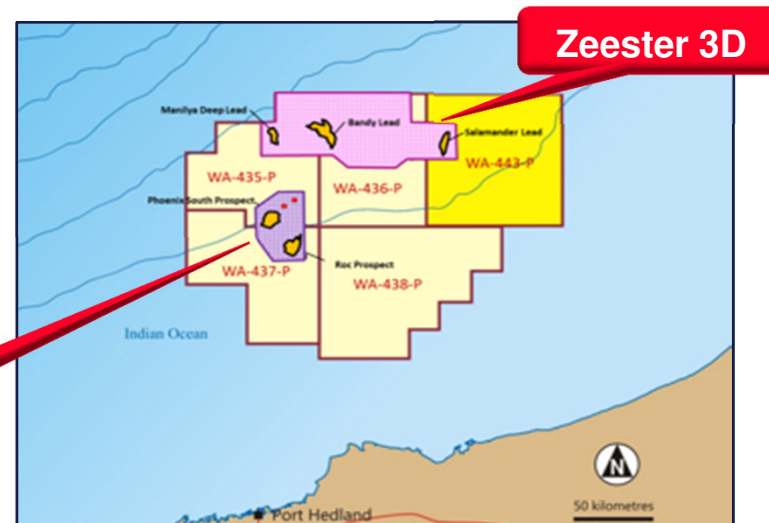
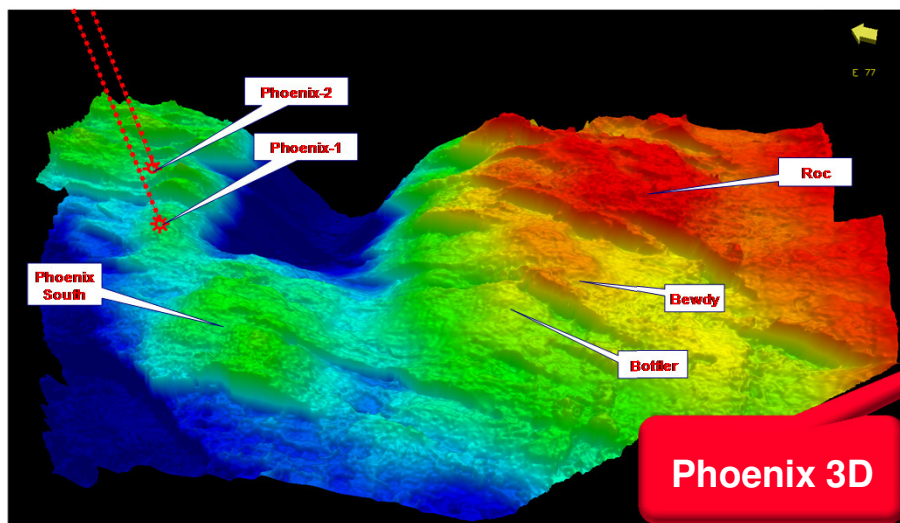
- Flexibility is key for any development in ~ 2020
- as is having low cost production
- Carnarvon's Phoenix project is well positioned
  - with large projected gas volumes; and
  - low cost operations because of shallow water development and proximity to existing infrastructure

### LNG exports to Asia

- Current LNG pricing in Asia is ~US\$15 / GJ
- If US and / or Canada export shale gas to Asia, LNG prices are expected to be around US\$10 / GJ



# Phoenix asset wrap up



<b>Discovered gas</b>	Phoenix-1 discovered gas in 1980 when gas prices meant the discovery was not economic
<b>New 3D seismic</b>	First 3D seismic ever acquired over these permits and facilitated the 2012 farm out
<b>Successful farm out</b>	Apache and JX Nippon farmed into WA-435-P and WA-437-P committing to drill 2 wells
<b>Phoenix South well imminent</b>	Large four way closure, on trend with the Phoenix-1 discovery, is scheduled to spud late 2013. <b>This is a multi Tcf gas proposition with significant associated liquids.</b>
<b>Forward plans in progress</b>	Drilling of the farmed out <b>Roc prospect</b> likely to spud early 2015 (WA-437-P). Farm out (of WA-436-P) with new Zeester 3D seismic and <b>large Bandy oil lead</b> to commence in 2014



# Thailand



# Production overview

## Substantial opportunity in development and production enhancement activities

<b>Producing oil fields</b>	<ul style="list-style-type: none"><li>▪ 200,000 bbls (net) produced in 2013 FY</li><li>▪ Production set to increase from late 2013</li><li>▪ Exposure to strong oil price (unhedged)</li></ul>
<b>Undeveloped reserves</b>	<ul style="list-style-type: none"><li>▪ 2.4 MMbbl (net) in proved undeveloped reserves</li><li>▪ Profitable operations</li><li>▪ Break even less than 20,000 bbls per well</li></ul>
<b>Significant other potential</b>	<ul style="list-style-type: none"><li>▪ Water flood project commenced August 2013</li><li>▪ Enhanced Oil Recovery projects in concept stage</li></ul>
<b>Established infrastructure</b>	<ul style="list-style-type: none"><li>▪ High quality four lane highway to truck oil</li><li>▪ Oil trucked to refinery at \$2.20 / bbl (gross)</li></ul>
<b>Quality end-market</b>	<ul style="list-style-type: none"><li>▪ Oil sold to PTT</li><li>▪ Contract renewed July 2013</li><li>▪ Current realised price around US\$95/bbl</li></ul>
<b>Active drilling program</b>	<ul style="list-style-type: none"><li>▪ Active drilling program planned for late 2013</li><li>▪ Drilling on new 3D seismic data (first since 2007)</li><li>▪ Planned 5 to 8 well program</li></ul>

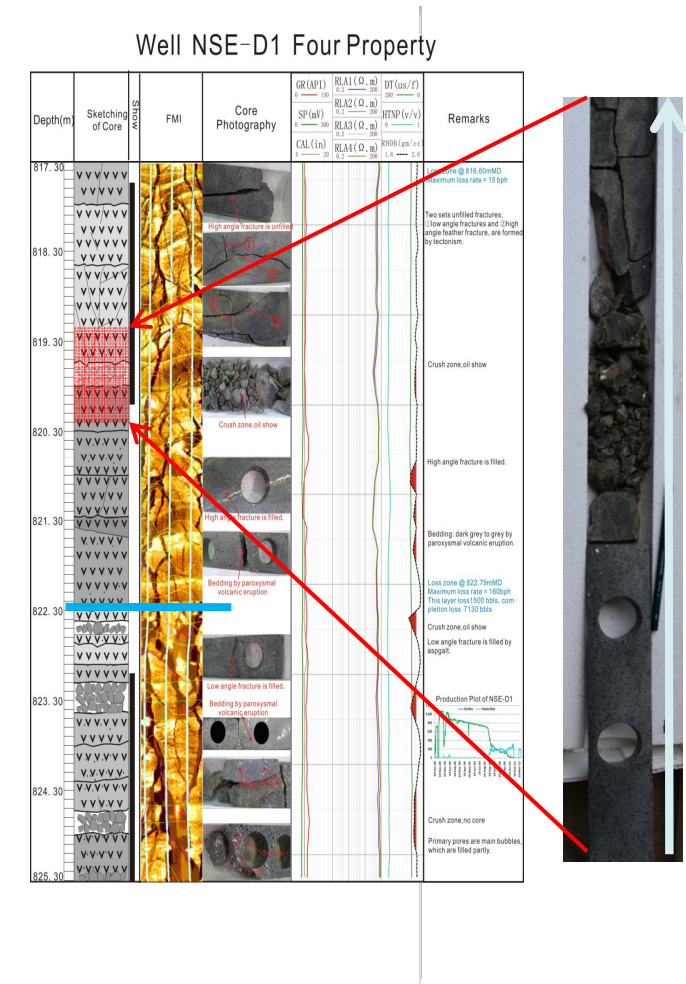
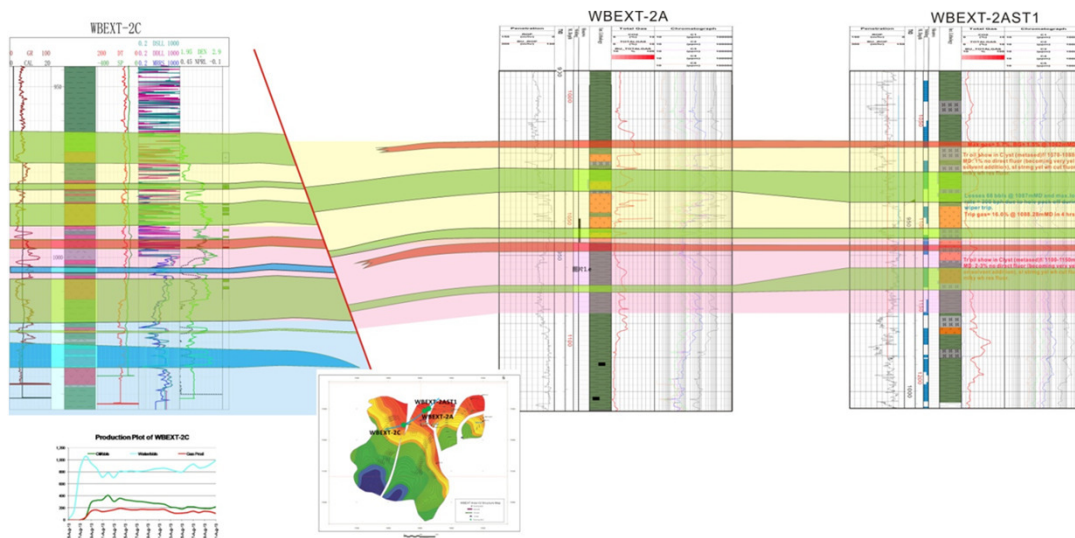


Carnarvon has been involved in drilling around **200 wells** in Thailand since 2007

# Technical work

## Technical work leading to area specific development plans

- Geological and technical work is progressing including renewed
  - core analysis
  - mud log analysis
  - gas, oil and water contact analysis
- Development planning in the L33 Concession is focused around the new 3D seismic data
- Development plans for the WBEXT Igneous reservoirs are anticipated to be available late October 2013
- Development plans are progressing for other fields within the Concessions



# Thailand forward program

## Development and exploration drilling re-commence late 2013

### Drilling rig to return late 2013

- WBEXT development drilling
  - 7-8 wells locations ready
- L33/43 shallow reservoir development
  - Well locations ready

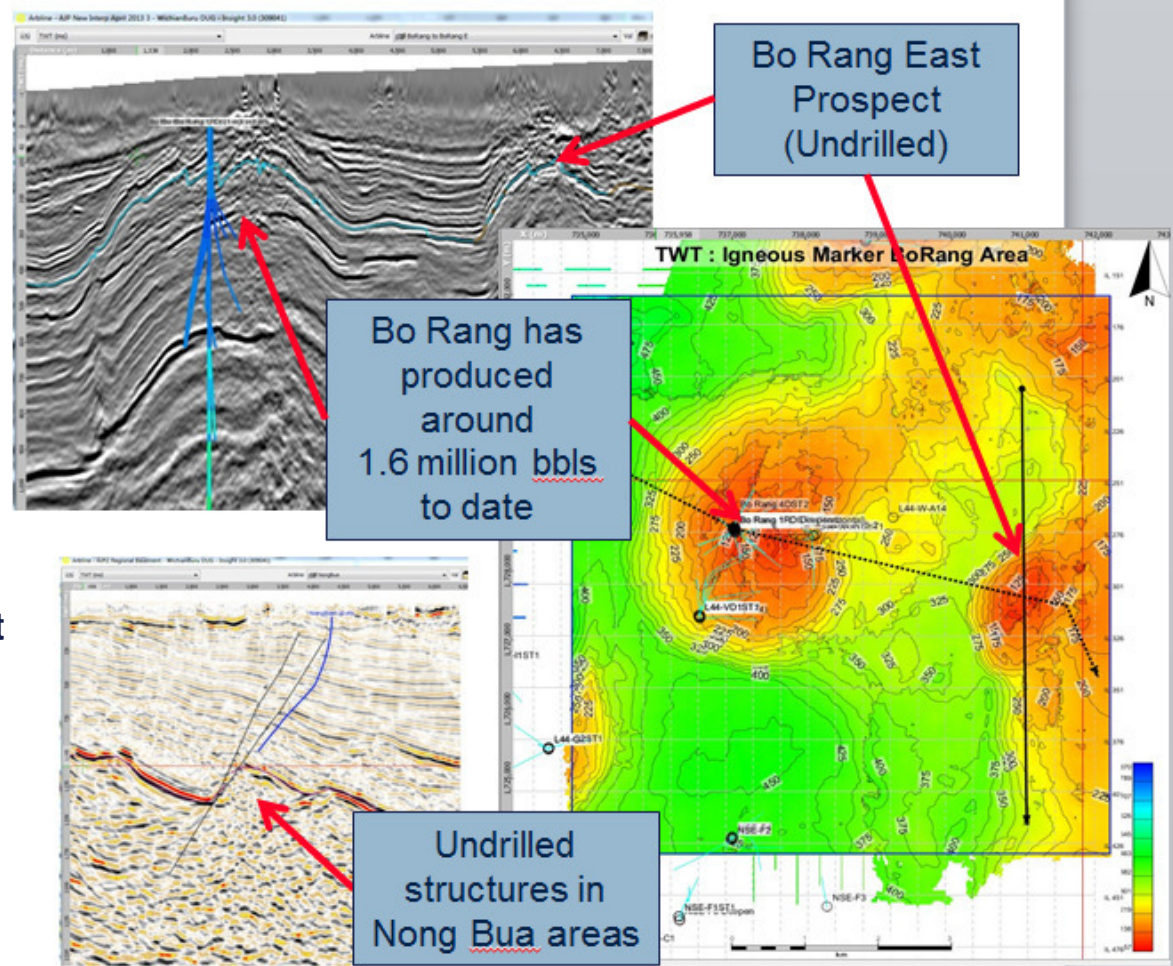
### Further drilling planned in early 2014

- Si Thep
- Na Sanun East
- Bo Rang

### Exploration in conjunction with development drilling planned in

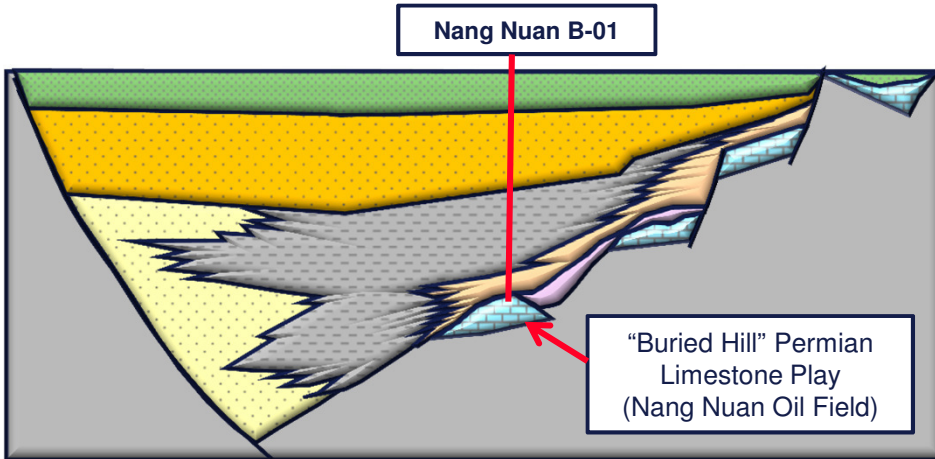
- L33/43 exploration
- NSE West
- Nong Bua

All funded from ongoing production and sales



# Onshore oil in Khian Sa Basin (L52/50 & L53/50)

Northern Chumphon Basin Schematic

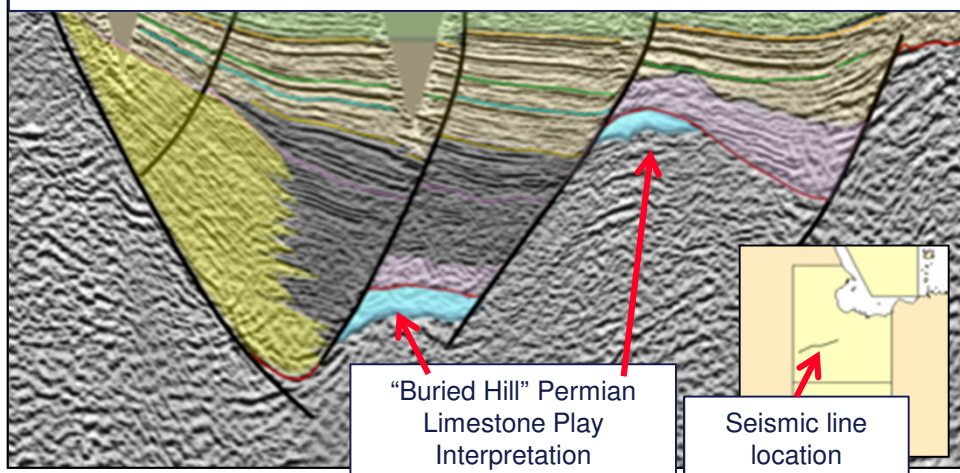


(Adapted From Thai Shell, 1994)

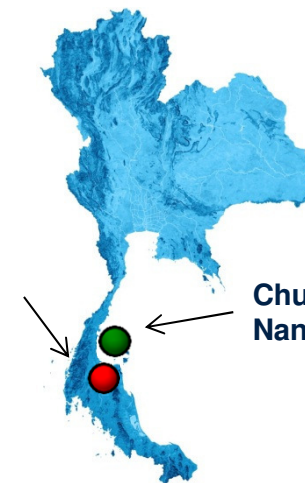
## Frontier oil exploration opportunity

- **Largest Tertiary basin** in southern Thailand.
- **Under-explored**, only two conventional wells drilled.
- **Similar basin architecture** to the Chumphon Basin.
- **Three robust prospects** identified
- **Nang Nuan Field** is an excellent analogue.

Interpreted line through Khian Sa Basin in L52/50 permit



Carnarvon's L52/50  
& L53/50 (100%)



Chumphon Basin containing  
Nang Nuan oil field



# Conclusion

# Investment highlights

## Western Australia – 6 NWS permits

- **Potential game changer for WA gas**
  - Scale of resource is significant
  - Location is ideal for development
  - Multiple markets supplying domgas & LNG
- **Proven gas province**
  - Phoenix-1 was a gas discovery
  - New 3D seismic supports the drilling program
- **Ready to drill multi Tcf prospects**
  - 2 prospects to drill, first to spud Q4,2013
  - Potential liquids rich gas
  - Farm out covers 2 wells to US\$100m cap
- **Extensive follow up opportunity**
  - Portfolio of oil and gas leads in over 28,000km<sup>2</sup> of permit holdings
  - Large equity interests held
  - Additional farm outs planned with new 3D already acquired over oil lead in WA-436-P
- **World class operator**
  - Apache operating the 2 farmed out permits
  - Drilling rig for first well already under contract

## Thailand – 5 E&P concessions

- **Balanced portfolio for growth**
  - Existing production
  - Appraisal and development in 2 reservoir types
  - Exploration from step out through to frontier
- **Proven oil present**
  - Production increasing
  - Reserves independently assessed
    - 1P reserves of 8.5mmbbls gross
    - 2P reserves of 30 mmbbls gross
  - Undeveloped reserve development in progress
- **Unexploited opportunities**
  - Significant prospects identified on new 3D seismic over proven oil in L33 Concession
  - Next drilling commencing late Q4, 2013
- **Significant acreage still to be explored**
  - Both sandstone and igneous potential
- **New opportunities being worked on**
  - Deeper play types
  - New play types
  - Technology and EOR

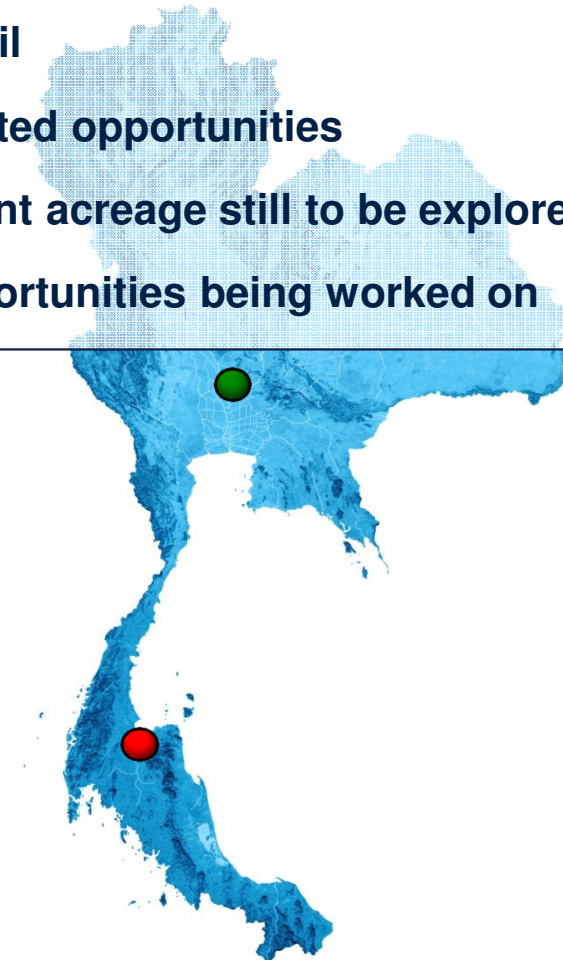
# Investment highlights

**Success in Carnarvon's portfolio will deliver value multiples on current enterprise value**



- Potential game changer for WA gas
- Proven gas province
- Ready to drill multi Tcf prospects
- Extensive follow up opportunity
- World class operator

- Balanced country portfolio for growth
- Proven oil
- Unexploited opportunities
- Significant acreage still to be explored
- New opportunities being worked on



## **Disclaimer**

The information in this document, that relates to oil exploration results and reserves, is based on information compiled by the Company's General Manager (Operations), Mr Philip Huizenga, who is a full-time employee of the Company. Mr Huizenga consents to the inclusion of the reserves and resource statements in the form and context in which they appear.

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Thank you and have a good day



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