



# Corporate Update

Thailand optimisation. Significant North West Shelf potential.  
September 2012

**SOUTH EAST  
ASIA**

**AUSTRALIA**



- ✓ **Build sustainable production**
  - Plan to double production by 31 Dec 2012 is deliverable
  - Production from sustainable sandstone reservoirs
  - Aligned operator and collaborative working environment
  
- ✓ **Maximise free cash flows and earnings**
  - From Thailand production
  
- ✓ **Invest in growth assets**
  - **Thailand** oil field development and new exploration
  - **North West Shelf permit** drilling targeting gas, condensate and oil
  - New **strategic initiatives**



# Investment highlights

## Thailand

- **Proven oil present**
  - 30 mmbbls gross (12 mmbbls net CVN) on 2P basis
  - Production 1,400 bopd gross (550 bopd net to CVN)
- **Significant unexploited opportunities**
  - 125 mmbbls gross (50 mmbbls net CVN) in identified prospects on 3D seismic
- **90% of acreage still in exploration phase**
  - Both sandstone and igneous potential
- **Leverage to come from new operator and enhanced CVN technical team**
  - Driving a new approach

## Western Australia

- **Proven gas province**
  - Phoenix-1 discovery
- **Two Tcf prospects (gross)**
  - Ready to drill on 3D seismic
  - Potential liquids rich gas
- **Extensive opportunity in 28,000km<sup>2</sup> of permit holdings**
  - Portfolio of oil and gas leads
  - Large equity interests held
- **Farm-out to oil and gas major**
  - To operate exploration activities
  - To cover cost of exploration well(s)
  - Finalisation of documentation expected prior to end of 2012



- Short term oil production growth from Thailand operations
- Near term North West Shelf (NWS) drilling targeting gas + condensate
- Long term exploration opportunities in Thailand & NWS

- **Thailand assets**

- ✓ includes a 40% interest in onshore oil production and exploration over 1,000km<sup>2</sup>.
- ✓ **Valued at 16c** per Carnarvon share based on Towngas acquisition
- ✓ **Valued at 32c** per Carnarvon share based on independent 2P reserves valuation

- **North West Shelf assets**

- ✓ includes a 50% interest in four exploration blocks containing discovered gas.
- ✓ **Farm-out** being finalised to fund well(s)

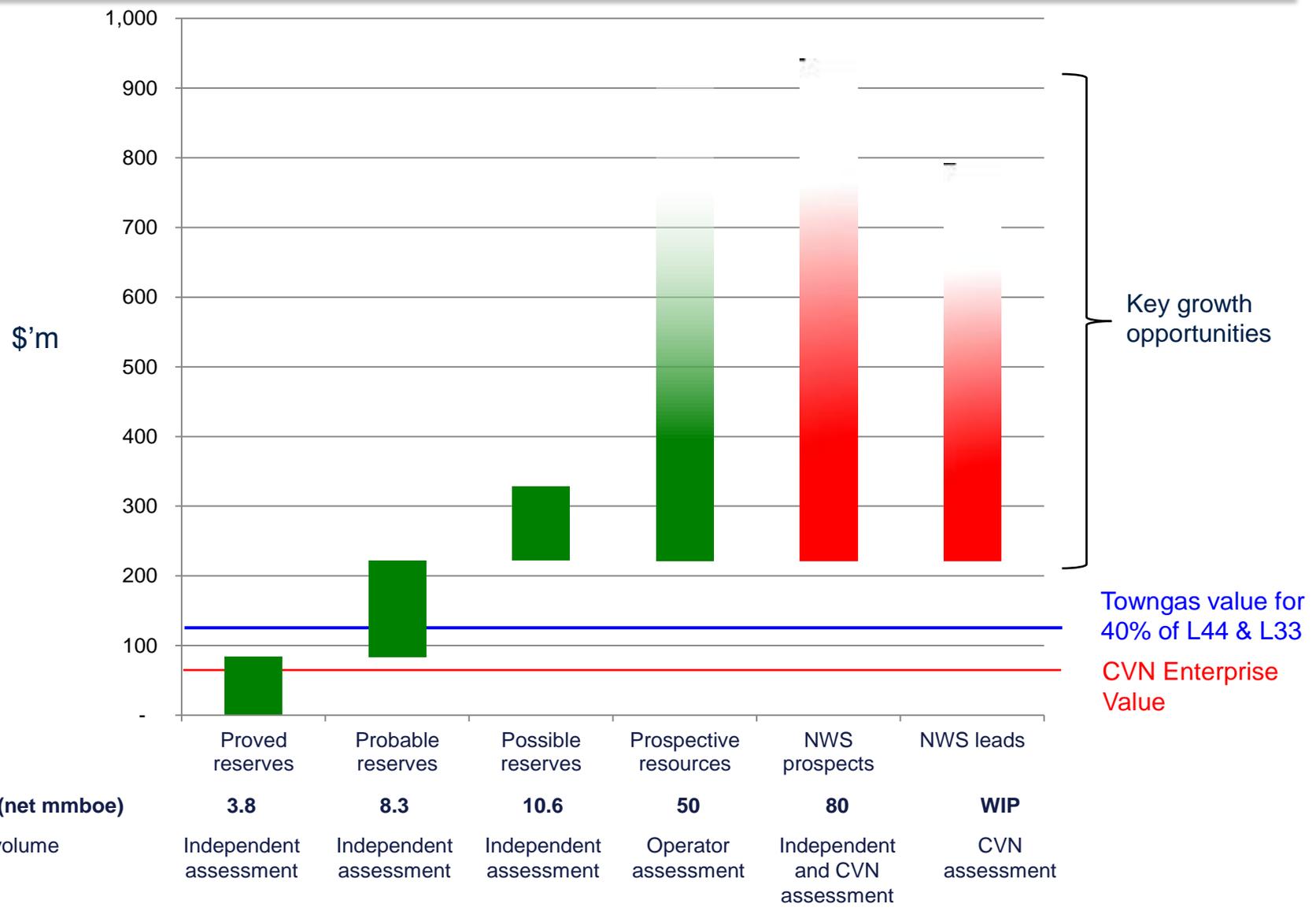
- **Significant investment to come from Majors in offshore Western Australia**

- ✓ Global majors set to drill 23 wells in the next 5 years
- ✓ Carnarvon has first mover advantage in frontier region

Facts at a Glance	
Share price (17 Sept 2012)	\$0.105
Shares on Issue	693.3 m
Market Capitalisation	\$73 m
Cash (30 June 2012)	\$7.1 m
Debt	Nil

**150mmboe**  
 Potential in current portfolio  
 At least 25% being tested in 2013

# Investment proposition



## Forward work program

- Develop WBEXT Sandstone
- Acquire additional 3D Seismic in L33
- Pursue stable 4,000 to 5,000 bopd from each of the two producing concessions

### Key Activity

	Dec Qtr 2012	Mar Qtr 2013	Jun Qtr 2013	Sept Qtr 2013
Drill – WBEXT Sandstone wells	7-8 wells	7-8 wells	Based on ODP	
Develop – Overall development plan				
Deliver – WBEXT waterflood		Based on ODP		
Acquire - 3D seismic in L33/43		100 km <sup>2</sup>		
Drill – Infill and appraisal igneous wells	1 well		Based on ODP	
Develop - exploration strategy				
Drill – exploration wells		1 well		Based on ODP

Work program to Dec 12 developed in collaboration with new operator

## Forward work program

- Complete Farmout of Phoenix South & Roc prospects (in WA-435-P & WA-437-P)
- Licence additional 3D seismic data to commence next round of farm-outs
- Drill Phoenix South and Roc prospects
- Pursue oil play across the blocks

### Key Activity

	Dec Qtr 2012	Mar Qtr 2013	Jun Qtr 2013	Sept Qtr 2013
Complete Farmout Phoenix South & Roc				
Drill – Phoenix South well (indicative)				
Drill – Roc well (indicative)				
License Zeester 3D				
Commence farm out of the other permits				



# Thailand

## L44/43 and L33/43

(40% CVN)

## Hong Kong and China Gas Limited (“HKCG”)

- Acquired a 60% interest in L44/43 and L33/43 in June 2012 for US\$170m
- Equivalent to 16c per Carnarvon share on a look-through basis
- HKCG acquired the interest through its energy business ECO
- HKCG is listed on the Hong Kong stock exchange with a market capitalisation around US\$20bn

## ECO has interests in 22 energy projects covering:

- conventional oil & gas production
- unconventional gas production
- gas to liquids technology
- coal-based chemicals
- resource exploitation in coal

Price looks fair after cross-referencing to Wood Mackenzie's estimates...  
We note that this is the second overseas E&P investment for HKG, and this time the one in Thailand is a majority stake (rather than a minority interest for the Madagascar project). Based on the estimates by Wood Mackenzie made in July 2011, the project has recoverable reserves (2P, proven+probable) of 27m barrels as at beginning 2011 with no gas production. The remaining value of the project is c.US\$360m (c.US\$220m based on 60% attributable stake), after

# New team

## Geological Group:

Qualification	Professional Experience
Senior Geologist with fractured reservoir oil field experience	25 years
Senior Geologist with fractured reservoir oil field experience – expertise in log interpretation	25 years
Senior Geologist with fractured reservoir oil field experience – expertise in log interpretation	28 years

## Exploration Group

Qualification	Professional Experience
Doctorate in Geophysics	27 years
University Professor, Doctorate in Geophysics	30 years
Doctor, Drilling Research Institute	25 years

## Engineering Group

Qualification	Professional Experience
Senior Engineer, Petroleum Engineering	27 years
Drilling Engineering	11 years
Doctor, Petroleum Engineering	6 years

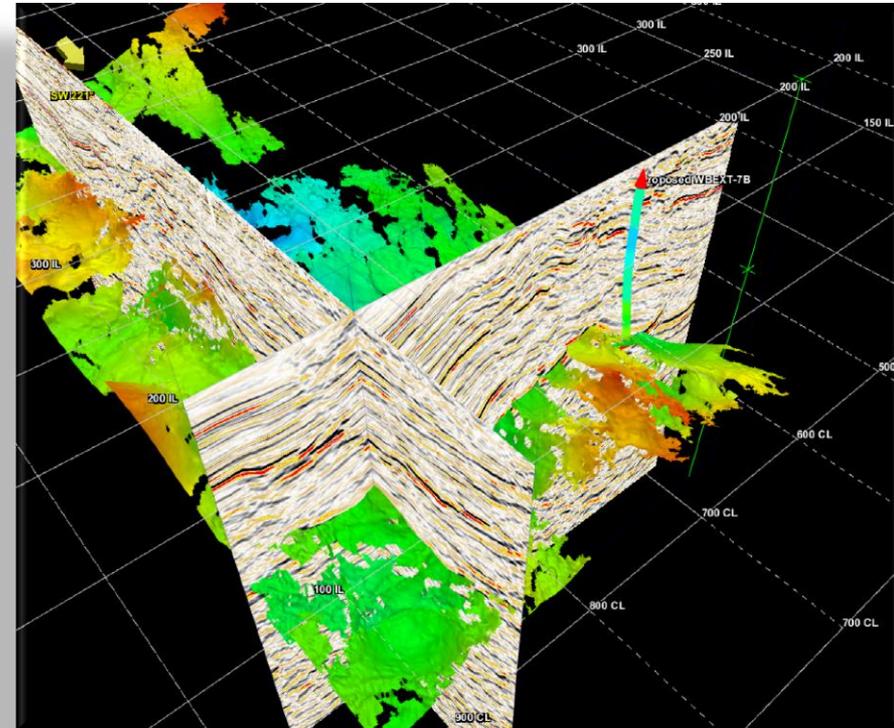
## Production Group

Qualification	Professional Experience
Principal Production Engineer	27 years
Senior Engineer of operating oil field	23 years
Petroleum Engineering, Reservoir Engineering	11 years

# New Approach

Illustrating the operator's new approach to WBEXT sandstone development:-

- **Sub-surface well locations**
  - in WBEXT sandstone area have been revised
- **By operator's multi-disciplined team**
  - covering geology, geophysics and engineering
- **Based on 3D seismic data & well ties**
  - from analysis of past wells
- **With extensive new testing programs**
  - Over multiple intervals collecting more information than occurred previously
- **Contributing to 3,000 bopd by year end**
  - First well drilled on new sub-surface location flowing at steady 100 bopd (gross)
- **With follow on plans for water flood**
  - For early 2013 to sustain 3,000 bopd (gross)



# Short term work program

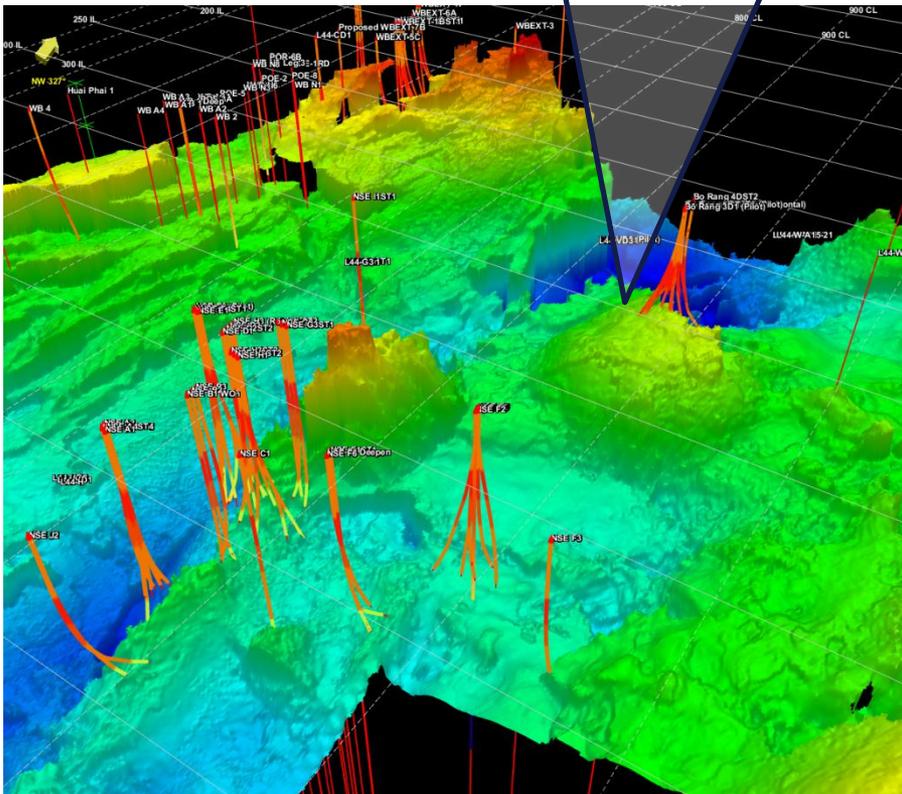
- **Sandstone development**, commenced end July 2012 to drill up to 10 wells in 2012
- Minimum **2 infill fractured igneous** wells
- At least one multiple-target **exploration well**
- Increasing the list of **workover initiatives** in 100+ shut-in wells

## ... and anticipated production growth ...

Area of production	Gross anticipated production
Base production	1,400 bopd
ALRO temporary shut in	500 bopd
2012 Sandstone campaign	800 bopd
2012 Workover campaign	100 bopd
2012 Igneous redevelopment	200 bopd
2012 Exploration activities	Risked Exploration
<b>Dec 2012 exit rate</b>	<b>3,000 bopd</b>

# Reintroducing shut in production

ALRO subsurface area dominated by Bo Rang dome – connection to aquifer by edge drive results in no early water ingress



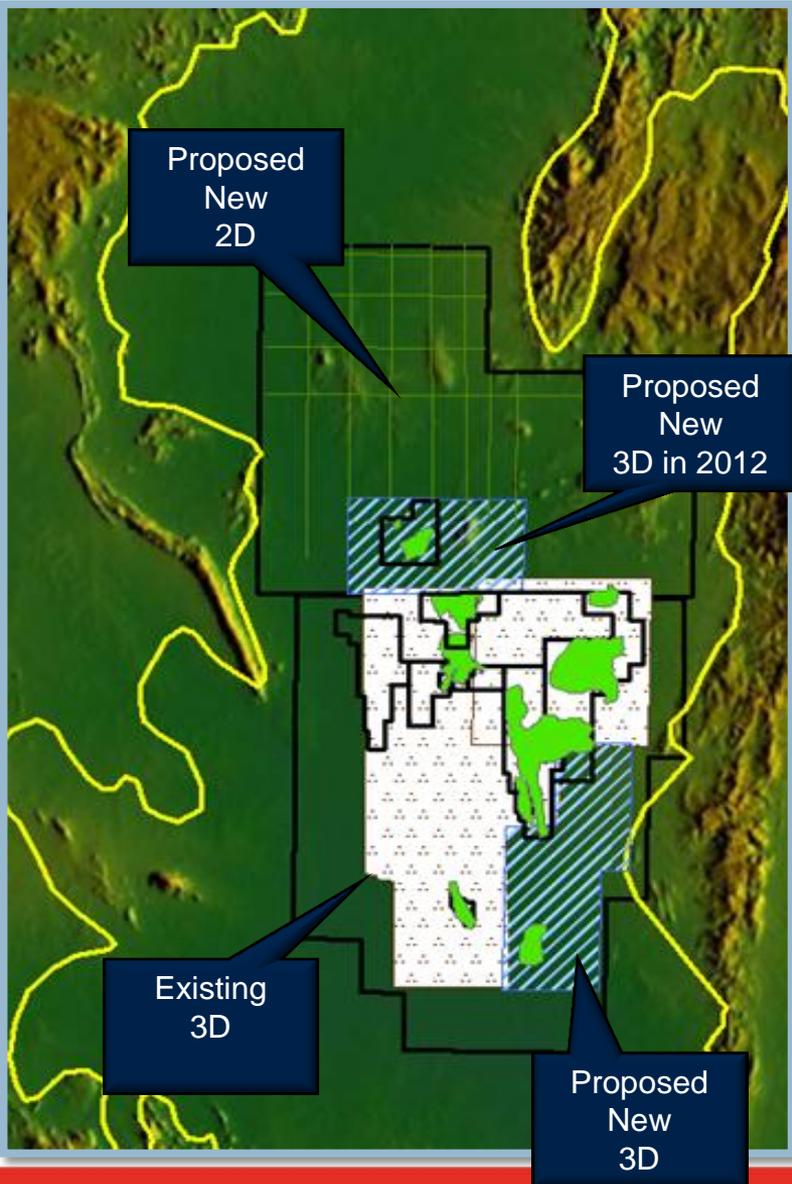
- Working to reintroduce production by November 2012
- Flowing 500 bopd (gross) when production shut-in
- Agricultural Land Reform Office (“ALRO”) authorised exploration wells but unclear on “development”
- Wells exhibit unique flow regime and anticipated to come back online at higher “flush production” rates

# Financial outcomes at 3,000 bopd

	<b>Gross per month</b>	<b>Net to CVN per month</b>
Revenue (using \$100/bbl)	\$9,000,000	\$3,600,000
Fixed operation costs	(\$1,250,000)	(\$500,000)
Trucking costs	(\$250,000)	(\$100,000)
Royalties	(\$450,000)	(\$180,000)
<b>Net operating cash flow before tax</b>	<b>\$7,050,000</b>	<b>\$2,820,000</b>
<b>Discretionary exploration and development expenditure</b>	<b>(\$3,750,000)</b>	<b>(\$1,500,000)</b>

**Moving into 2013 Carnarvon and Operator will be  
focused on the new Overall Development Plan**

# Overall Development Plan (ODP)



## The opportunity:

- **30 million bbls in 2P reserves (gross)**
  - 100km<sup>2</sup> of production licenses
- **125 million bbls prospective resources (gross) within existing 3D**
  - 365 km<sup>2</sup> 3D seismic acquired to date
- **Untested areas within central oil-prone basin**
  - 1,000 km<sup>2</sup> of exploration acreage with minimum 5 year remaining term

**New Operator has experienced multi-disciplined technical people working on an ODP**

**Carnarvon knowledge and experience being utilised by Operator**

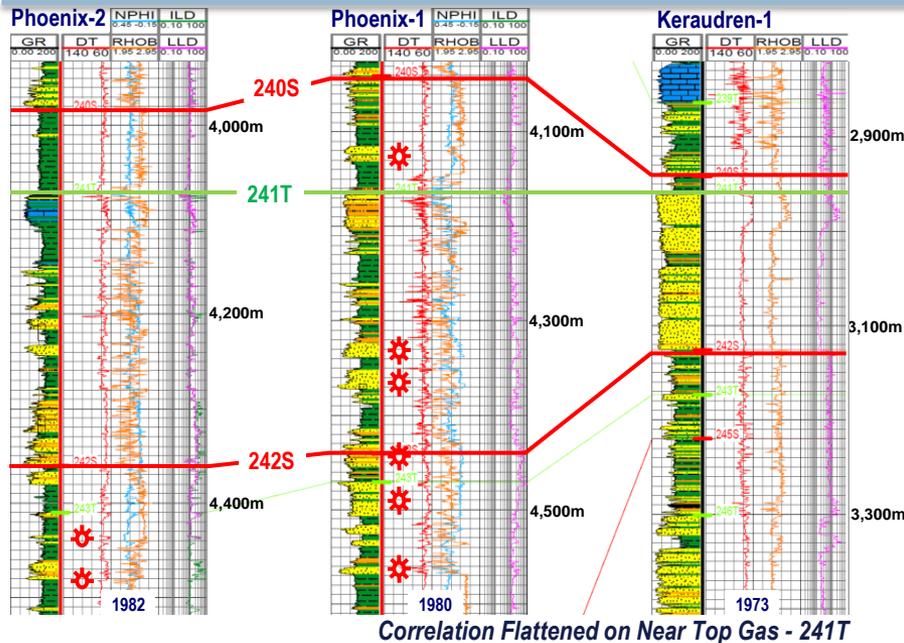


# **North West Shelf**

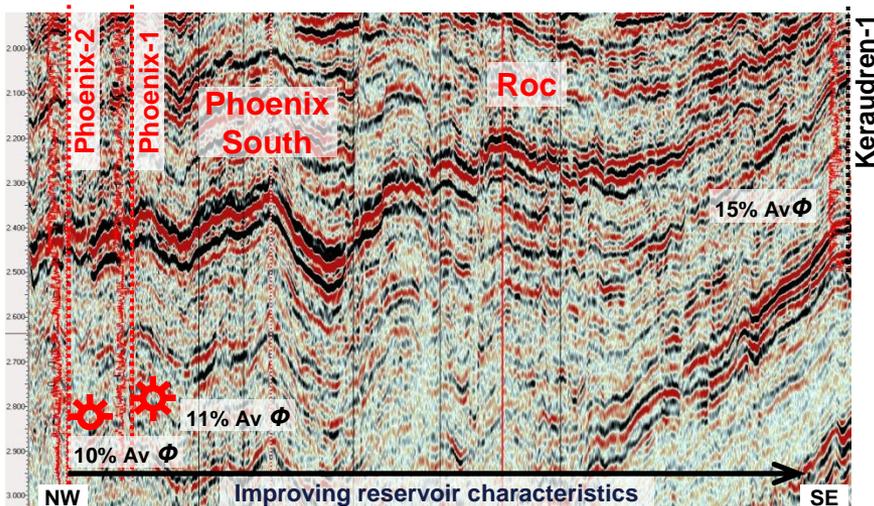
**WA-435-P & WA-437-P**

**(50% CVN)**

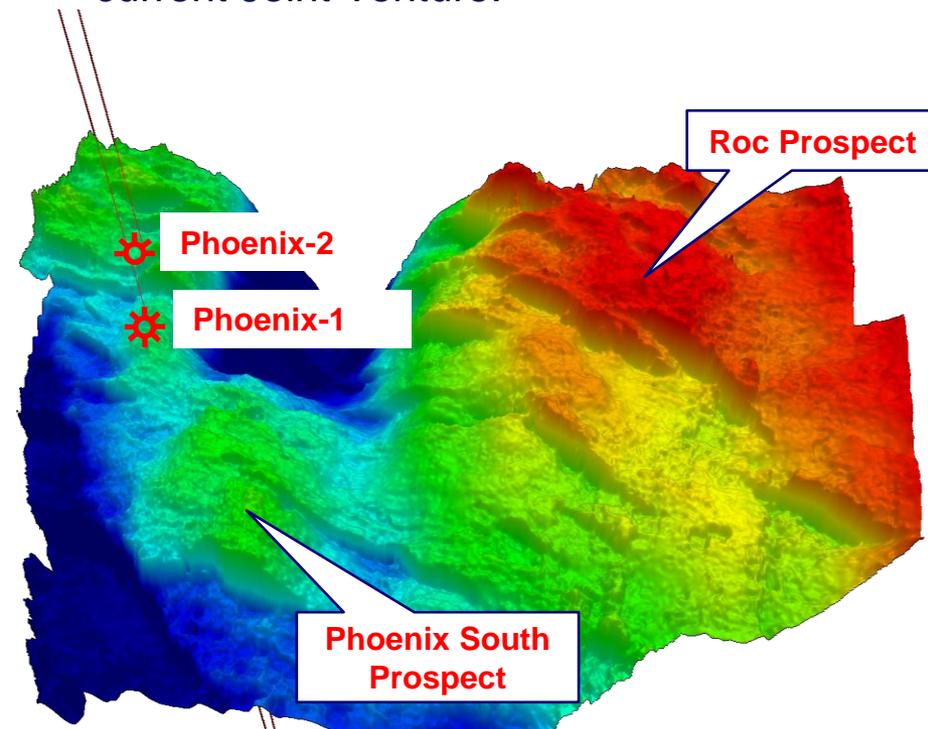
# Robust Phoenix South and Roc Prospects



- Prospects independently assessed by consulting firm ISIS from detailed technical work undertaken by the Joint Venture.
- Technical work incorporated well results from the Phoenix-1 gas discovery and modern 3D seismic data acquired by the current Joint Venture.



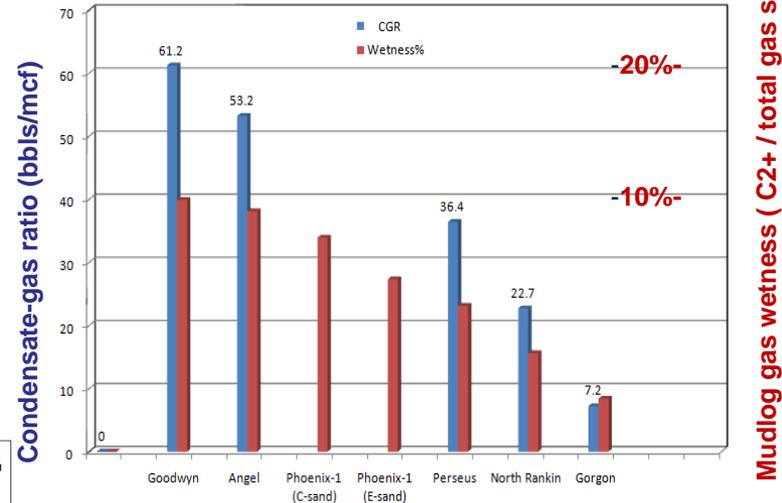
2010 Phoenix 3D/2D seismic data – courtesy of Fugro



Phoenix 3D seismic survey near top gas depth surface

# Significant Volumes

- **Proven Triassic gas resource with Gas Initially In Place (“GIIP”) estimate of 870 BCF (highside) at Phoenix-1.**
- **Prospect highside GIIP estimates for Phoenix South (~5.5 TCF) and Roc (~5.5 TCF).**
- **Potential for condensate (from gas wetness ratio) of 36-53 million bbls per TCF.**

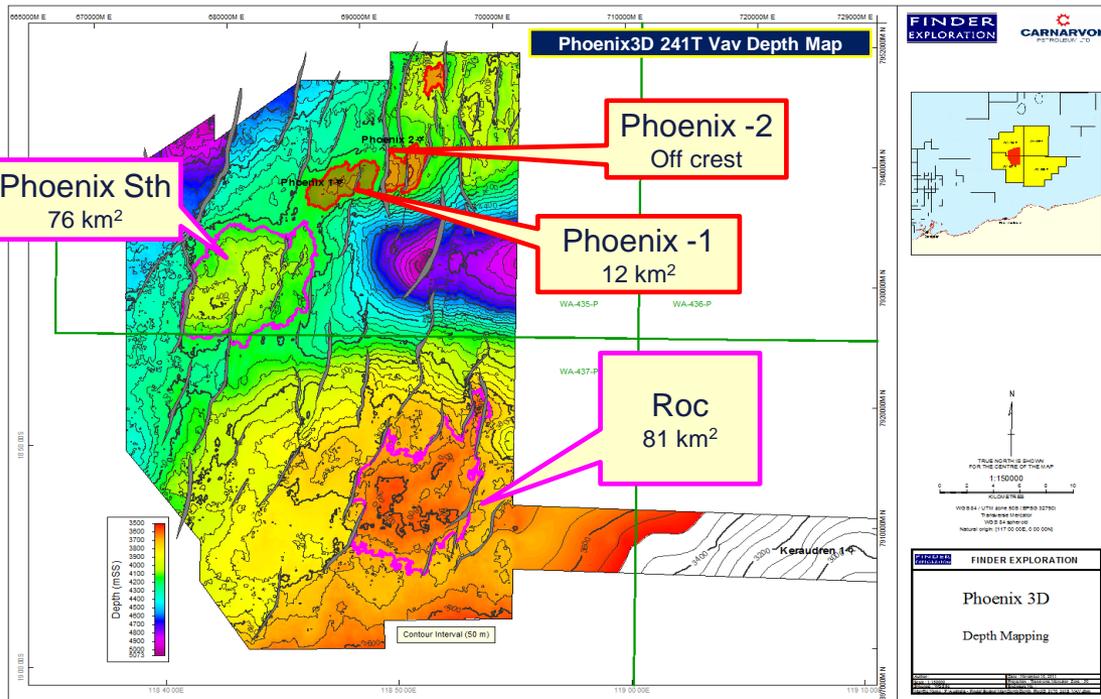


**Phoenix and NW Shelf Gas-condensate Fields\***

\*Source: WA govt cumulative field production @ 31 December 2010.

- Phoenix well mud logs indicate **presence of gas ‘wetness’**.
- Comparison with mudlogs from **condensate-rich NWS gas fields** suggests significant recovery of condensate likely.
- Best comparison of likely condensate / gas ratio is between **Perseus & Angel fields**.

Mudlog gas wetness ( C2+ / total gas stream )





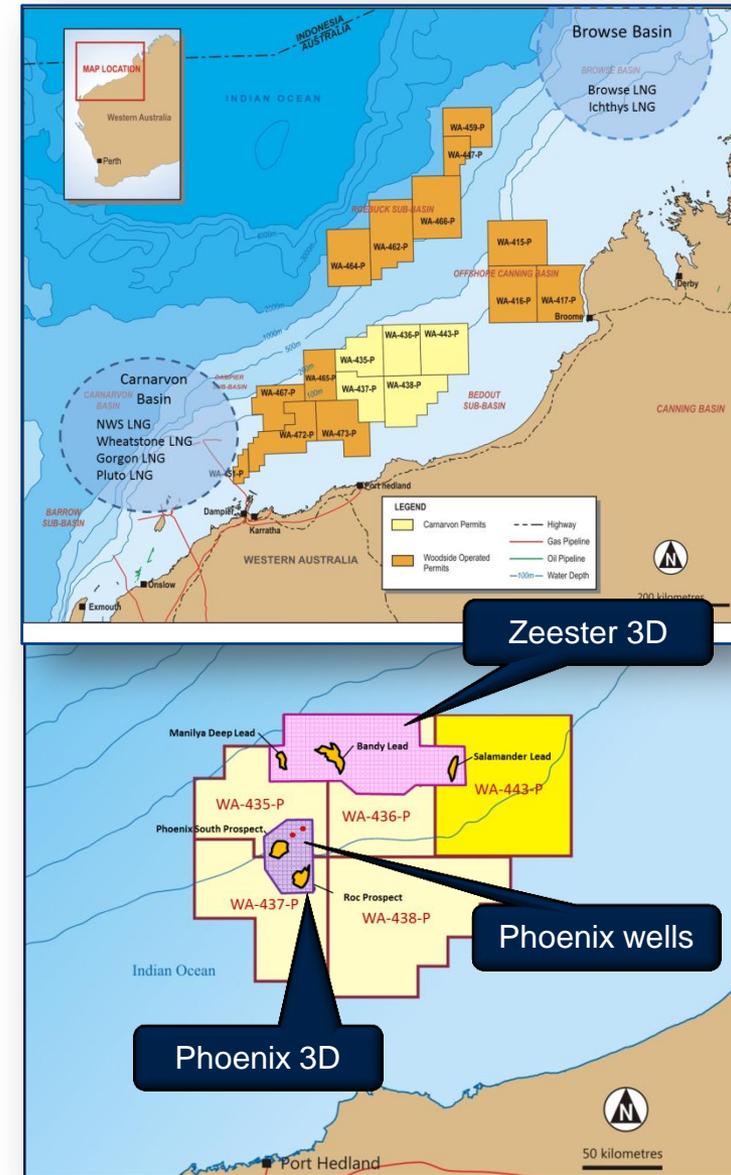
# **North West Shelf**

**(WA-436-P, WA-438-P & WA-443-P)**

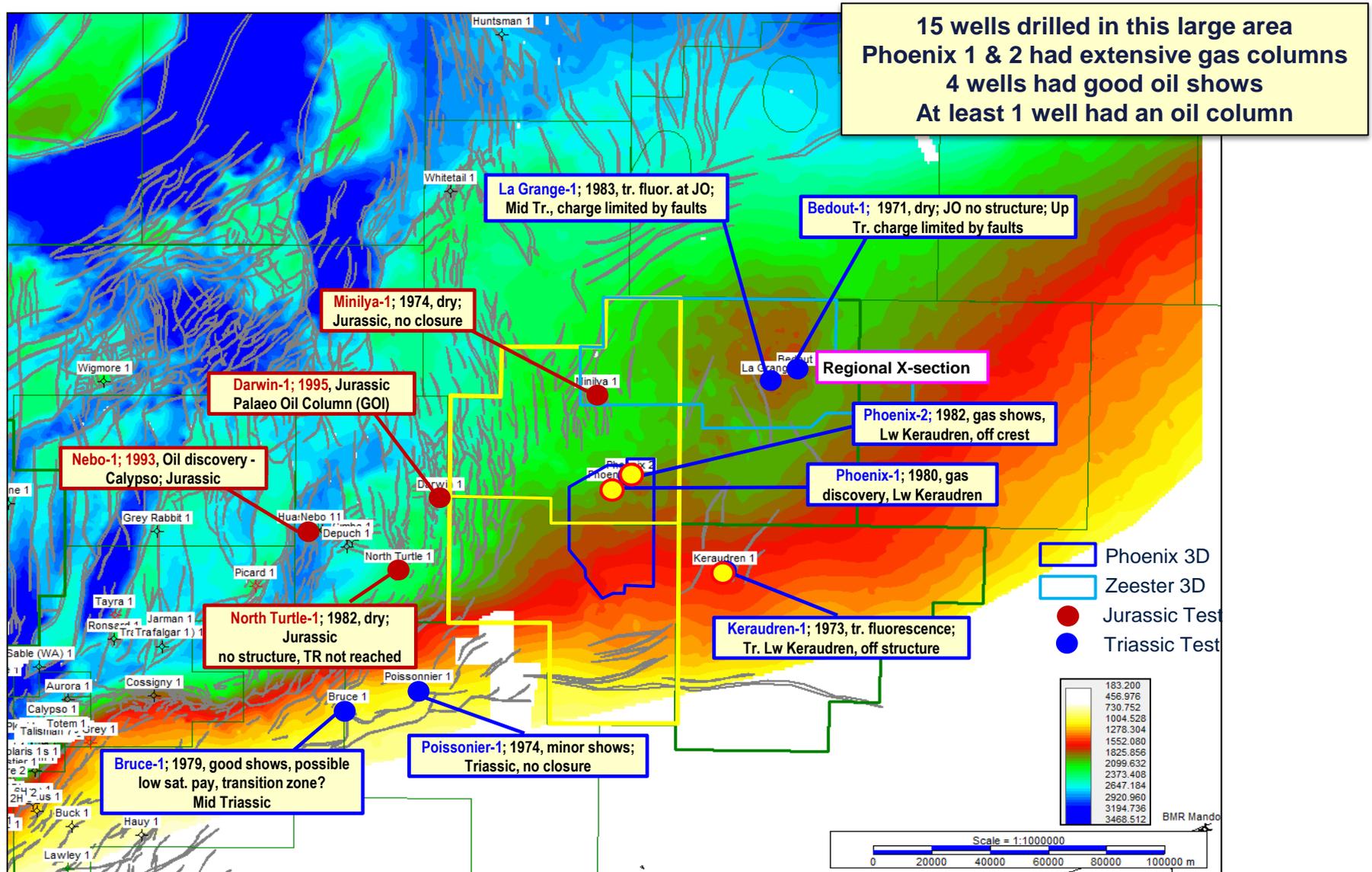
**(50% CVN except WA-443-P at 100% CVN)**

# The bigger potential

- Potential for new oil and gas fairway **between the Carnarvon and Browse Basins** on the North West Shelf.
- **Oil and gas has been discovered** in the area with gas in Carnarvon's WA-435-P permit and oil in the adjoining permit (namely in the Nebo-1 well in the WA-645-P).
- **Oil and gas majors** Woodside, Shell and Repsol have committed to acquire around 20,000 km<sup>2</sup> of new 3D seismic and drill 23 wells within the next five years.
- Carnarvon and its joint venture partner secured **28,000 km<sup>2</sup> on low commitments**.
- Exploration will **commence around the discovered gas** near the Phoenix wells and be expanded from there.
- **Zeester 3D seismic** data expected to set up the next stage of the exploration plan.

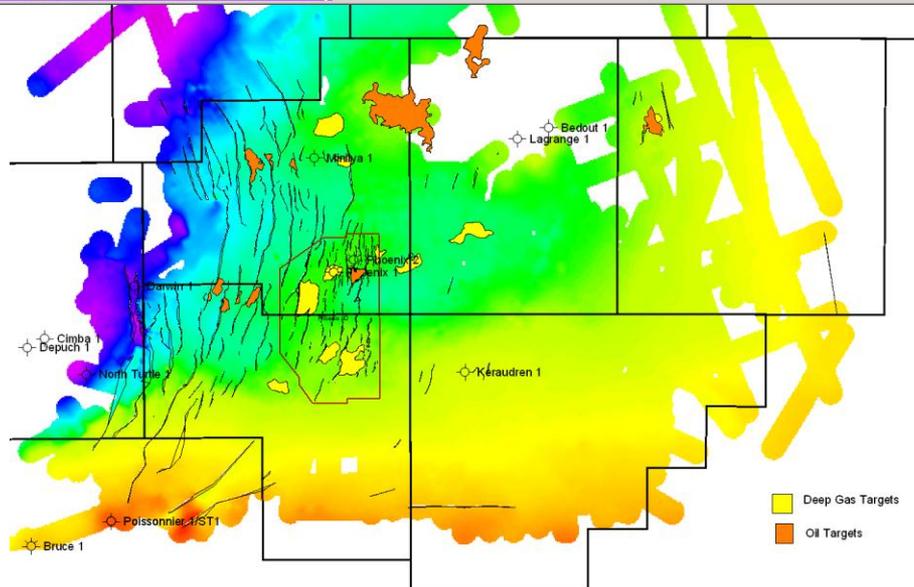
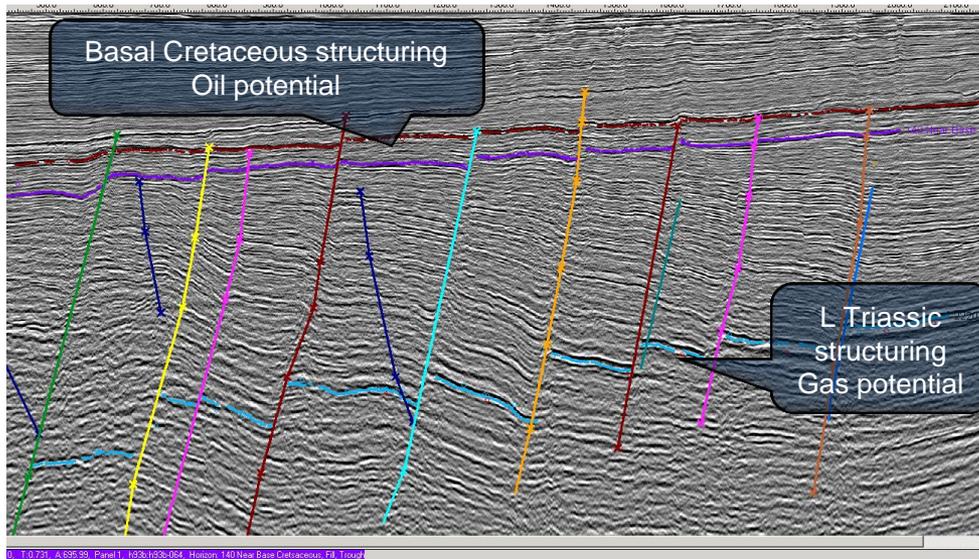


# Identifying significant oil potential



Regional Wells - JO Depth Map

# New data and technical work



- The Phoenix 3D and regional 2D data acquired in 2010 has provided **important new information**.
- **Significant oil shows** in regional wells drilled on 2D (are being reassessed and most were drilled off structure).
- **Numerous gas and oil structures** mapped on 2D
  - Phoenix 3D unlocking new oil and gas prospects
  - Zeester 3D will unlock potential in the north of the permits
- **Significant acreage** still to be tested outside of 3D areas



# Thailand

**L52/50 and L53/50**

**(50% CVN)**

# Onshore oil in Khian Sa Basin

Northern Chumphon Basin Schematic

Nang Nuan B-01

“Buried Hill” Permian Limestone Play (Nang Nuan Oil Field)

(Adapted From Thai Shell, 1994)

Interpreted line through Khian Sa Basin

“Buried Hill” Permian Limestone Play Interpretation

Seismic line location

- **Oil-focused blocks** on trend with the **oil-producing Chumphon Basin**, to the north in the Gulf of Thailand
- prospects contain greater than **20 million bbls (gross) recoverable oil**
- Khian Sa Basin is the **largest Tertiary basin** in southern Thailand.
- It is **under-explored**, with only two conventional exploration wells drilled.
- The Nang Nuan oil field, in the offshore Chumphon Basin, is a buried hill style of play, which produces from karsted **Permian limestone reservoir**.
- **4.3 mmbbls have been produced** from the Nang Nuan B-01 well at rates of up to 10,000 bopd.
- The Khian Sa Basin has a **similar basin architecture** to the Chumphon Basin.
- **Three robust prospects** have been identified within L52/50 and L53/50, of a similar play type, for which the Nang Nuan Field is an excellent analogue.

# Enhanced management team



- **Mr Adrian Cook – Chief Executive Officer**

- Commercially and financially qualified executive with over 25 years experience including as Managing Director of Buru Energy Limited, a senior executive in Clough Limited's oil and gas construction business and a member of the executive committee with ARC Energy Limited.



- **Mr Philip Huizenga – Chief Operating Officer**

- Petroleum Engineer with nearly 20 years in the oil and gas industry encompassing drilling, logging and production on offshore and remote locations throughout Asia and the Americas. Mr Huizenga is a member of the Industry Advisory Council to the Department of Petroleum Engineering at Curtin University.



- **Dr Stephen Molyneux – Exploration Manager**

- 20 years experience in exploration seismic interpretation and development geology. Dr Molyneux has worked for Origin Energy International New Ventures, Premier Oil Norway as Lead Geoscientist, Oilexco North Sea as Chief Geologist, PanCanadian and Enterprise Oil North Sea as an explorationist during which time he was a party to the discovery and development of more than 5 billion barrels of oil.



- **Mr Andrew Padman – Exploration Advisor**

- 36 years experience in the upstream petroleum exploration & production industry, working on new venture, exploration and exploitation projects in the sedimentary basins of S.E. Asia for companies including Exxon, Woodside Petroleum, Premier Oil, Newfield and ARC Energy

# Multiple upcoming catalysts

## Near Term

(by Dec 2012)

- **Increase oil production to 3,000 bopd gross**
  - 10 well sandstone development drilling program commenced with positive initial results
  - Well work overs & reintroduction of Agricultural Land Reform Office (“ALRO”) production
- **Phoenix farm out - to drill Phoenix South & Roc prospects**

## Mid Term

(by Dec 2013)

- **Execute Thailand oil field development plan**
  - Full field oil development plan expected early 2013
  - Incorporating igneous redevelopment, sandstone development, workovers, new technology
  - Multiple wells and new 3D seismic
- **Drill Phoenix South prospect**
- **Licence Zeester 3D data and farm-out next permit**

## Long Term

(Jan 2014+)

- **Increase oil production to 7,500 bopd gross (in line with GCA 2P production profile)**
  - Further potential from Thailand exploration – L33 & L44 and L52 & L53
  - Significant reserves aggregation
- **Drill Roc and other prospects in Phoenix acreage & Greater North West Shelf**

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