

# Quarterly Report



## September 2012 Quarter

## ASX: CVN

### Company

Carnarvon produces oil onshore Thailand and has an exploration and production focus in South East Asia and Australia.

### Capital

	<u>At 30 Sep. 12</u>	<u>At 30 Jun. 12</u>
Share price	\$0.098	\$0.105
Market capitalisation	\$68m	\$73m
Net cash / (debt)	\$3.0m*	\$7.6m
*\$15m successfully raised in October 2012		

### Reserves (net to CVN)

	<u>At 31 Dec. 11</u>
Proved (1P)	3.8 MMbbls
Proved & Probable (2P)	12.1 MMbbls
Proved, Probable & Possible (3P)	22.7 MMbbls

### Production (net to CVN)

	<u>30 Sep. 12 Qtr</u>	<u>30 Jun. 12 Qtr</u>
Production (bbls)	49,840	57,806
Average sale price (\$/bbl)	A\$95.67	A\$95.05
Net sales revenue (\$'m)	A\$4.77m	A\$5.49m

## SIGNIFICANT EVENTS SINCE 30 JUNE 2012

- ❖ **Phoenix Farmout** was executed with Apache and JX Nippon farming into the WA-435-P & WA-437-P blocks. Under the agreement Carnarvon will retain a 20% interest in the permits and receive free carry of drilling costs relating to the Phoenix South and the Roc exploration wells (Roc is contingent on result of Phoenix South well).
- ❖ **Development** of the WBEXT E sand based on the new Operator's revised mapping commenced post September 2012 quarter end with the spudding of the WBEXT-1G well
  - ❖ Revision being undertaken by new operator (commenced 17 June 2012)
  - ❖ Subsurface mapping of WBEXT E sand area revised following initial appraisal program
  - ❖ New mapping incorporates preliminary water flood design
- ❖ **Appraisal** of the volcanic in the WBEXT and Na Sanun areas continues
  - ❖ L44K-D exploration well encountered tight volcanic reservoir section but evidence of oil has encouraged operator to investigate alternative, cost effective method for production initiation from this and similar reservoir types
  - ❖ WBEXT-7B well encountered significant lost circulation and is currently testing
- ❖ **Net sales revenue** for the quarter of A\$4.77MM was, impacted by shut-in production.
  - ❖ Negotiations with the Agricultural Land Reform Office (ALRO) of the Government of Thailand to allow resumption of shut-in wells (around 465 BOPD gross at time of shut-in) continues to progress towards resolution, with final meetings expected to take place in November 2012.
- ❖ **Successful capital raising** of \$15m achieved in October 2012.
  - ❖ Share Purchase Plan to raise up to an additional \$5m.

## SANDSTONE OIL DEVELOPMENT IN THAILAND

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Carnarvon has a 40% non-operated interest in oil production activities in Thailand from Concessions L33/43, L44/43 and SW1A.

Hong Kong and China Gas Company Limited (“Towngas”) assumed operatorship of the producing onshore Thailand assets following the acquisition of Pan Orient Energy’s 60% interest in L44/43, L33/43 and SW1A concessions by Towngas subsidiary ECO Environmental Investments (“ECO”) on 17 June 2012.

Following the approval on 25 July 2012 of the Environmental Impact Assessment (“EIA”) for the WBEXT development, drilling commenced on 26 July 2012 with the previous operator’s work program, including subsurface maps and interpretations.

The first WBEXT well, WBEXT-5C, was drilled in the centre of the defined reservoir and flowed at around 120 BOPD. The following two wells were to appraise the reservoir with WBEXT-6A identifying gas with associated oil flows of up to 30 BOPD and the WBEXT-5B well intersected poorly developed sandstone, achieving modest rates of 40 BOPD but defining the extent of the reservoir. All three wells have further sandstone zones that are yet to be tested.

While these results were being incorporated into the n Operator’s revised mapping and development plans, drilling continued with exploration and volcanic appraisal wells at L44K-D and NSE-F9ST1. The results from these wells indicated thick volcanic sections interpreted to potentially contain oil but subsequent testing confirmed tight reservoir sections or flowing of promising but ultimately sub-commercial oil.

An interim well into the WBEXT sandstone area was drilled to further appraise the sandstones with a view to developing a waterflood development plan. This well, WBEXT-1DST3, successfully encountered several sand packages and these are being consecutively perforated and tested to fully understand the extent of the different reservoirs. Flows of up to 75 BOPD from the second of up to four zones have been achieved in this well. Ongoing testing will require zones to be isolated during each testing phase. Further zones are still to be perforated and flow tested.

While the results from this well were incorporated into the sandstone development plan, drilling continued in volcanic appraisal with the WBEXT-7B well. The WBEXT-7B and planned side track WBEXT-7BST1, encountered significant losses, an indication of permeable reservoir section, and testing has commenced. To date around 2,500 bbls of fluids have been recovered, interpreted to be 100% water, at rates of up to 1,000 BWPD, of the total lost fluids of approximately 4,200 bbls. Testing will continue over the following week.

The revised subsurface structure maps, incorporating new well locations and plans for water flooding to maintain 1,000 BOPD from the WBEXT “E” sand reservoir, was completed mid-October and approved by the joint venture shortly thereafter,

The initial well based on the revised development plan, WBEXT-1G, spudded 17 October 2012 and at the time of writing is nearing completion.

Three other sandstone development wells are currently scheduled for completion by mid November 2012, at which point production from the E sand should be around 500 BOPD.

Four to five other drilling locations have been identified on the revised mapping to bring production from the E sand up to 1,000 BOPD, and water injection will follow to sustain production from this sand at these levels. However, heavy rains have delayed the building of some well pads.

## **VOLCANIC OIL DEVELOPMENT IN THAILAND**

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Towngas has assembled a specialised technical team to review past volcanic well results. This team has direct experience in similar reservoirs in onshore China.

Results are still being compiled, but preliminary interpretation suggests that applying techniques that have been successful in those reservoirs would result in production being achieved from these tight but oil prone reservoir sections. Techniques being investigated include mini-fracturing, whereby tight reservoir horizons can be fractured to allow access to the oil zone for a cost of around \$100,000 to \$200,000 per well.

## **SHUT-IN PRODUCTION WELLS IN THAILAND**

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As previously noted, a series of wells in the Bo Rang North area were shut-in as of 2 May 2012 while clarification was sought from (“ALRO”). At the time these wells were shut-in, the combined production was around 465 BOPD gross. These wells exhibit unique production characteristics compared to wells in the Na Sanun East Central reservoir, in that they have been on gradual natural decline with minimal water ingress. These characteristics are a result of the localised subsurface area being dominated by a volcanic dome. Connection to the underlying aquifer is by edge drive rather than more usual bottom drive.

It is anticipated that upon recommencement of production these wells will exhibit initial flush production at higher rates than when shut-in due to pressure recharge. Examples of this are the Bo Rang-1 and Bo Rang-2 wells, both are within the ALRO area. At times over the 3-4 year life of these wells they were necessarily shut-in. From previous rates of 50-100 bopd, after shut-in periods of 1 to 3 months these wells resumed production at around 10 times shut-in rates, for a number of weeks before resumption of previous decline rates.

Discussions with ALRO to recommence production from these wells are continuing. Interim meetings with ALRO have concluded successfully and final resolution is anticipated by November 2012, with the wells expected to come onstream at higher rates than when shut-in.

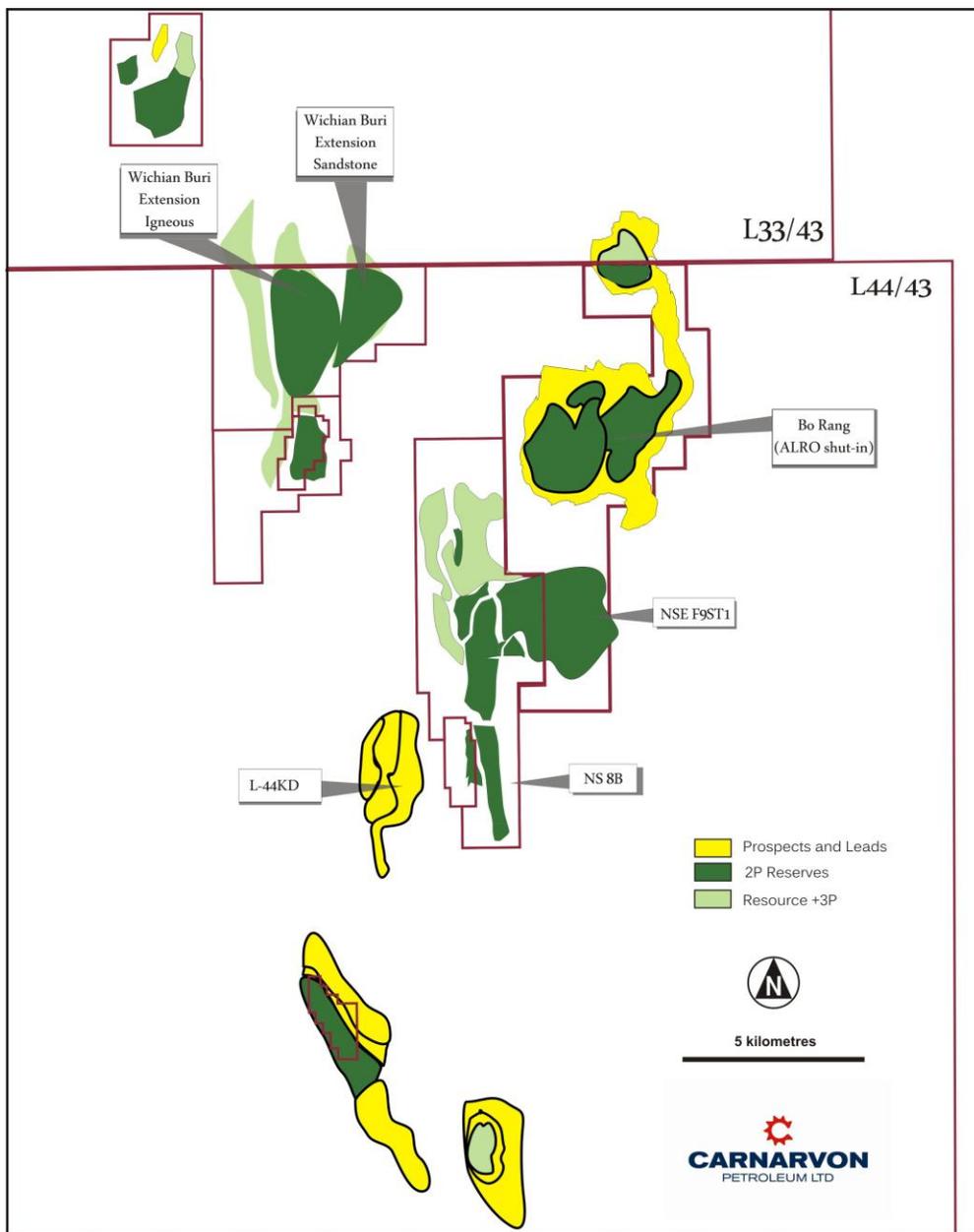
These wells were shut-in for the whole quarter, primarily contributing to the decrease in quarter on quarter production.

# PRODUCTION IN THAILAND

Oil production continues to be limited by a shut-in of several wells in the Bo Rang area and the delay to the commencement of the WBEXT E sand oil field development due to the revision of the development plan area, both as discussed above.

Due to the continuous appraisal program initiated by the new operator, wells drilled during the quarter did not significantly add to the overall production rate but they did add extensively to the knowledge and understanding of the reservoirs, particularly the WBEXT E sand and the tight volcanic structures.

The operator has maintained its forecast for end 2012 production rates of around 3,000 BOPD gross, and Carnarvon's technical assessment is that with the planned WBEXT E sand development, recommencement of ALRO production, and implementation of further initiatives to allow production from tight volcanic reservoirs, this level of production is achievable.



## EXPLORATION IN THAILAND

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### (a) L20/50 Concession – Thailand

(Carnarvon Petroleum 55% and Operator, Sun Resources 45%)

To date the technical work on the L20/50 concession has been encouraging for oil exploration; the data indicate that the generation of hydrocarbons is likely within the basin and several structures have been identified from existing 2D seismic data. Carnarvon has decided to farmout the permit on behalf of the joint venture, allowing the current joint venture parties to benefit from continuing exploration within the concession while limiting exploration, appraisal and development expenditure.

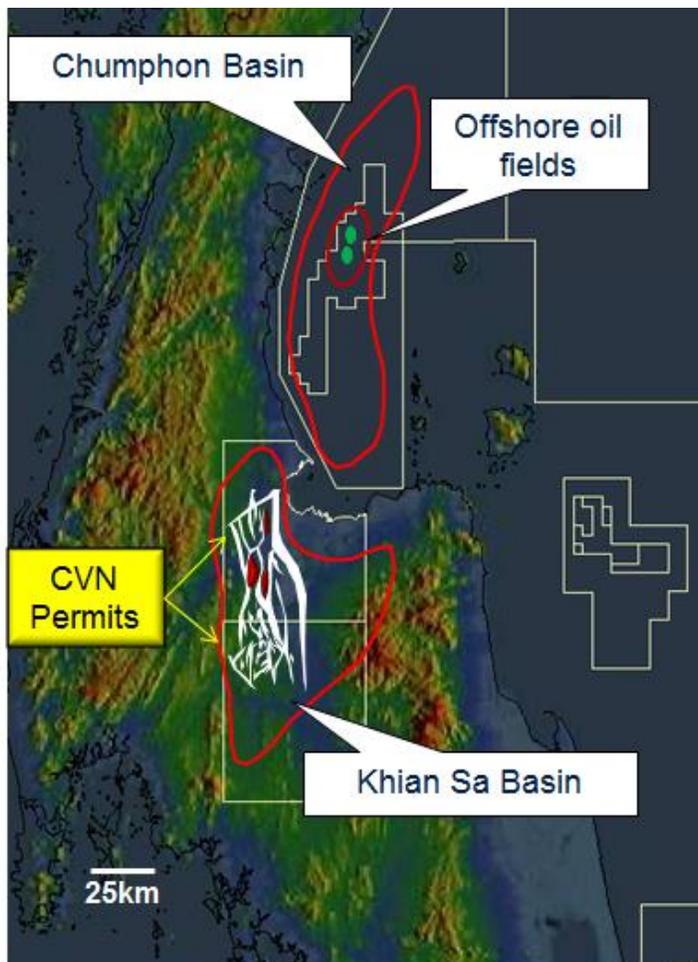
The joint venture has entered into farmout negotiations. Carnarvon expects to farmout the concession for an overriding royalty and bonus payments to the existing joint venture parties upon commercial discovery.

### (b) L52/50 & L53/50 Concessions - Thailand

(Carnarvon Petroleum 50%, Mubadala Energy 50% and Operator)

The technical work completed thus far indicates that the basin may be analogous to the geological structures producing from the offshore Chumphon Basin, with several large structures having been identified and supporting further exploration activities.

The joint venture continued farm-out activities throughout the quarter to assist in the funding of further exploration activities in the blocks.



## EXPLORATION IN AUSTRALIA

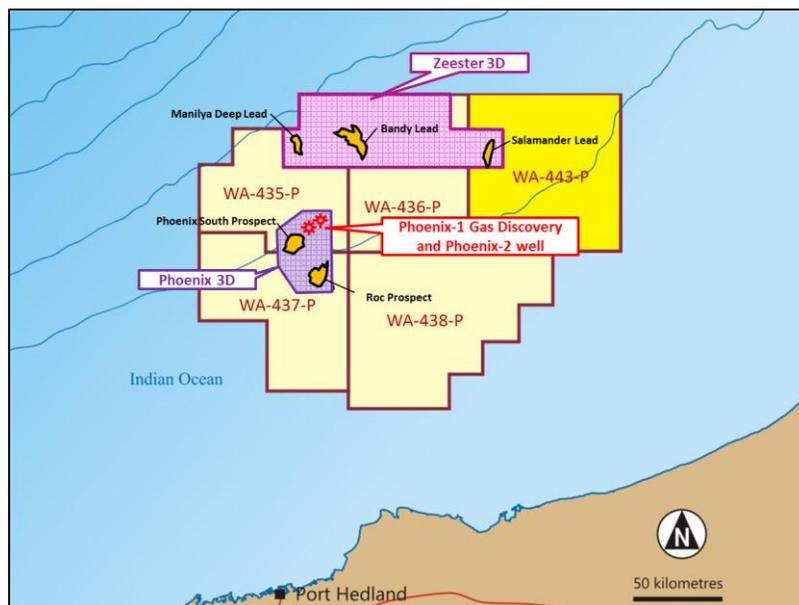
### (a) WA-435-P and WA-437-P – Australia Offshore NW Shelf

(Carnarvon Petroleum 20%, FINDER Exploration 20%, JX Nippon 20%, Apache 40% and Operator)

Post the September 2012 quarter the joint venture completed a farmout of the Phoenix blocks, WA-435-P & WA-437-P, to Apache and JX Nippon. Under the arrangement, Apache will acquire a 40% interest and become operator and JX Nippon will acquire a 20% interest. Carnarvon and FINDER will each retain a 20% interest. The farminees will cover the cost of drilling the Phoenix South prospect (firm) and the Roc Prospect (contingent on the results of Phoenix South well).

The Phoenix South prospect will target gas in lower Triassic reservoirs and will be drilled to a minimum depth of 4,500 metres. The Roc prospect will also target gas in the lower Triassic and will be drilled to a minimum depth of 4,000 metres. All parties to the joint venture will agree the final depth of each well once well planning work commences.

Each prospect has been estimated, by Carnarvon and FINDER, to have the potential to contain multi Tcf's of recoverable gas and significant associated volumes of liquids. The prospects are in the immediate vicinity of the Phoenix-1 gas discovery.



### (b) WA-436-P and WA-438-P – Australia Offshore NW Shelf

(Carnarvon Petroleum 50%, FINDER Exploration 50% and Operator)

The WA-436-P and WA-438-P permits are adjacent to the Phoenix blocks farmed out to Apache and JX Nippon. The joint venture will continue to interpret the existing data, including the Zeester 3D survey, and progress to farmout the permits similar to the farmout of the Phoenix blocks.

### (c) WA-443-P – Australia Offshore NW Shelf

(Carnarvon Petroleum 100% and Operator)

The multi-client 3D seismic survey being undertaken across WA-435-P and WA-437-P also extends into WA-443-P. The seismic acquisition covered the Salamander lead, identified in a regional technical review, in the north-western section of the block.

Geological and geophysical studies are currently being carried out on this block in conjunction with similar work in the adjacent permits.

**(d) WA-399-P – Australia Offshore NW Shelf**

(Carnarvon Petroleum 13%, Apache Energy Limited 60% and Operator, Jacka Resources 15% and Rialto Energy 12%)

The Operator previously presented its technical work undertaken to date, including the interpretation and analysis of the “Gazelle” 3D seismic data. The work supports several prospects and leads in the permit that requires further review. The joint venture also approved making an application to the Government to defer the drilling commitment by 12 months to allow further technical and commercial work to be undertaken. This will include an assessment of the potential to co-ordinate activities and resources with other permits in the region operated by Apache.

## **CORPORATE/FINANCIAL**

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Carnarvon’s consolidated cash at the end of the September 2012 quarter was \$3.0 million, compared to \$7.6 million at the end of the previous quarter. These balances include cash held as security in relation to bank guarantees and minimum cash holding requirements by Thailand authorities. As at 30 September 2012 cash held as security in relation to bank guarantees and minimum cash holding requirements by Thailand authorities was \$0.9 million.

Net revenue for the quarter was \$4.8 million on 49,840 bbls of oil produced, generating an operating cash flow before tax of \$3.0 million from the L44/33 and L33/43 Concessions in Thailand.

Separate from the above, \$5.1 million was spent on drilling activities in the L44/33 and L33/43 Concessions in Thailand, \$1.2 million on technical, new ventures and corporate costs and \$1.3 million was paid in taxes to the Thailand government.

Subsequent to the end of the September quarter Carnarvon raised \$15.0 million by way of a placement of approximately 182.9 million new ordinary shares at a price of \$0.082 per share. The placement was in two tranches; the first tranche of approximately 102.9 shares settled on 12 October 2012; the second tranche of 80.0m shares is conditional on shareholder approval, which is to be sought at the Annual General Meeting to be held on 16 November 2012.

Carnarvon also announce a Share Purchase Plan of up to A\$15,000 per shareholder at the same price as the placement, capped at A\$5 million.

## Abbreviations

<b>API</b>	American Petroleum Institute gravity measure
<b>A\$</b>	Australian dollars
<b>Bopd</b>	Barrels of oil per day
<b>Bwpd</b>	Barrels of water per day
<b>Bbls</b>	Barrels of oil
<b>CVN</b>	Carnarvon Petroleum Limited
<b>DMF</b>	Department of Mineral Fuels Thailand
<b>JV</b>	Joint Venture
<b>Km</b>	Kilometres
<b>Km<sup>2</sup></b>	Square kilometres
<b>m</b>	Millions
<b>Qtr</b>	Quarter
<b>TVD</b>	True vertical depth
<b>Tcf</b>	Trillion cubic feet (gas)
<b>2D</b>	Two dimension seismic data
<b>3D</b>	Three dimensional seismic data
<b>WBEXT</b>	Wichian Buri field extension area
<b>NS</b>	Na Sanun field area
<b>NSE</b>	Na Sanun East field area
<b>NSE-F1</b>	Extension of NSE
<b>NSW</b>	Na Sanun West field area
<b>WBV</b>	Wichian Buri volcanic reservoir in which there are three key volcanic zones
<b>L33</b>	L33/43 exploration Concession which is to the north of the L44/43 exploration Concession
<b>ST</b>	Sidetrack well
<b>SW1A</b>	This is a small exploration Concession within the larger L44/43 exploration Concession
<b>Tcf</b>	Trillion Cubic Feet