

Carnarvon Petroleum Ltd

(CVN \$0.625) Buy – Upgrade from Speculative Buy

EUROZ

Analyst	Date	Price Target
Jon Bishop	8 th August 2018	\$1.00/sh

Oil Discovery at Dorado-1

Investment case

Dorado is a material oil discovery and one of the largest ever in Australian waters. Moreover, the Oil Water Contact (“OWC”) has not been encountered in the uppermost Caley lowermost Milne reservoirs and had drilled through an additional 40m net oil pay. What we like is that oil discoveries in shallow water and benign jurisdictions have relatively low barriers to commercialisation. Recovering oil prices are stimulating permitting and M&A activity in the E&P industry: this result will clearly shine a corporate spotlight on CVN. The WPL transaction with Finder Exploration is a good example and we believe similar moves are afoot particularly focused on the Dampier Sub-Basin and emerging Triassic play that CVN and Quadrant have identified at the Phoenix Hub. We upgrade to a Buy recommendation, with an increased Valuation of \$0.84, and a \$1/sh Price Target believing that CVN has made a commercial oil discovery in the NWS, will likely define a second gas condensate development with success at Phoenix South-3 and can also take the Buffalo oil project through to commercialisation.

Key points

- Wireline has confirmed an additional oil discovery within the Secondary Crespin and Milne Sandstone reservoirs at the Dorado-1 location;
- Results have confirmed:
 - Net oil pay of 40m;
 - Highly porous (Crespin 14%/ Milne 13% avg.) reservoir;
 - Resistivity supportive of excellent permeability;
 - Total hydrocarbon net pay now 132 metres in the Dorado-1 well.
- The secondary targets of Crespin and Milne is mapped to contain P50 gross mean volumes of 125mmmbbl (CVN – 20%), comprising 67mbbls condensate and 1386Bcf gas;
- The Caley, Baxter and Milne sands did not encounter any water, whereas the lower section of the Crespin sand contains an interpreted water contact.
- We note preliminary rock characteristics have exceeded pre-drill expectations, placing an upside bias to Dorado volumetrics;
- Volumetric estimates will take circa 4 weeks to compile after the completion of the well following this announcement;
- We upgrade our Recommendation to a Buy (prev. Spec Buy), with a Price Target and Valuation of \$1.00/sh (prev. \$0.50) and \$0.84/sh (prev.\$0.44) respectively.
- We look to the nearest peer in FAR as a relevant comparison, noting that the market ascribes A\$9/bbl for its net (post Govt carry) 2C discovered 70mmmbbls contingent resource;
- What we like about an oil discovery as the commercialisation pathway is much simpler. We look to recent adjacent fields in Wanaea-Cossack, Mutineer-Exeter and Legendre as yardsticks:
 - Wanaea-Cossack – FID taken on 60mmmbbls 2P gross;
 - Mutineer-Exeter – FID taken on 61mmmbbls 2P gross;
 - Legendre – FID taken on 40mmmbbls 2P gross;
- Notably, all took less than 5yrs from appraisal to first oil.

Carnarvon Petroleum Ltd	Year End 30 June	
Share Price	\$0.625	A\$/sh
Issued Capital		
FP Ord	1,189.9	m
Opt @ var prices	1.0	m
Rights @ var prices	-	m
Total Dil. FPOrd	1,190.9	m
Market Capitalisation	\$725	m
Enterprise Value	\$675	m
Debt	\$-	m
Cash	\$50.0	m

Directors

Chair	P Leonhardt
MD	A Cook
NE Dir	W Foster
NE Dir	P Moore

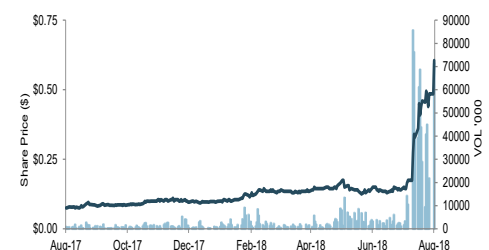
Shareholders

Mgmt	-6%
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Company details

76 Kings Park rd
West Perth, 6005
Western Australia
Telephone: +61 8 9321 2665
Facsimile: +61 8 9321 8867
www.carnarvon.com.au

Share Price Chart



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Analysis

Dorado appears a material oil discovery with clear standalone potential.

Moreover, the OWC has not yet been encountered and noting that the well continues to drill through oil shows in underlying potential reservoir, it suggests to us that there is a clear upward bias to pre-drill volumetric estimates.

What we like is that oil discoveries in shallow water and benign jurisdictions, such as the established oil and gas “Super-basins” of the North West Shelf, have relatively low barriers to commercialisation.

We look to recent adjacent fields in Wanaea-Cossack, Mutineer-Exeter and Legendre as yardsticks.

Wanaea-Cossack (<https://www.onepetro.org/conference-paper/SPE-22986-MS>):

- Discovery in Jan 1990;
- FID taken on 60mmbbls 2P gross;
- Commissioned in 1995 @ 50,000bbls/d;

Mutineer-Exeter (<https://www.ogj.com/articles/2005/02/mutineer-exeterreserves-revised-production-sped.html>):

- Mutineer discovered in 1997, Exeter in 2003;
- FID taken on 61mmbbls 2P gross;
- Commissioned in 2005 @ 100,000bbls/d;

Legendre (<https://www.santos.com/media-centre/announcements/approvalfor-legendre-development/>; <https://www.ogj.com/articles/2010/10/legendre-oilfield.html>):

- Discovered in 1968;
- Appraised and extended in 1997;
- FID taken on 40mmbbls 2P gross;
- Commissioned in 2001 @ 45,000bbls/d;

Notably, all took less than 5yrs from appraisal to first oil.

IMPACT TO VALUATION & PRICE TARGET

Our Valuation inc to \$0.84/sh (prev. \$0.44/sh);

ASSET VALUATION		
	A\$m	A\$/sh
Phoenix-Roc (net -20mmbboe 2C)	100	0.10
Dorado (35mmbbls net est.)	525	0.53
Buffalo (risked to 10%)	33	0.03
Exploration - other	150	0.15
Corporate	-14	-0.01
Unpaid Capital	0.2	0.00
Debt	0.0	0.00
Cash est.	50	0.05
Total	844	0.84
Price Target		1.00

We set a higher Price Target of \$1.00/sh (prev. \$0.50/sh) as we are bullish on the opportunity CVN presents in the short to medium term:

- Imminent results from the high impact appraisal well at Phoenix South-3;
- Upward bias on Dorado volumetrics;
- A material oil development opportunity at Buffalo emerging;
- Multiple farm-down/corporate opportunities;

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Our Valuation takes into consideration the nearest peer in FAR as a relevant comparison, noting that the market ascribes ~A\$9bbl for its net (post Govt carry) 2C discovered 70mmbbls contingent resource.

We now ascribe a higher A\$15/bbl (prev. \$10/bbl) to the pre-drill volumetric est. for the both Dorado oil discoveries (~35mmbboe net to CVN = \$525m or 53cps) given:

- Additional oil discovery adds further commercial value;
- The jurisdiction of CVN's assets;
- Shallow water development;
- The simplicity of the Joint Venture;
- The commercial motivations of the JVP in Quadrant;
- The relative geological simplicity of the Primary Reservoir; and –
- The likely shorter lead time to commercialisation as a consequence.

We apply a more conservative A\$5/boe to CVN's current 2C resources discovered at Roc and Phoenix (net ~20mmbboe = A\$100m or 10cps).

These numbers are notably pre any discovery at Phoenix South-3:

Prospective Within 25km	Gas Resource (Bscf)				Condensate / Oil Resource (mm bbls)				Geological Success
	Mean	P90	P50	P10	Mean	P90	P50	P10	
Phoenix South-2 & 3 wells - Caley	489	128	401	963	57	11	39	122	71%
Dorado-1 well - Caley	545	59	338	1260	32	3	17	75	36%
Total	1034	187	739	2223	88	13	56	197	

We contest that in a discovery case at Phoenix South-3, assuming the pre-drill potential for 29mmbboe net or 150mmbboe P50 est) should reprice the existing Contingent Resources as the effective doubling of recoverable volumes would go a long way to justifying standalone development.

The upside for Dorado is eye-watering in a success case: both primary Caley and secondary Baxter/Crespin/Milne targets have discovered oil/gas-cond. Rock characteristics have exceeded pre-drill expectations, increasing the potential for volumetric upside.

Prospective Within 25km	Gas Resource (Bscf)				Condensate / Oil Resource (mm bbls)				Geological Success
	Mean	P90	P50	P10	Mean	P90	P50	P10	
Dorado-1 well - Milne A	429	46	266	1016	25	2	13	60	23%
Dorado-1 well - Milne B	438	37	295	1025	25	2	14	61	23%
Dorado-1 well - Milne C	565	82	416	1248	33	4	20	75	23%
Dorado-1 well - Milne D	555	52	409	1251	32	2	19	76	23%
Total	1987	216	1386	4540	115	9	67	271	

We est. cash at \$50m (5cps) and broader exploration portfolio at \$150m (15cps). We consider a regional stratigraphic trap may underpin Dorado and Roc discoveries and additional targets will eventuate.

And in all this, the potential development of 30mmbbls of oil at Buffalo should not be overlooked:

Resource (2C mmbbls)	31
Field Life (Yrs)	5
Capex (US\$m)	150
Opex (US\$m/yr)	90
Abandonment (US\$m est.)	40
Operating Margin @ Spot (US\$/bbl)	52
Revenue Gross (US\$m @ spot)	2,263
EBITDA Gross (US\$m @ spot)	1,643
Contractor Take (est. 40%)	657
NPV10 (US\$m pre-tax)	245
NPV10 (A\$m pre-tax)	326
IRR (%)	82

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We include 10% of our back of the envelope economic assessment of a Buffalo Development (for \$33m or 3cps) in our total Valuation.

All this taken into account, we still view our Valuation as largely cosmetic: Given the further success at Dorado, and imminent Phoenix South-3 results, the Phoenix Hub will become a viable economic standalone development.

This alone should drive a substantial re-rating of the Company's share price.

Beyond which, commercial progress at Buffalo and/or success at Dorado are Company makers in their own right.

Outside of which, given the open register and material interests in both Phoenix Hub plus Buffalo, there appears little to dissuade corporate approaches in a sector buoyed by rising commodity periods and a 4yr hiatus in terms of field development and exploration.

We note that with the rising oil price, the E&P industry – dormant for the past 3 years – is seeking to re-invigorate its new ventures' portfolios (<http://www.finderexp.com/wp-content/uploads/2017/09/Media-Release-WA-520-P-Finder-Woodside-Farmin-1-Sept-2017-Final.pdf>).

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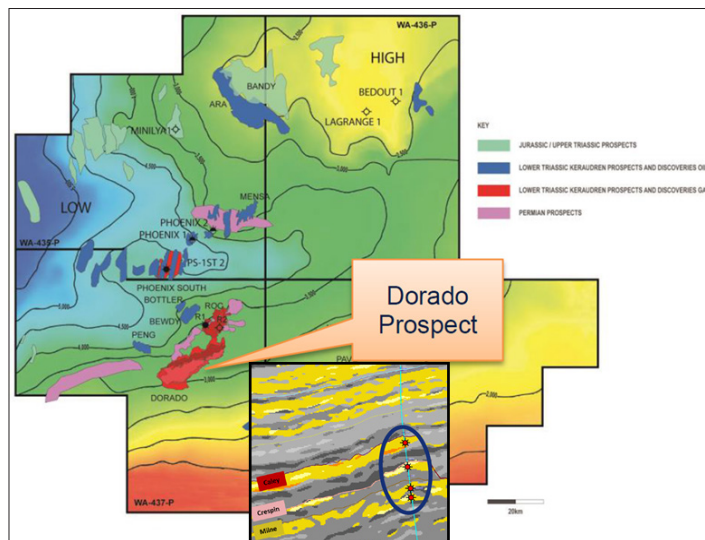
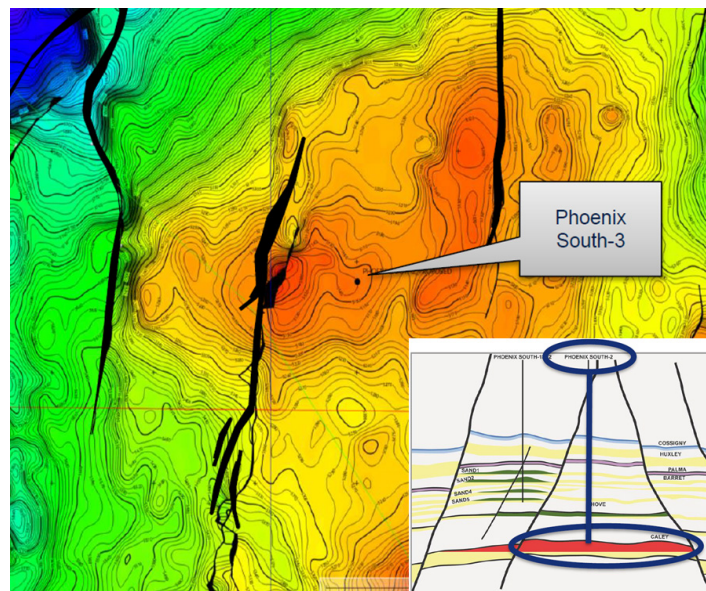
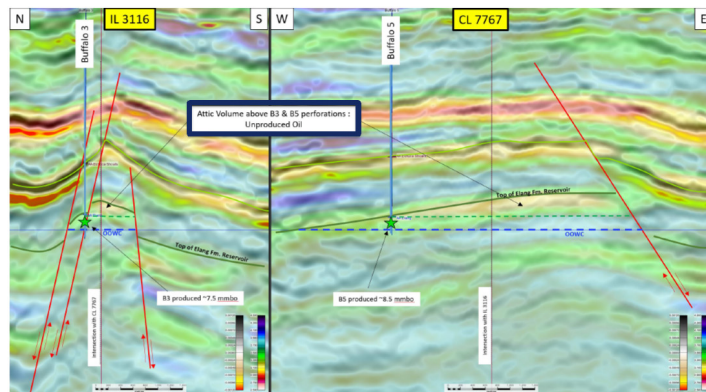
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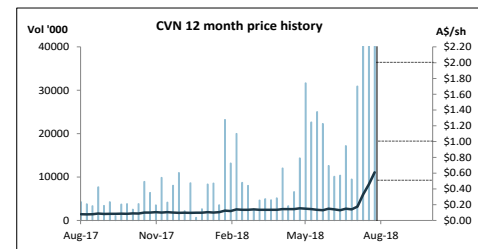
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Key Variables

Euroz Forecast	FY'18	FY'19	FY'20	FY'21	FY'22	FY'23
Brent US\$/bbl	\$64	\$78	\$85	\$85	\$85	\$85
WTI US\$/bbl	\$59	\$68	\$75	\$80	\$80	\$80
AUDUSD	\$0.78	\$0.76	\$0.76	\$0.78	\$0.78	\$0.78



Our Share Price Sensitivity



Our Market Sensitivity

Valuation - \$0.84/sh

Price Target - \$1.00/sh

Bull Scenario - \$2.00/sh

CVN find additional Dorado or sister oil discoveries. Oil prices continue to rise beyond our long term US\$80/bbl WTI forecast from 2022. High oil price attracts greater opportunistic interest for JV farm-in and debt funding, enabling project development of Buffalo and Labrynth prospects.

Base Scenario - \$1.00/sh

Oil prices trend gradually towards our long term oil price assumption of US\$80/bbl from 2022. CVN have leveraged themselves by exploring undeveloped oil prospects and readying them for M&A opportunities.

Bear Scenario - \$0.50/sh

Oil prices fall to below US\$50/bbl over the medium to long term. Funding for prospect development diminishes. Projects remain idle.

Company Summary

Carnarvon Petroleum Ltd (CVN) is an oil and gas exploration and development company. CVN has secured multiple assets and acreage on the North West Shelf, developing with the aim to attract farm-in or acquisitions.

Drilling campaigns of Phoenix Sth-3 and Dorado-1 represent near-term catalysts for CVN to trade upwards.

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Contact Details

Euroz Securities Limited +61 8 9488 1400

International Toll Free

(If calling to Euroz from the following Countries)

Germany	0800 1800 554
Switzerland	0800 835 385
Hong Kong	800 900 936
Malaysia	1800 805 002
Singapore	800 6161 759
New Zealand	0800 441 271
USA	18 772 804 390
United Kingdom	08 000 929 851

Research Analysts

Jon Bishop - Head of Research	+61 8 9488 1481
Andrew Clayton - Resources Analyst	+61 8 9488 1427
Michael Emery - Resources Analyst	+61 8 9488 1430
Ben Laird - Industrials Director	+61 8 9488 1429
Gavin Allen - Industrials Analyst	+61 8 9488 1413
Jerome Paz - Associate Research Analyst	+61 8 9488 1414

Institutional Sales

Andrew McKenzie - Executive Chairman	+61 8 9488 1407
Rob Black - Managing Director	+61 8 9488 1423
Jay Hughes - Executive Director	+61 8 9488 1406
Russell Kane - Executive Director	+61 8 9488 1426
Simon Yeo - Executive Director	+61 8 9488 1404
Timothy Bunney - Executive Director	+61 8 9488 1461
Peter Schwarzbach - Executive Director	+61 8 9488 1492
Stacy Kitsantas - Institutional Adviser	+61 8 9488 1486

Private Client Advisers

Chris Webster - Head of Private Clients	+61 8 9488 1412
Ben Statham - Executive Director	+61 8 9488 1417
Brian Bates - Executive Director	+61 8 9346 0314
Cameron Murray - Executive Director	+61 8 9488 1440
James Mackie - Executive Director	+61 8 9488 1416
Lucas Robinson - Executive Director	+61 8 9488 1424
Ryan Stewart - Executive Director	+61 8 9488 1441
Tim Lyons - Executive Director	+61 8 9346 0324
Brett Stapleton - Associate Director	+61 8 9488 1435
Giles McCaw - Associate Director	+61 8 9488 1462
Michael Bowden - Associate Director	+61 8 9346 0307
Richard Gardner - Associate Director	+61 8 9488 1444
Paul Berson - Associate Director	+61 8 9346 0314
Paul Cooper - Associate Director	+61 8 9346 0316
Phil Grant - Associate Director	+61 8 9346 0306
Lauren Walker - Investment Adviser	+61 8 9488 1495
Michael Bartley - Investment Adviser	+61 8 9346 0352
Steve Wood - Investment Adviser	+61 8 9346 0305
Tom Kenny - Associate Adviser	+61 8 9488 1431

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