



## Company details

Petsec Energy Ltd (PSA.AX) is an ASX listed company with operations onshore Louisiana, in the shallow waters of the Gulf of Mexico, and a growing presence in the Republic of Yemen.

PSA is about to enter a period of production and earnings growth based on the appraisal, development and restart of oil fields recently acquired in the Republic of Yemen.

Despite the notional risks associated with the Yemeni strategy, the commercial potential is transformative and we are confident normal industry operations can be resumed in country in 2016.

The company aims to build itself into a significant mid-tier oil and gas company.

PRICE (4.00PM, 22-APR, 2016)	\$0.14
52 WEEK RANGE (LOW-HIGH)	\$0.073-\$0.145
BLOOMBERG/REUTERS	PSA AU / PSA AX
YEAR END	DEC

ORDINARY SHARES ON ISSUE (M)	235
OPTIONS ON ISSUE (M)	
MODELLED SHARES ON ISSUE (M)	235
MARKET CAPITALISATION (A\$M)	\$32.9
CASH (US\$M, 31-MAR, 2016 ACTUAL)	\$10.9
CASH (A\$M, 31-MAR, 2016 EST)	\$14.9
DEBT (A\$M, 31 DEC 2015 ACTUAL)	NIL
NET CASH/DEBT (A\$M)	\$14.9
EV (A\$M)	\$18.0

All values in AUD unless otherwise noted

Source: asx.com.au, IRESS, A\$ = 0.7331

## Analyst:

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# Petsec Energy – Bottom of the cycle...Yemen the key

ASX Ticker

PSA.ASX

Author

Andy Williams

Petsec Energy Ltd (PSA.AX) is building on its traditional US gas focussed business, diversifying into Yemen and oil. Activity in 2016 aims to grow the production base through the restart of oil fields acquired in Yemen over the last 12-18months.

PSA is planning to re-start the An Nagyah oil production facilities, in Block S1, Yemen, containing (a minimum) 12.8Mb of 2P volumes with significant upside in both flow rates and reserves in our view. Additionally, the company is likely to undertake appraisal and limited production of a further four undeveloped fields in Block S1 with an aggregate resource of 34Mb/550Bcf; and the Al Meashar oil discovery (Block 7) with a resource of over 11Mb.

Petsec have been ascribed independently audited net 2P reserves of ~3.8Mboe for its US assets (~A\$0.16/share) and 5.6Mb in Yemen at (-A\$0.86/share) for a developed An Nagyah project.

The market is likely to want to see a return to normal oil industry practices before fully crystallising the value of Yemen assets in the company share price but a **successful resumption of production at An Nagyah is likely to result in a transformational growth in earnings** and underpin a move away from dependence on continuing low US gas prices.

Through the acquisition and start-up phase we see the company as adequately funded with only a low probability of any capital constraints, particularly as we conservatively model An Nagyah production from 2017 noting the potential for a much earlier commencement.

We see PSA as a **differentiated small energy play** with existing cash flow from US assets and transformative near-term production and development opportunities in Yemen. The stock looks **significantly undervalued** on our forecasts and we suggest the sector, particularly with respect to commodity pricing, is close to if not at the bottom of the cycle providing a ground floor entry price opportunity.

Importantly, **successful outcomes in Yemen also deliver increased value to the remainder of the asset base**. The current share price can be justified by a risk weighted value of the US assets effectively affording a 'free' shot at the transformative oil potential of the remainder of the portfolio.

**We value the stock at A\$0.93/share (A\$0.86/share ex-cash) of which >A\$0.50/share we can attribute directly to the An Nagyah project with near term production upside. On an unrisksed basis we suggest Yemen could deliver value upside in the order of >A\$1.70.**

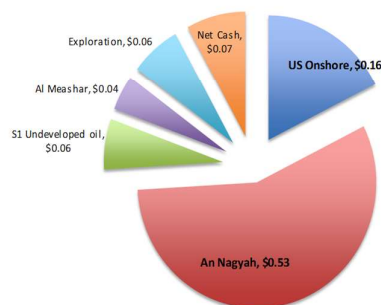
KEY FINANCIALS	2014	2015	2016F	2017F	2018F
REPORTED NPAT (A\$M)	-1.2	-14.6	-14.1	57.1	65.2
ADJUSTED NPAT (A\$M)	-1.2	-14.1	-14.1	57.1	65.2
ADJUSTED EPS (A\$ CENTS)	-0.5	-6.3	-6.0	24.3	27.8
REVENUE (A\$M)	9.6	2.1	4.8	138.7	155.0
EBITDAX (A\$M)	3.8	-4.6	-4.3	111.0	125.8
CAPEX (A\$M)	-6.7	-16.3	-4.0	-16.4	-21.2
OPERATING FREE CASHFLOW (A\$M)	0.5	-10.0	-4.6	80.6	91.6
PE (X)		NM	NM	<1X	<1X
EV/EBITDAX (X)		NM	NM	<1X	<1X

Source: Analyst estimates (NM – NOT MEANINGFUL)

# Petsec Energy

## Summary Model

PETSEC ENERGY		PSA				
YEAR END	DECEMBER					
NAV	A\$	\$0.93				
SHARE PRICE	A\$	\$0.14				
MARKET CAP	A\$M	32.9				
ORDINARY SHARES	M	234.7				
OPTIONS	M					
<b>COMMODITY ASSUMPTIONS</b>						
WTI Oil Price	US\$/b	2014	2015	2016f	2017f	2018f
Gas Price	US\$/mcf	4.39	2.60	2.12	2.72	2.79
Exchange rate		0.9071	0.7524	0.7416	0.7426	0.7382
<b>RATIO ANALYSIS</b>						
Shares Outstanding	M	2014	2015	2016f	2017f	2018f
EPS (pre sig items)	UScps	-0.5	-4.7	-4.5	18.1	20.4
EPS (post sig items)	UScps	-0.5	-4.7	-4.5	18.1	20.4
EPS (post sig items)	Acps	-0.5	-6.3	-6.0	24.3	27.8
PER	x		na	na	0.6x	0.5x
OCFPS	UScps	0.2	-3.2	-1.5	25.5	28.8
OCFPS	Acps	0.3	-4.4	-1.9	34.5	39.4
PCF	x		na	na	0.4x	0.4x
DPS	UScps					
Dividend Yield	%					
BVPS	UScps	14.8	10.1	6.6	29.1	54.4
Price/Book	x		1.38x	2.1x	0.5x	0.3x
ROE	%	-3%	-46%	-68%	62%	38%
ROA	%	-3%	-34%	-49%	60%	37%
Interest Cover	x					
Operating Profit per share	UScps				25.5	28.9
EBITDAX	A\$M	3.8	-4.6	-4.3	111.0	125.8
EBITDAX Ratio	%	39%			80%	81%
<b>EARNINGS</b>						
Product Sales	US\$M	2014	2015	2016f	2017f	2018f
		8.7	1.6	3.6	103.0	114.4
	A\$M	9.6	2.1	4.8	138.7	155.0
Royalties paid		-0.5	0.0	-0.2	-3.2	-3.6
<b>Net Revenue post royalties</b>		<b>8.2</b>	<b>1.6</b>	<b>3.4</b>	<b>99.7</b>	<b>110.8</b>
Expenses		-8.7	-0.5	-7.6	-25.3	-27.8
Other Income		2.0				
Impairments		-3.0	-6.4	-3.0	-6.0	-6.0
Other Expenses		0.0		-3.3		
<b>Operating Profit</b>		<b>-1.5</b>	<b>-10.4</b>	<b>-10.5</b>	<b>68.5</b>	<b>77.0</b>
Net Financing		-0.2	-0.2	0.0	0.0	0.0
Other						
<b>Pre-Tax Profit</b>		<b>-1.6</b>	<b>-10.6</b>	<b>-10.5</b>	<b>68.5</b>	<b>77.0</b>
Income Tax		0.6				
<b>Underlying NPAT</b>		<b>-1.0</b>	<b>-10.6</b>	<b>-10.5</b>	<b>42.4</b>	<b>47.9</b>
Significant Items						
<b>Reported NPAT</b>		<b>-1.0</b>	<b>-11.0</b>	<b>-10.5</b>	<b>42.4</b>	<b>47.9</b>
Underlying NPAT	A\$M	-1.2	-14.1	-14.1	57.1	65.2
Reported NPAT	A\$M	-1.2	-14.6	-14.1	57.1	65.2
<b>CASHFLOW</b>						
Operational Cash Flow	US\$M	2014	2015	2016f	2017f	2018f
		0.5	-7.5	-3.4	59.9	67.6
	A\$M	0.5	-10.0	-4.6	80.6	91.6
Net Interest		0.0	0.0	0.0	0.0	0.2
Taxes Paid						
Other		0.6	0.0	0.0	0.0	0.0
<b>Net Operating Cashflow</b>		<b>1.1</b>	<b>-5.8</b>	<b>-3.4</b>	<b>59.9</b>	<b>67.8</b>
Exploration		-5.9	-12.2			
Capex		-0.1	-0.5			
Investments		-0.1	-1.9	-4.0	-16.4	-21.2
Net Asset Sales/other		12.3	2.3			
<b>Net Investing Cashflow</b>		<b>6.1</b>	<b>-12.3</b>	<b>-4.0</b>	<b>-16.4</b>	<b>-21.2</b>
Dividends Paid						
Net Debt Drawdown						
Equity Issues/(Buyback)						
Other						
<b>Net Financing Cashflow</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net Change in Cash</b>		<b>7.2</b>	<b>-18.1</b>	<b>-7.4</b>	<b>43.5</b>	<b>46.6</b>
<b>BALANCE SHEET</b>						
Cash & Equivalents	US\$M	2014	2015	2016f	2017f	2018f
PP&E & Development		32.6	12.8	5.4	48.8	95.5
Exploration		0.1	0.1	0.0	0.0	0.0
Total Assets		3.7	13.0	9.8	12.2	18.1
Debt		40.1	32.5	21.2	70.2	129.6
Total Liabilities		5.8	8.7	5.7	2.0	2.0
Total Net Assets/Equity		34.2	23.8	15.5	68.2	127.6
Net Cash/(Debt)		32.6	12.8	5.4	48.8	95.5
Net Cash/(Debt)	A\$M	35.9	17.0	7.2	65.8	129.3
<b>PRODUCTION</b>						
US (liquids)	kb	2014	2015	2016f	2017f	2018f
Yemen (oil)	kb*				6.2	702.7
<b>TOTAL</b>	<b>kb</b>	<b>10.6</b>	<b>30.1</b>	<b>743.3</b>	<b>778.9</b>	<b>1487</b>
US Gas	mmcf		484	700	1190	1487
<b>TOTAL</b>	<b>bcfe</b>	<b>1.6</b>	<b>0.5</b>	<b>0.9</b>	<b>5.6</b>	<b>6.2</b>
	<b>kboe</b>	<b>267</b>	<b>85</b>	<b>147</b>	<b>942</b>	<b>1027</b>
* Oil volumes from Yemen are calculated as entitlement barrels based on ultimate contractor take						
Product Revenue	US\$m	8.7	1.6	3.6	103.0	114.4
Ave Price Realised	US\$/mcf	5.08	3.07	3.50	7.09	7.36
Cash Costs	US\$/mcf	4.02	11.22	6.69	4.13	3.33
Cash Margin		58%	-265%	-91%	42%	55%
* Oil volumes from Yemen for unit metrics are based on working interest volumes						
<b>RESERVES &amp; RESOURCES</b>						
		1P	2P	3P	1C	2C
<b>US Onshore</b>						
Gas	bcf	9.5	16.5	22.9		
Liquids	kb	514	916	1044		
	kboe	2096	3674	4864		
	bcfe	12.6	22.0	29.2		
<b>Yemen</b>						
Block S1	Mb		13			10
Block 7	Mb					7
	Mb		13			17
<b>TOTAL</b>	<b>Mboe</b>	<b>2.1</b>	<b>16.2</b>			<b>17.0</b>
	<b>bcfe</b>	<b>12.6</b>	<b>97.0</b>			<b>102.1</b>
<b>Prospective Resources</b>						
					Low	Mean
						High
<b>EQUITY VALUATION</b>						
		Interest	Pr	A\$M	Acps	
US Onshore		various	100%	\$39	\$0.16	
Yemen	An Nagyah	100%	75%	\$123	\$0.53	
	S1 Undeveloped oil	100%	10%	\$14	\$0.06	
	Al Meashar	63.75%	10%	\$10	\$0.04	
Exploration				\$15	\$0.06	
<b>TOTAL</b>				<b>\$0.86</b>		
Net Cash				\$18	\$0.07	
				\$219	\$0.93	P/NAV
<b>Cash Producing Assets</b>				<b>\$0.16</b>		0.15



Source: Company data; analyst estimates

Commodity pricing as of 1-Apr-2016

Share price as of 10-May-2016

## Investment Thesis – Running towards the light

A massive fall in commodity prices in the last 18 months has put the spotlight on the oil sector, in particular the small caps, often capital constrained or without a significant programme of activity. As such, small companies are struggling to attract investor attention in a market eschewing risk and with investment capital drawn to ‘cash’ opportunities.

The reticence of investors to seek exposure to companies with a perceived high level of risk is understandable in a volatile market, but herein lies the opportunity on a number of levels:

- an ‘out of favour’ sector, close to the nadir of investor sentiment
- exposure and leverage to significantly undervalued assets
- bigger oil companies are in an asset divestment phase providing ‘bargain basement’ pricing for assets with transformational scale.
- smaller companies can accelerate development activity at a significantly lower cost

Petsec Energy Ltd fits the template of a small energy company investment opportunity providing:

- growth in production from US (Mystic, Hummer) and new assets (the An Nayah oilfield) in Yemen with significant earnings and growth potential;
- near term development upside from existing discoveries in Yemen (the Hamel, Osaylan and An Naeem oil and gas fields) the US (Mystic Bayou and Hummer); and
- Quantum upside in Block 7 (Al Barqa, Yemen)...an area with a known working petroleum system, access to key infrastructure and 8 prospects and leads ranging up to 900Mb in mapped potential.

It’s within this context that **Petsec Energy represents an attractive growth opportunity**, in our view.

The company is well advanced in its plans to restart the production potential of its recently acquired Yemen assets, which underpinning an earnings growth story, commencing from 2H16 but delivering in scale from 2017.

Our production forecasts are likely conservative and based on third party guidance but 2016 volumes in particular will be subject to timing – and a return to industry normal practices. This is the risk to both the upside and downside on our projections.

**The recent Yemen acquisitions delivers PSA a step increase in 2P reserves**, which could still be considered conservative, especially with respect to the An Nayah oil field.

The independent reserves assessments attribute only 13Mb of 2P oil to An Nayah, with a further 10Mb as contingent volumes. Further development drilling and a field restart could deliver another quantum of reserves upside.

**Table 1: Relative reserves metrics – PSA is simply undervalued**

COMPANY		Price	Cap'n	EV	Reserves	EV/2P
		A\$	A\$m	A\$m	2P Mboe	A\$
Woodside	WPL	26.44	21759	20832	1508	13.81
Oil Search	OSH	6.74	10263	14771	513	28.81
Santos	STO	4.03	7118	13648	945	14.44
Beach Energy	BPT	0.64	1191	1179	98	12.03
AWE Ltd	AWE	0.62	324	521	109	4.78
Senex Energy	SXY	0.23	259	160	94	1.70
Cooper Energy	COE	0.25	82	55	3	19.15
Horizon	HZN	0.06	82	256	13	19.51
Tap Oil	TAP	0.10	24	58	4	14.20
<b>Petsec Energy</b>	<b>PSA</b>	<b>0.14</b>	<b>33</b>	<b>18</b>	<b>16.2</b>	<b>1.11</b>

Source: ASX data; Company data (as of most recent reserves reported adjusted where necessary)

Companies priced (rounded) as of 10-May-2016

*Petsec is set to diversify ...the acquisition of Yemen oil assets has the potential to drive step-wise increases in production and earnings*

*We see Petsec as an attractive investment proposition in a sector 'out of favour'.*

*Yemen assets deliver a major increase in 2P reserves...*

*...the company is 'cheap' to peers and attributable volumes may be too conservative*

*On the cusp of a major growth phase...and quite simply undervalued*

## Undervalued and on the cusp

Notwithstanding the risks associated with the peace process in Yemen, **the company is on the cusp of a major positive step-change in production earnings and reserves.**

The Yemen oil assets provide important diversification away from the gas dominated US operations that comprise the remainder of the asset base.

The Yemen oil production and development opportunities moves the risk profile away from exploration...and we see **strong earnings beginning to manifest from 2017.**

On many metrics the company is simply undervalued:

- **the share price is at an ~84% discount to our valuation (adjusted for cash)**
- **we forecast earnings of >US\$40mn for 2017 pricing the company at a PER of <1x**
- **the company is cheap on an enterprise value to reserves basis...and we are maybe too conservative on our 2P reserve assumptions.**

In our view PSA is an attractive oil opportunity in a market that is likely to be at or close to the bottom of the cycle.

*We base our valuation on forward curve assumptions for oil and currency for the life of project(s) as modelled*

*Our NPV is A\$0.93/share...a significant premium to the reference share price of A\$0.14/share.*

## Valuation and upside

The value attraction of the company unsurprisingly lies within its Yemeni oil opportunities. The current share price (A\$0.14, 10-May) can be supported by the ascribed value to the company's US play (Mystic asset), even allowing for the margin of error within normal projections...**the pricing of the company affords a 'free shot' at the upside embedded within the Yemen oil development strategy.**

Our commodity prices are based on the WTI and currency forward curves (1-Apr) to the expiry of the quoted prices then reverting to our long-term assumptions over a 3-year period.

**Table 2: Commodity price assumptions**

	2016F	2017F	2018F	2019F	2020F	LONG TERM
FX	0.7416	0.7426	0.7382	0.7256	0.7190	0.7500
WTI OIL (US\$/B)	38.73	44.89	47.47	48.41	49.32	70.00

Source: Analyst estimates

**On the basis of our price assumptions and scenario outlook we value the Company at \$0.85/share**, risk weighted where appropriate and with no allowance for a corporate premium at this stage.

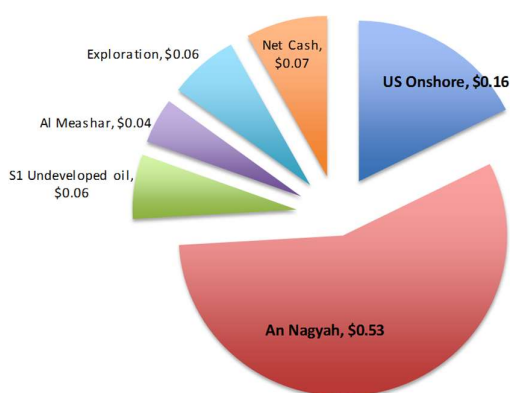
We value the company using asset-specific metrics, applying where necessary a discretionary probability weighting to reflect the assessed risk. The underpinning aspect of the NAV is the value ascribed to the Yemen oil development and exploration potential, which is subject to further de-risking.

Refer to the body of the report for a more detailed overview and analysis of our development scenarios and outlook for the An Nagyah (with four associated undeveloped fields) and Al Meashar oil opportunities.

**Table 3: Petsec Energy valuation**

	Pr	A\$M	Acps
US Onshore	100%	\$39	\$0.16
Yemen			
An Nagyah	75%	\$123	\$0.53
S1 Undeveloped oil	10%	\$14	\$0.06
Al Meashar	10%	\$10	\$0.04
Exploration		\$15	\$0.06
<b>TOTAL</b>			<b>\$0.77</b>
Net Cash		\$18	\$0.07
		<b>\$219</b>	<b>\$0.93</b>

Source: Analyst estimates



We believe on balance of probabilities there is **transformational upside within the Yemeni oil assets.**

*The key opportunity...oil potential in Yemen with existing discoveries, near-term production, and; appraisal and exploration in a working petroleum system.*

*Success triggers transformational upside in our view*

*The Damis Block provides cash flow and development upside with the An Nagyah Oil Field likely to return to operation by end-2016 as modelled*

## Yemen - where the action is

Petsec Energy (PSA) is building a portfolio of opportunities based on a strategy of building a significant reserves and production base with associated high impact exploration upside.

As outlined in the company's investor presentation (Apr-2016), the key planks of the strategy are:

- Focus on highly productive, underexplored areas which hold potential for large oil discoveries (>100Mb)
- Focus on investments in projects at appraisal and development stages
- Target de-risked projects at the discovery or early production stages to minimise subsurface risk and deliver significant upside
- Acquire 'distressed' assets in the MENA (Mid East - North Africa) region at low cost during the current political climate and low oil price environment.

The company holds interests in two areas:

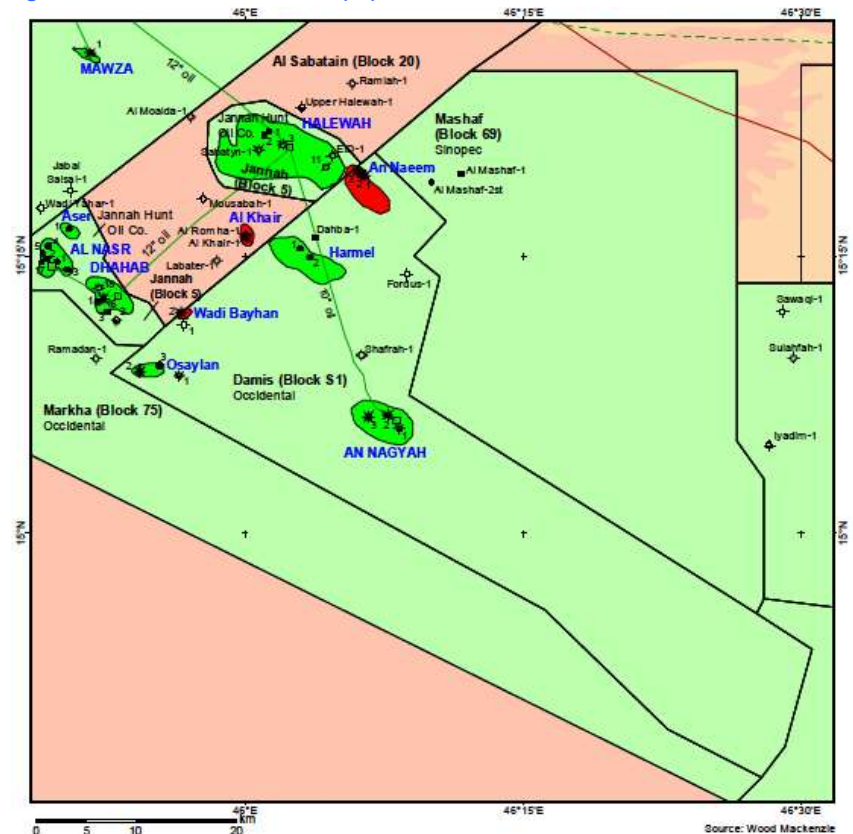
- The recently acquired and critical S1 Production Licence (Damis), which will provide transformational near-term cash flow and development (growth) opportunities and;
- Block 7 (Al Barqa) with the potential to provide significant exploration and appraisal upside.

### Block S1 (Damis) – 100%.

The Damis PSC is located in Central Yemen and includes three oil and two gas discoveries with production from the An Nagyah oil field...the only development in the Block to date.

An Nagyah provides PSA with a near-term cash flow opportunity and from that perspective represents an important plank in the company strategy – **providing the underpinning cash generation to support the development and growth plans**

Figure 1: Schematic of Damis Block (S1) discoveries and infrastructure



Source: Company reports

*We model An Nagyah as an 13Mb (2P) project but note the 2C (technically recoverable) upside of 10Mb*

The An Nagyah Oil Field was brought into production in Mar-2004 but has been shut in since Feb-2014 due to the current political risk situation. A resumption of operations could be achieved by late 2016-2017 (company guidance). Our modelling is based on a 2017 start-up. We believe the field was producing at around 5kbpd at the time of the shut-in.

The field infrastructure consists of:

- 32 development wells drilled in the field since mid-2004 with another six wells that could be drilled to maximise the production potential over the remaining field life to contract expiry as we understand it;
- The field contains a CPF (Central Processing Facility) with a capacity of ~20kbpd with associated gas and is connected to the Jannah export pipeline via a 28km, 10" tie line.

The tie line has a capacity of 80kbpd but currently limited to 30kbpd constrained by the current pump configuration.

Block S1 also contains four other discoveries: oil at the Harmel and Osaylan fields; and gas-condensate at the An Naeem and Wadi Bayhan fields, containing an estimated 32Mb/550Bcf and 13Mb (condensate).

**Table 4: Selected well results and field discoveries in Block S1**

Well	Date	TD	Comments	**
An Nagyah-1	May-93	1365m	58m gas + 8m oil column Rec 39deg API crude	
<b>An Naeem-1</b>	May-00	1615m	30.5m net pay in two zones testing 40mmcf+1020bpd cond on test	An Naeem
<b>Harmel-1</b>	Jun-00	1852m	Tested 22deg API crude from three zones at 500bpd	Harmel
An Naeem-2	Nov-00	1424m	36m of net pay delivered ~28mmcf+880bpd on test	
<b>An Nagyah-2</b>	Dec-02	1631m	Successfully tested 46deg API oil	An Nagyah
An Naeem-3	Jan-03	1623m	Tested at 3.8mmcf+12bpd from 8m zone	
An Nagyah-3	Mar-03	1295m	Tested at 240bpd of 42deg API oil	
<b>Wadi Bayhan-2</b>	Oct-06	2726m	Gas condensate discovery	Wadi Bayhan
<b>Osaylan-2</b>	Nov-06	1675m	Oil discovery  The O-3 well tested 153bpd of 43deg API oil	Osaylan

Source: Company data; \*\* point at which new field discovery declared

Both the An Naeem and Osaylan fields have been evaluated with respect to pursuing a commercial development with the Osaylan field placed on an early production scheme in 2007. However, we understand that there are no current development plans for these accumulations and we exclude these and other undeveloped discoveries from our commercial assessment of the Block, although they do carry intrinsic value.

The easy tie-back location of these fields does suggest that there is some commercial potential (low capex costs) should PSA wish to accelerate further appraisal activity.

**Table 5: Resource bookings –Block S1**

	2P Oil (Mb)^	Oil (Mb)^^	2C Gas (bcf)*	Cond (Mb)
An Nagyah	13	10		
Osaylan		5		
An Naeem			550	12
Wadi Bayhan			50	1
Harmel		17		
<b>Total</b>	<b>13</b>	<b>32</b>	<b>600</b>	<b>13</b>
<b>Total (Mboe)</b>	<b>13</b>	<b>32</b>	<b>100</b>	<b>13</b>

Source: Company data, ^DeGolyer-McNaughton, ^^Wood Mackenzie analysis; analyst estimates

\* We understand a gas commercialisation deal had previously been negotiated with the Ministry of Oil and Minerals in 2009 to supply feed gas to a new power generation plant on the Gulf of Aden...this deal has not progressed

*Other Block discoveries provide upside potential to our evaluation and importantly point to further commercial opportunities in our view*

## A scenario – what an An Nagyah restart could deliver

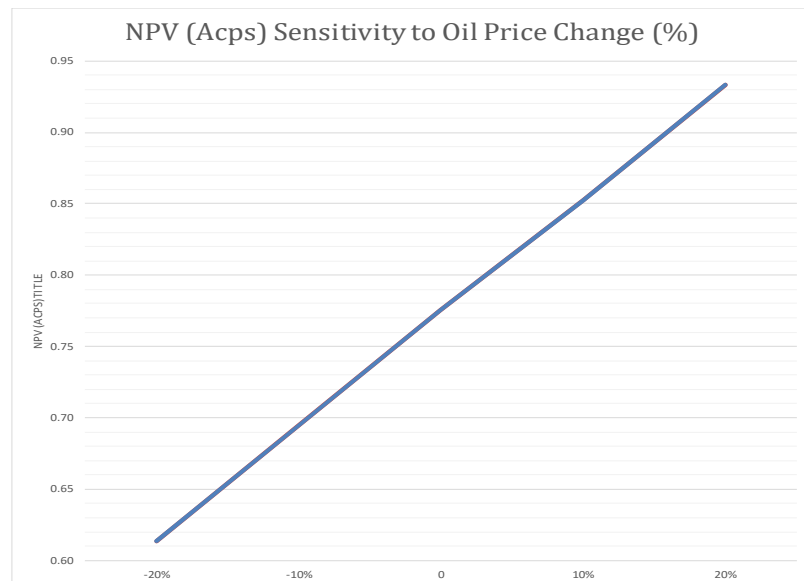
It seems very likely An Nagyah could be restarted as a production hub pending successful resolution of the current unrest and the necessary Government approvals, so it's worthwhile looking at project potential/value under the following assumptions (*company guidance and analyst assumptions*):

- Currently DeGolyer-McNaughton attribute **13Mb of 2P reserves to the project**, with Wood-Mackenzie classifying a further 10Mb as 'technically recoverable', which we have suggested are 2C equivalent. It's highly likely in our view, that a restart of the field will enable these 2C volumes to be reclassified over time.
- The Block S1 licence is **due to expire in 2023**. We assume production only up to licence expiry but suggest a commercial case could successfully be made for a licence extension.
- We estimate **capex for this phase of US\$30mn** with the drilling of 6 new wells (at US\$5mn/well).
- A WTI price deck as per Table 1 (p.5) based on the forward curve as of 1-Apr-2016

We model the field on broadly standard Yemen PSC terms although we do note that specifics can vary from Block to Block. The Yemen assets come with an existing sunk cost pool of ~US\$50mn, adding upside to the valuation. The PSC outline is included as an Appendix to this report.

On our assumptions using only the current 13Mb of 2P oil as ascribed we calculate an unrisks value of ~A\$180mn (A\$123mn risked at 75%) or ~A\$0.70/share (A\$0.53/share risked), peaking at ~A\$145mn (~A\$0.62/share) on a heavily restricted outlook.

Figure 2: An Nagyah Development sensitivities to oil price.



Source: Analyst estimates

Our NPV equates to ~A\$14-15/b for the remaining 2P volumes **but a successful restart makes it quite evident there's a significant value opportunity to be won** through commercialisation of the residual 'technical' reserves (2C) of 10Mb.

We note that PSA management is confident the ultimate deliverable oil volumes will be closer to the combined 2P + 2C (~23Mb), which is a reasonable case but in the absence of a current commercialisation plan we treat the upside potential as a separate case, particularly with a licence expiry/renewal anticipated in 2023.

We ascribe an 'in ground' value to this resource of ~A\$14mn (A\$0.06/share) on a risked basis referencing the unit value of the producing reserves and a 10% probability weighting, although that may be too conservative a discount.

We have assumed the value at this stage on an ungeared basis with the required capex investment to be met from existing company resources.

*An Nagyah delivers A\$0.53/share at the forward curve...*

*We estimate the An Nagyah upside to represent a further A\$0.06/share at the forward curve...*

*...we highlight the embedded upside in reserves and production rates to our assumptions*



## Petsec Energy

Table 6: An Nagyah project scenario

		<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<b>Production</b>									
Daily rate	kbpd	0	5.6	5.6	5.2	4.5	4.4	4.1	3.5
	Mb	<b>0</b>	<b>2.0</b>	<b>2.0</b>	<b>1.9</b>	<b>1.6</b>	<b>1.6</b>	<b>1.5</b>	<b>1.3</b>
Closing Reserves	Mb	12.8	10.7	8.7	6.8	5.2	3.6	2.1	0.8
<b>Capex</b>		<b>US\$mn</b>							
Development drilling			<b>5</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>5</b>		
<b>Op Costs</b>		<b>US\$mn</b>							
Fixed		2	5	5	5	5	7	7	7
Variable	\$/b		6.40	6.40	6.40	6.40	6.40	6.40	<b>6.40</b>
Tariff	\$/b	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	TOTAL US\$mn	<b>2.3</b>	<b>20.3</b>	<b>20.3</b>	<b>19.3</b>	<b>17.2</b>	<b>18.8</b>	<b>18.2</b>	<b>16.5</b>
<b>Royalties</b>	A\$mn	0	2.8	2.9	2.8	2.4	2.4	2.3	1.9
<b>Profit Oil Split</b>		<b>35%</b>	<b>35%</b>	<b>35%</b>	<b>35%</b>	<b>35%</b>	<b>35%</b>	<b>35%</b>	<b>35%</b>
Revenue	US\$mn	0.0	91.7	96.2	92.3	80.5	79.2	75.2	64.1
<i>less</i>									
Royalty			-2.8	-2.9	-2.8	-2.4	-2.4	-2.3	-1.9
Cost Allowance		-1.2	-10.1	-10.1	-9.6	-8.6	-9.4	-9.1	-8.2
Profit Oil		-1.2	89.0	93.3	89.5	69.5	67.4	63.8	54.0
Profit Oil Split		-0.4	35.6	37.3	35.8	13.1	11.8	11.4	11.0
Gvt Allowance	15%		-5.3	-5.6	-5.4	-3.6	-3.5	-3.4	-2.8
Contractor Take	US\$	-0.4	30.3	31.7	30.4	20.7	20.1	19.0	16.1
	A\$	-0.6	40.5	43.0	41.7	28.6	28.5	26.4	21.8
NPV (A\$mn)	10%	<b>\$165</b>	\$182	\$159	\$132				
	per barrel	\$20.66	\$14.21	\$14.83	\$15.20				

Source: Company data (adjusted), analyst estimates

Note that this scenario only commercialises 2P oil reserves of 12Mb and represents what can be considered as a 'base-case' for the field with upside from the 'technically recoverable' volumes.

*Block 7 contains the Al Meashar oil discovery...*

*...this is an early appraisal-development opportunity*

*Exploration prospects range from 2-900Mb (gross)*

*Embedded upside in Al Meashar with only one of up to 6 fault blocks tested*

*A producing analogue at the Habban Oil Field*

*Basement oil plays can be prolific*

## **Block 7 (Al Barqa) – 63.75%\* (pending closure of the Oil Search transaction).**

PSA acquired an initial 29.75% participating interest in the Block in 2014 from AWE Ltd and Mitsui E&P (Middle East), subsequently increasing its equity exposure through the purchase of Oil Search Ltd interests\* resulting in the company holding the majority working interest and importantly, Operatorship.

\* The acquisition of the Oil Search interests is expected to be finalised by mid-2016 (company guidance)

**Table 7: Block 7 equity interests**

Participant	
Petsec Energy (Operator)	63.75%
KUFPEC (Aden) Limited	21.25%
The Yemen General Corporation for Oil and Gas	15.00%

Source: Company data

**Figure 3: Petsec Block 7 location and evaluation area**



Source: Company data

**Block 7 contains the Al Meashar oil discovery**, made in 2010 through a drilling programme completed by Oil Search. PSA has outlined a ‘prospects and leads’ inventory of eight targets with a potential size range of 2 – 900Mb (gross).

The oil play is relatively simple and proven (refer Habban Oil Field located 14km to the west); and consists of a sandstone reservoir (Kuhlan Sandstone) overlying a significant oil column in fractured basement.

- Two wells have been drilled into the Al Meashar structure with the discovery well intersecting a gross oil column of 637m in fractured basement
- Both wells have been tested with a peak flow recorded of 1046bopd and 6.36mmcf of gas over three zones; and
- An Initial resource estimate of 11Mb gross (7Mb net).

It should be noted that the resource estimate represents the potential of a single fault block in a potential productive area covering 5-6 fault blocks...further work could significantly and rapidly grow the reserves (and resource) base of this opportunity. Importantly the company notes that in drilling:

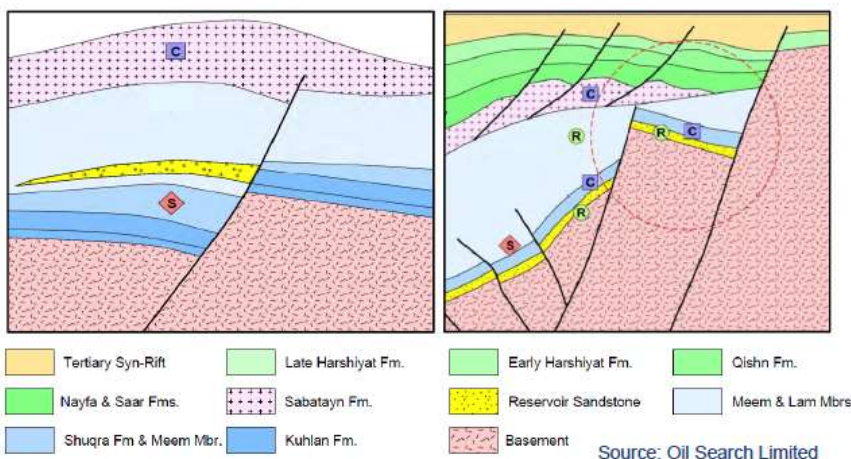
*“...we encountered a very large hydrocarbon column over 500m in height and it extends beyond the structural closure that we can map, so the reserves numbers that have been reported are really confined to the mapping of the 3D dataset and the structural closure that we can map, but certainly the wells that were drilled had oil shows all the way to TD above and beyond that closure.”* (Source: energynewsbulletin.net – 24 Apr 2015)

**Critically, the petroleum system in this Block is ‘proven’ and a likely development analogue exists 14km to the west at the Habban Oil Field, which contains some 170Mb (gross 2P reserves) and a current production rate of ~20kbpd.**

We suggest an AI Meashar development could potentially be underpinned by being tied back to the Habban processing facilities, which has a throughput capacity of 30kbpd and 150kb of storage.

Block 7 contains multiple reservoir targets as outlined in Fig. 2 although the initial discovery and we suggest, development plan would be to exploit the fractured basement play and overlying Kuhlan sandstones, which has been successfully completed in analogue fields.

**Figure 4: Multiple reservoir targets but focussing on the basement and Kuhlan plays**



Source: Company data

**Habban Oil Field – the design template?**

The Habban Oil Field lies approximately 15-20km due west of Block 7, on trend with the AI Meashar discovery and exploration prospects. The field produces from the same fractured basement play and the overlying formations...for PSA this provides a successful development template in our view.

Habban was discovered in 2005 and brought into production in 2009 as a 20Mb development. The field has delivered >22Mb (estimated) to mid-2015 and according to the operator (OMV) has substantial remaining reserves considered to be in excess of 100Mb.

This upside shouldn't surprise given the nature of the play as basement fractures can be extensive suggesting the drawdown potential of the reservoir can be massive.

On an operational basis, the Habban production wells have exhibited a stable production history with positive implications for field life and design.

We don't suggest AI Meashar will have the same quantum of upside or well performance but we think it's likely on the balance of probabilities that an ultimate commercial development of the field could deliver significant growth potential in its own right.

A more detailed (but technical) assessment of the Habban Field can be found in an OMV presentation to the AAPG-ICE Conference made in Sep-2014 entitled - "The Habban Field and the fractured basement play in Yemen".

The forward work programme is anticipated to be a re-entry of the AI Meashar-1 and -2 wells followed by an EWT (extended well test) to be conducted over a period of 3-9 months.

The aim is to record sufficient data on flow rates and reservoir potential to underpin a follow-up appraisal/development programme.

PSA is also contemplating drilling an exploration well on the 'Omega' Prospect mapped at over 500Mb. The gross capex for this work programme is expected to be ~US\$5mn.

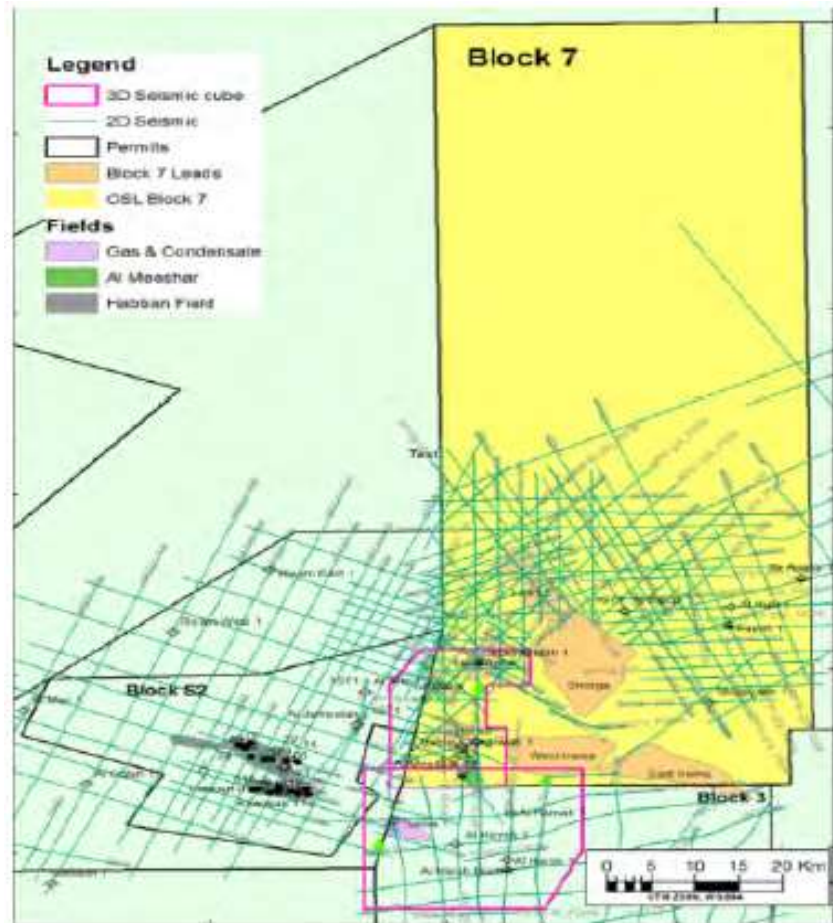
We understand technical work has already been conducted in preparation for a resumption of work and the company is confident the EWT can be commenced quite quickly once the requisite approvals are granted.

The focus of activity in the block to date has been exclusively in the southern part of the permit as indicated in Fig 3, where the dominant potential lies and commercial opportunities would appear to be the strongest, in proximity to the existing pipeline networks.

Figure 5: Block 7 activity – focussed in the south and on trend from success

*PSA plans to conduct an EWT in late 2016 that could deliver between 200-1000bpd*

*The drilling of the 'Omega' Prospect could provide a significant de-risking to the remaining exploration potential*



Source: Company data

*PSA has historically been a US Gulf Coast play but being dominated by gas volumes has been significantly impacted by the strong decline and likely continuing weakness in gas prices.*

*Production is set to grow and reserves have taken a significant upward step on recent exploration success.*

*We still see merit in the play for diversification and the capacity to build the platform.*

*Note the strong increase in reserves (2016 over 2015)...small successes can deliver massive upside*

*We model a production rebound but see the US as a self-sustaining play through the forecast period*

*The play and upside resides in the Yemen assets in our view*

## US Onshore – no shortage of opportunities but low gas prices cap the upside

Historically, PSA has been a US conventional E&P play exploiting opportunities in the shallow water offshore Gulf Coast and over the last two years, onshore. The strategy up to 2008 was to target small, low risk reserves additions...and this was particularly successful. The company is now focussed on larger plays, with reasonable success. The company has delivered a 74% drilling success rate since 1991.

The US assets are dominantly a gas/condensate play (current gross production is estimated to be around 95% gas on a bcfe basis (est. 7.5mmcf and 300bopd from Mystic)) and as such the company has been significantly impacted by the sustained fall in US gas prices, which despite the emergence of what will be a large LNG export industry in-country, are expected to remain very low for the foreseeable future (refer Table 2 for commodity price assumptions).

Production has been essentially in decline since 2010 delivering only circa 500mmcf in 2015 coinciding with a decline in reserves, largely driven by commodity price related downwards revisions. Although from a low base, one exploration success can deliver a significant positive impact to the reserves and production outlook.

Two major gas/condensate discoveries were made in 2015 at Mystic Bayou and Hummer (Louisiana) adding ~21.5Bcfe independently valued at US\$32.7mn. The Hummer discovery will be tested (circa mid-2016) to determine the development potential noting only a small volume of 2P reserves have been ascribed to the discovery pending testing results. A successful result could deliver a significant a step wise increase in reserves/resources of 5-10x (company guidance). Hummer is expected to be in production in 2017.

**We do model a significant rebound in US production** (from a low 2015 base), mirroring the Cawley, Gillespie analysis and we are confident in our outlook through the forecast period. Although our estimates do not include production from Hummer, we highlight that even tripling the production through over the next three years only returns the output to around 2014 levels.

**Table 8: US segmental results – showing declining production, revenue and reserves**

		2012	2013	2014	2015	2016f	2017f	2018f
<b>Net Production</b>	mmcf	2445	3645	1612	511	843	1433	1792
<u>Realised Prices</u>								
Liquids	US\$/b	106.76	106.79	101.12	39.95	33.35	37.73	39.24
Gas	US\$/mcf	3.01	3.99	4.68	2.60	2.39	2.73	2.86
	<b>US\$/mcf</b>	<b>3.50</b>	<b>4.50</b>	<b>5.08</b>	<b>3.07</b>			
<b>Net Revenue</b>		<b>8558</b>	<b>16418</b>	<b>8191</b>	<b>1570</b>	<b>2326</b>	<b>4507</b>	<b>5941</b>
<b>EBITDAX**</b>		<b>1411</b>	<b>8679</b>	<b>5254</b>	<b>(618)</b>			
DD&A		(3872)	(6985)	(1739)	(526)			
Exploration expense		(3,888)	171	(54)				
Impairment		1,349	(7786)	(3057)	(6378)			
Acquisition capex		6917	6563	6029	11373			
Net 2P reserves*	bcfe	11.1	7.2	1.9	22.0			
NPV	US\$mn	31.8	16.5		32.7			

Source: Company data, analyst estimates

\*Independent reserves estimates as reported by Ryder Scott/Cawley Gillespie & Associates Inc.

\*\*Back-calculated EBITDAX estimates based on PSA segmental reporting

The geological risks of continuing a US drilling strategy are relatively low but success rates have varied and like most US O&G plays, the continuing capital reinvestment is high. That's not to say the opportunities are not worth pursuing, but in the absence of a strong rebound in commodity prices, in the absence of a significant increase in liquids production, the play is likely to be self-sustaining at best rather than setting a strong growth platform in our view.

It should be highlighted that relatively modest drilling success can have a material impact on the resource base and production outlook.

We assume a net capital investment of ~US\$6mn per annum in the US plays.

**It's our view that projected returns will be better in the company's Yemen oil assets**, given the leverage afforded by the embedded development and production upside. **However, the US assets provide diversification and opportunity...certainly part of the anticipated strong cash generation from Yemen oil could be reinvested into the US to continue to build the platform.**

On the look through of the Cawley Gillespie reserves assessment (with associated NPV assumptions), the PSA US reserves have been ascribed a NPV/bcfe averaging ~US\$1.75, which we use as the basis for establishing a value for the assets of ~A\$39mn (~A\$0.16/share).

Note we ascribe no value to Hummer until the test results are to hand. Given the upside resource potential as mentioned, a successful outcome could trigger a strong re-rating of the US asset base.

Whilst it can be argued that these assets do not deliver significant upside potential, the cash potential and exploration upside mostly support the current share price on a stand-alone basis and hence provide some growth potential, but represent essentially a 'free entry' into the upside opportunity of Yemen oil.

*We suggest PSA can avoid the small company curse – financing constraints heading into re-start and development activities...*

*...with potential cash upside to assumptions in 2016*

## Cash flow and financing – in 2016 cash is king

Despite the company entering a period of project development (post acquisitions in Yemen and discoveries in the US), the financing position appears healthy with commitments underpinned by the current cash balance heading into an An Nagyah oil production start-up from 2017.

We see 2016f as forecast, with modelled capex commitments of around US\$4mn for the development of Hummer and a net share of Al Meashar ramp up to production. Although this may be somewhat conservative with some upside risk, we'd highlight An Nagyah oil volumes could commence ahead of our model which would offset additional capex outlays...the numbers look quite robust heading into new oil production.

We model GG&A costs to increase from 2016 as the company assumes operatorship of its Yemen assets and absorbs the associated overhead costs. Note we don't model a significant increase in production through 2016 and apply a yet still 'weak' forward curve commodity price outlook.

**Table 9: Cashflow projections (US\$m)**

CASHFLOW	2013	2014	2015	2016f	2017f	2018f
<b>Operational Cash Flow</b>	<b>7.9</b>	<b>0.5</b>	<b>-7.5</b>	<b>-3.4</b>	<b>59.9</b>	<b>67.6</b>
Net Interest	0.1					0.2
Other	0.1	0.6	1.7			
<b>Net Operating Cashflow</b>	<b>8.1</b>	<b>1.1</b>	<b>-5.8</b>	<b>-3.4</b>	<b>59.9</b>	<b>67.8</b>
Exploration	-9.7	-5.9	-12.2			
Capex	0.0	-0.1	-0.5			
Investments	-0.4	-0.1	-1.9	-4.0	-16.4	-21.2
Net Asset Sales/other	0.1	12.3	2.3			
<b>Net Investing Cashflow</b>	<b>-10.1</b>	<b>6.1</b>	<b>-12.3</b>	<b>-4.0</b>	<b>-16.4</b>	<b>-21.2</b>
Net Debt Drawdown						
Equity Issues/(Buyback)	-0.6					
Other						
<b>Net Financing Cashflow</b>	<b>-0.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net Change in Cash</b>	<b>-2.6</b>	<b>7.2</b>	<b>-18.1</b>	<b>-7.4</b>	<b>43.5</b>	<b>46.6</b>

Source: Company data; Analyst's estimates

Beyond 2016, we model the financials as a net positive outcome, with the Yemeni oil production delivering significant surplus operating cash.

Our estimates do contain a significant margin for comfort with:

- Timing on resumption of normal industry activity likely through mid-2016;
- Timing of resumption of oil production potential earlier than modelled and;
- Upside potential to production rates, especially at An Nagyah in the short-term

*There are risks to the growth as modelled:*

- *Yemen remains a politically conflicted region*
- *Re-starting oil fields come with embedded engineering issues*
- *Capex reinvestment, particularly in the US onshore play could be higher than forecast*
- *Our forecasts are based on a highly volatile oil price forward curve*

## **Transformational upside but not without risk**

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Transformation comes from delivering the Yemeni oil redevelopment story where the initial risk is political but we suggest post re-entry of the existing oil fields commences, the intrinsic risks will be largely technically based.

We have addressed the Yemen conflict in Appendix 1 but current headlines do suggest the region is heading towards a sustainable resolution, currently all parties agreeing to a cease-fire heading into peace talks.

We consider the exploration risks in Block 7 to be low with 8 prospects/leads in a proven hydrocarbon fairways containing and near to existing oil fields. Importantly the exploration prospects lie within an extensive infrastructure network, lowering the threshold for commercial success.

Perhaps, in relative terms, the Blocks are still at a relatively early stage of delineation on a regional basis and further data is required to support the technical aspects. Growth outcomes in Yemen are not dependent on exploration success...there are five undeveloped fields.

Although the company is confident existing oil production opportunities can be exploited quite rapidly, there will still be residual issues...some of these wells have been shut-in for an extended period and may require a work-over or in a worse case, a re-drill.

There are a number of potential re-rating points for the stock. **A strong first pointer will be the recommencement of normal industry activity in Yemen and the restart of the AN Nagyah Oil Field at or near the shut-in production rate of 5kbpd.**

A positive test of the Hummer well (offshore US) could deliver a step-wise increase in reserves and the addition of relatively high margin oil volumes following the completion of a series of Yemen asset acquisitions.

However, should well testing results disappoint at An Nagyah or Al Meashar the company could perhaps find it difficult to demonstrate a realistic commercial outcome.

**Results above expectations in terms of flow rates (at An Nagyah) could drive an acceleration of the development timeline** and opportunity for further oil production in excess of our forecasts...this would represent significant upside to our NAV, in our view.

We have already outlined the issues associated with financing but do contend that the current share price does reflect a 'free shot' at a transformational oil production opportunity with **no premium for commercial potential built into the market perceptions yet.**

It largely comes down to the next 6-12months or so and delivery on Yemeni oil field re-starts.



# Petsec Energy

## APPENDIX 1 – The Elephant in the room...the Yemen Conflict

The commentary for this section is drawn from the following sources:

US Energy Information Administration ([eia.gov](http://eia.gov))

BBC News ([bbc.co.uk](http://bbc.co.uk))

Al Arabiya News ([al-arabiya.net](http://al-arabiya.net))

Financial Times ([ft.com](http://ft.com))

The Economist

voanews.com (Voice of America)

Although the most recent attempt to gather warring parties to the peace table has been delayed it does appear all parties are serious in their desire to resolve the conflict. In an article posted on [voanews.com](http://voanews.com) (18-Apr) The Yemen Foreign Minister Abdel Malek was reported as indicating that "we are ready for a political transition which excludes no one... and we will give everything we can to alleviate the suffering", whilst the opposing Houthis were quoted as calling for "a consensus authority during a definite transitional phase to decide every political dispute."

Many of the exploration and production permits in the country have been in force majeure since mid-2011 as a result of what could realistically be considered a civil war within the country that has escalated and drawn in a coalition of neighbouring countries comprising five Gulf Arab states and Jordan, Egypt, Morocco and Sudan.

The conflict is essentially a battle between forces loyal to the Sunni President, Abdrabbuh Mansour Hadi and those allied to Zaidi Shia rebels (aka 'Houthis'). Complicating the situation is that Yemen's security forces appear to be split along religious lines.

Importantly President Hadi is still recognised as Yemen's legitimate leader by the international community.

Yemen is strategically important to Saudi Arabia as it sits on and could potentially control the Bab al-Mandab strait, a narrow waterway linking the Red Sea with the Gulf of Aden, through which much of the world's oil shipments pass. Commentary by the US Energy Information Administration suggests "Egypt and Saudi Arabia fear a Houthi takeover would threaten free passage through the strait" ([eia.gov](http://eia.gov)).



Source: [eia.gov](http://eia.gov)

## Petsec Energy

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The conflict has raged since 2010 with an estimated 80% of the population needing humanitarian aid as reported through numerous newswires sources [[bbc.co.uk](http://bbc.co.uk), [ft.com](http://ft.com), [al-arabiya.net](http://al-arabiya.net)].

The coalition has recently claimed a successful completion of the first objectives of the offensive ("Decisive Storm"). The Saudi Defense Minister, Prince Mohammed bin Salman is cited as stating:

*"The first objective of Decisive Storm was to disable the main capabilities of this militia...their air capabilities, their air defense capabilities (and) to destroy 90% of their missile arsenal. And then we started the process of a political solution in Yemen, which is a whole different stage.*

*All of our efforts are to push for the political solution. But this does not mean we will allow for the militia to expand on the ground."* ([theeconomist.com](http://theeconomist.com))

When asked whether there was a timeline for the end of the conflict, the Prince replied that that could not be predicted but that now over 80% of Yemen is under the control of the legitimate Government.

In Dec-2015, peace talks were re-opened although limited progress (no major breakthrough) was made after six days of discussions and the first round ended with a tentative commitment to resume imminently (as of 22-Apr). Subsequently a further postponement has been announced.

*"The next round of peace talks between Yemen's government and Iran-backed Houthi militia scheduled for next week have been postponed, the Yemeni Foreign Minister Abdel Malak al-Mekhlafi said.*

*'The negotiations will not take place on the announced date of Jan. 14...they will be postponed until Jan. 20 or 23 because the Houthis rejected the date of Jan. 14.'*

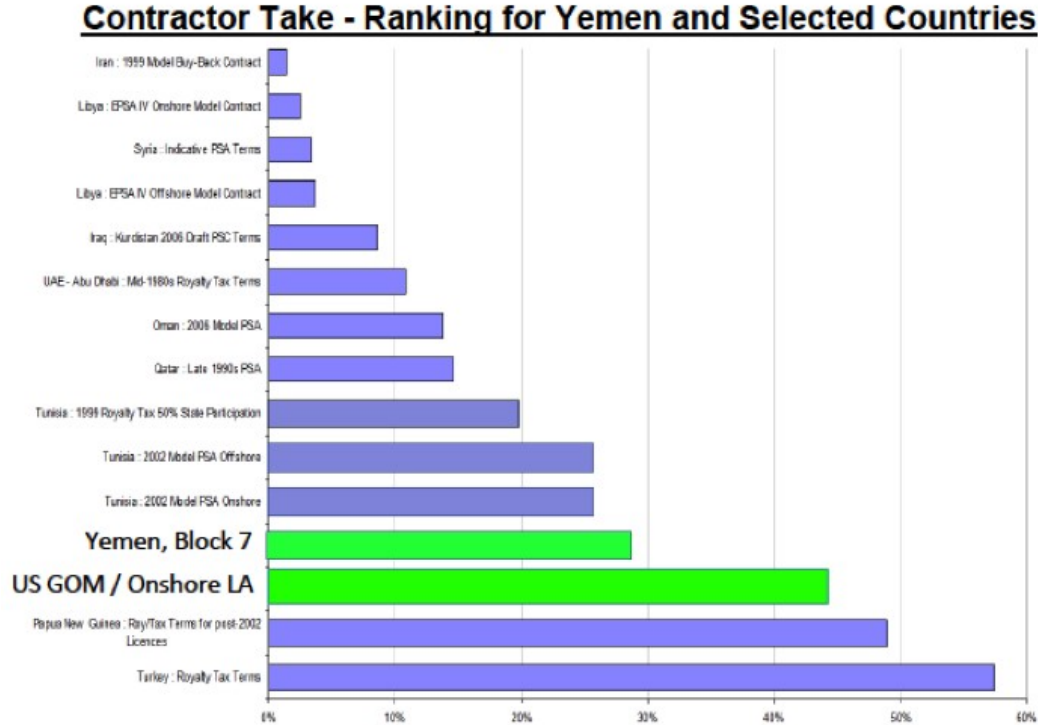
*He said U.N. envoy Ismail Ould Cheikh Ahmed would travel to the capital Sanaa on Sunday to 'convince the Houthis to participate in the negotiations on the new dates.'* ([al-arabiya.net](http://al-arabiya.net))

The risks are somewhat encapsulated by the outcomes of the previous round of peace talks held in Jun-2015 which were characterised by *"...insults, fist-fighting and shoe-throwing among the delegates, who failed to even agree on a humanitarian truce during Ramadan"* ([al-arabiya.net](http://al-arabiya.net))

**The key for PSA to realise the obvious and inherent value from its Yemeni play is for settlement of the current conflict and a prolonged period of peace to enable the rebuilding of the country's oil business and economy.**

**APPENDIX 2 – Yemen Fiscal terms – fiscally friendly**

Fiscal terms in Yemen are favourable despite being a Production Sharing Cost (PSC) based system...contractor take can be between 20-30% but returns can and do vary between Blocks dependent on the individual conditions negotiated and factors such as the extent of any existing sunk-cost pool.



Source: Company data

Although individual Block terms can vary, the Yemeni PSC generally works on the following principles:

- PSC based system
- Royalty on production
- Cost oil split ~50%
- Profit oil ~30% to the contractor
- Cost recovery 50-75%
- Yemen remains attractive compared to peer group MENA countries
- Competitive Bid Rounds tightening commercial terms

We assume terms similar to those revealed by Oil Search for its Block 43 in 2008 for modelling

Royalty- as per the following production bands:

- < 12,500bpd – 3%
- 12,500 – 25,000bpd – 4%
- 25,000 – 50,000bpd – 6%
- 50,000 – 100,000bpd – 8% - >100,000bpd – 10%
- Cost oil = 50% of oil after royalty

Contractor can recover 100% of operating costs and 50% of exploration and capital costs each year, remaining balance rolling forward

Production Sharing oil (after deducting royalty and cost oil):

- <25,000bpd, 70%/30% split, Government / Contractor
- Increases in 2.5% increments per 25,000bpd to a maximum of 80%/20% at >100,000bpd

Yemen Company receives 15% of Contractor profit oil with no participation in costs

## Petsec Energy

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Under a production sharing arrangement the ownership of the resource remains with the state and the oil and gas company is contracted to extract and develop the resource in return for a share of the production. The government retains the right to petroleum reserves in the ground but appoints the investor as “contractor” to assist the government in developing the resources.

The mechanics of production sharing in principle is quite straightforward. The PSC specifies a portion of total production, which can be retained by the contractor to recover costs (“cost oil”). The remaining oil (if there is a surplus) is termed “profit oil” and is divided between the government and the contractor according to a formula set out in the PSC terms.

Royalties can also be introduced into the production sharing regime. In some PSCs there is an explicit royalty payment that is paid to the government before the remaining production is split between cost and profit oil. An alternative to a royalty is to have a limit on the cost oil allowance (e.g. 60%), which ensures there is profit oil, as soon as production commences. Where a cap is imposed on the deduction of costs and costs are at this limit, the cap will have a similar economic impact as a royalty, with the government receiving revenue—its share of profit oil—as soon as production commences.

Unrecovered costs in any year are carried forward to subsequent years, but some PSCs allow these costs to be uplifted by an interest factor to compensate for the delay in cost recovery. Interest expense is generally not a recoverable cost. If interest expense is allowed to be recovered, then there should be no uplift for unrecovered costs as this would involve a double counting to the extent unrecovered costs are debt financed.

The split of profit oil is often fixed—60:40 for the government: investor, but it may vary by level of production, the price of crude oil, or the internal rate of return earned on the project. Contractors often pay income tax on their share of production. The assurance of fiscal stability is an important investment incentive, carrying the cost of reduced flexibility for the government to increase tax on a given project in future.

A versatile production sharing framework can be attractive to both the contractor and government since it can be adjusted to suit particular project circumstances without changing the overarching fiscal framework. Difficulties in PSCs generally relate to the determination of allowable costs.

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