OWI2018EU APR 24-26
OFFSHORE WELL INTERVENTION CONFERENCE EUROPE

2018 Market Forecast: What does the oil price mean for well intervention?

Offshore Network

http://interventioneuoffsnetevents.com/

INTRODUCTION

Throughout 2017 there has been a notable change in the oil market.

The industry has witnessed operators moving back into healthier profits after effectively lowering their cost base to support production operations in a $50 oil environment. In November 2017 public examples of this included ConocoPhillips showing a sub $40 breakeven[1] and Hess stating they are working towards a $10 breakeven[2]. This lower cost base has encouraged more well intervention activity from operators, which is giving support to the supplier community once again.

The flip side of this dynamic is that fields which are definitely not economical in a $50 oil environment are clear candidates for decommissioning, and regulatory bodies from the UK to Malaysia have reacted by saying these wells must be permanently plugged and abandoned if they are not producing. Again this is supporting the supplier community, creating a more buoyant global P&A market.

It is clear that the oil price is the single most important variable for the well service discipline. This whitepaper works to identify how the oil price is likely to perform in 2018 and what this means for well intervention.

THE OIL PRICE IN 2018

On Thursday October 19th Tom Kloza, Global Head of Oil Price Information Services, stated that the oil price in 2018 will be a *"tale of two markets"* with a weaker start to 2018 (due to some builds in supply) holding the oil price at around $54-57 dollars (WTI) – but a stronger second half with the price accelerating through the $60-$70 mark[3].

On October 24th Amin Nasser, Chief Executive of Saudi Aramco stated that as much as US$1 trillion of investments has either been deferred or cancelled due to a *lower-for-longer* oil price expectation. However, this underinvestment will raise the oil price in 2018.

"This will have an impact on the future of energy if nothing happens," Nasser noted, adding that investments are necessary because of "*natural depreciation of fields and normal rise in demand*."[4]

Supply and demand is key to all markets, and the oil field faces a 7-10% annual decline in recovery if there is no well intervention or E&P. This is the natural decline in the reservoir and although in 2014/15 there was indeed a huge oversupply (dubbed as the glut), we are now at a tipping point where the $1trillion of activity which did not take place is now starting to change the dynamics from an over supplied to an undersupplied market.

Supply and demand coupled with the recent political climate change in Riyadh ultimately resulted in mid-November of 2017 breaking price ceilings that have stood for 24 months. Brent sold in the mid $60s and WTI sold in the high $50s.

Is The Bearish Market Making Way For A Bull?

Since 2015 the oil market has been, and to some extent continues to be a bearish market. This is a huge contributor to the "lower-for-longer" $50 oil market that has stood since 2015.

If we look back at some of the previous crashes in the oil price, recovery was much faster. In the 2008 financial crash oil dropped to from $157 in June to $48 by January 1st 2009 – a loss of 69%. However, the market rebounded to a more palatable $80 oil environment by June 2009. Ultimately the market was stable in less than a year after reaching the price floor.

Fig 1. 2008 Financial Crisis [5]

Fig 2. 1998 Oil Market Crash [6]

The 1990s also demonstrated hard times for the oil market, with 1998 showing a significant crash again. In December 1996 the oil price was $40, but gradually declined in 1997 and ultimately crashed to $17 in November 1998. However, by December 1999 the market had recovered to over $40 again.

During the current crash the market has remained bearish since late 2014 for a number of reasons which didn't influence the markets in the previous two examples.

These include:

- Global oversupply of shale oil
- Focus on electric vehicles and poor image of fossil fuels
- China's 'Hard Landing' and fear of recession
- No significant reduction in crude stockpiles
- Saudi Aramco IPO
- Slower OPEC strategy to steady the market

However throughout 2017 we have seen a re-balancing, and some of these elements have been addressed to position the industry for growth throughout 2018.

We are witnessing an improving economic outlook across the globe, which is supported by a renewed determination by OPEC to settle the markets and encourage a sustained lift in oil prices. On October 24th 2017 the comments in the opening of this section noted earlier by Aramco CEO Amin Nasser came the same day that Brent Crude topped $60 per barrel for the first time in two years – a significant market high. This demonstrates a determination in OPEC to turn a bearish market into a bullish one – with Bloomberg noting that both *"Glencore Plc, Gunvore Group Ltd. and Trafigura Group Pte are all bullish on the future of oil prices"* [7]. This comes on the back of a Saudi-Russia agreement to extend production cuts for another 9 months.

If OPEC and Russia can impact oil prices so directly is the world really awash with US shale oil?

This rhetoric has been touted and as China slowed down their crude consumption in light of their 'Hard Landing', the market plummeted in 2015/16 to a point where the bottom of the oil price was unknown and unpredictable. Today however, OPEC's dedicated cuts are continuously reducing the oversupply and significant crude inventory declines (both onshore and offshore) are forecast.

So no, the world isn't really awash with shale oil – and what is stockpiled will balance out throughout 2018, as shown below.

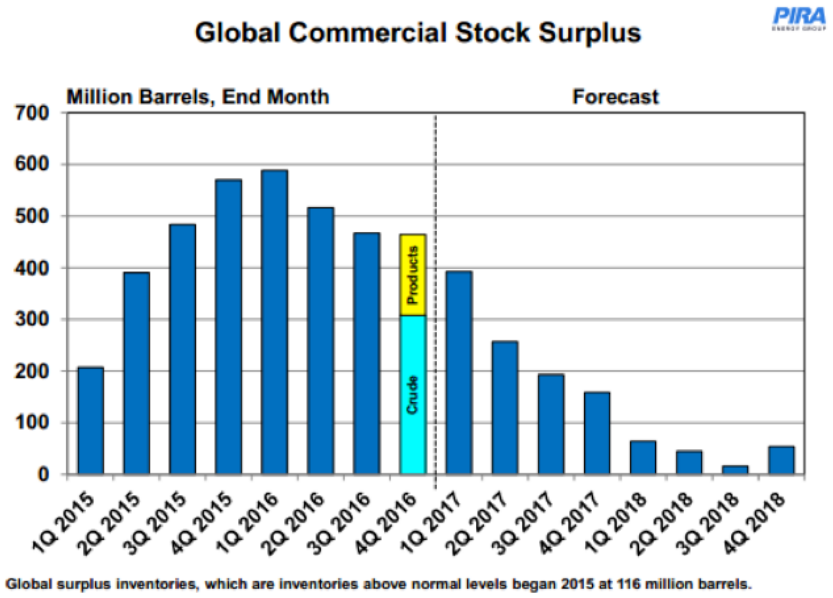

Fig 3. PIRA Economic Report [8]

Finally geo-political risk has always played a significant part in the volatility of the oil price, and this will continue to effect market volatility in 2018.

Currently sanctions and tensions between Iran and the US are regularly found in headline news, and in the later pages of business papers such as the Financial Times you will find information regarding African, North American and Central Asian pipelines being damaged or these regions suffering from political issues that are ultimately reducing the production and transportation of hydrocarbons.

For example, in the past six months mainstream news has highlighted significant production disruptions in Columbia, Australia, U.S., Syria, Yemen, Brazil and Canada (non-OPEC) and then Venuezuela, Iraq, Iran, Libya and Nigeria (Opec).

When supply concerns like these effect the oil price to an extent that mainstream newspapers feel a need to write about it – a rebalancing is certainly taking place.

The main notable geo-political challenges influencing the oil price are:

- Rising U.S.-Iran tensions and unclear U.S. policy
- Apparent end to the Niger Delta ceasefire
- Political and military situation fragile in Libya. Militia clashes with Haftar (LNA) likely
- Worsening economic conditions in Venezuela
- ISIS, political tensions, and fiscal constraints endangering capacity expansion plans in Iraq
- Turkey, PKK, KRG, and Baghdad tensions could disrupt Kurdish exports again
- No signs of resolution in Yemen. Conflict raising regional tensions
- Ongoing conflict in Syria intensifies sectarian and regional rivalries

Supply and Demand

Although a market in terms of its reputation and investor confidence is important, the only thing that will sustain a continued higher oil price is higher demand.

Throughout 2017 there has been a global increase in the demand for oil, which has widely gone unnoticed due to this need being satisfied by the existing stockpile – however these trends are expected to continue throughout 2018 and beyond.

At the 2017 PIRA European Seminar, oil analytics provider S&P Global highlighted in detail these trends. Below are a few headlines which indicate an increasing demand: [9]

- An increase of approximately 3% in world trade volume, a key indicator of strength which is supported by the increased Solid Distillate demand only just being met by current supply
- Annual World Oil Demand rose from 1.52MMB/D in 2017 to 1.76MMB/D in 2018 (developed/industrialized markets)
- Developing Nations' Per Capita Income Is at a Level Where Oil Demand Begins to Grow Rapidly (South Korea, Malaysia, Thailand and Taiwan)
- OPEC and Non-OPEC Output Cut Compliance

OPEC AND NON-OPEC OUTPUT CUTS (MB/D)

OPEC Crude	Reference Level	Committed Cut	Average 1H17 Output Cut	Compliance
Algeria	1,089	(50)	(35)	69%
Angola	1,751	(78)	(103)	132%
Ecuador	548	(26)	(18)	70%
Gabon	202	(9)	(21)	238%
Indonesia				
Iran				
Iraq	4,561	(210)	(22)	11%
Kuwait	3,000	(131)	(130)	99%
Libya				
Nigeria				
Qatar	648	(30)	(44)	146%
Saudi Arabia	10,544	(486)	(456)	94%
UAE	3,013	(139)	(150)	108%
Venezuela	2,067	(95)	(120)	127%
OPEC Total	**27,423**	**(1,254)**	**(1,099)**	**88%**
Non-OPEC Crude and Condensate	**Production Dec-16**	**Committed Cut**	**Average 1H17 Output Cut**	**Compliance**
Azerbaijan	795	(35)	(22)	63%
Bahrain	199	(10)	(5)	49%
Brunei	127	(4)	15	(372%)
Equatorial Guinea	186	(12)	(18)	152%
Kazakhstan	1,781	(20)	11	(57%)
Malaysia	675	(20)	(9)	43%
Mexico	2,035	(100)	(30)	30%
Oman	995	(45)	(28)	62%
Russia*	11,274	(300)	(187)	62%
Sudan	106	(4)	(3)	82%
South Sudan	115	(8)	0	(2%)
Non-OPEC Total	**18,288**	**(558)**	**(276)**	**49%**
OPEC and Non-OPEC Total	**45,711**	**(1,812)**	**(1,375)**	**76%**

**Russia cuts compared to October 2016 production.*

Fig 4. OPEC and Non-OPEC Production Cut Compliance [10]

Between the increase of trade volume, notable demand increase and falling production volumes the oil price will rise. This recipe creates a certainty… but where will it rise to?

The Brent Anchor

Throughout the majority of 2017 we operated with Brent selling at around $55. Brent has acted as an anchor for other markets, holding WTI between $45 and $50 for example.

With the lack of maintenance, E&P activity and the natural decline in production (helping to remove some of the dramatic stockpiles), Brent climbed to $60.44 on October 30th – bringing WTI to a two year high of $53.90. This creates an average market cost spread of $55 - $70 dollars per barrel under the current market conditions – some $5 higher than the PIRA estimate, if we want to bullish!

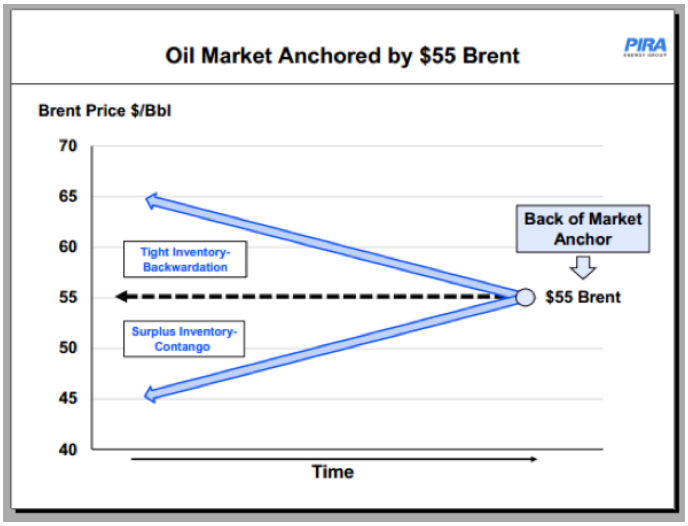

Fig. 5 Brent Achor [11]

The data in Fig. 6 & 7 shows a stronger finish to 2017, with a balanced, anchored and somewhat sustainable pattern of value increase across both WTI and Brent on Q3/Q4 2017.

Fig. 6 WTI August to November [12]

Fig. 7 Brent August to November [13]

On November 1st oil traders provided another sign that the market is rebalancing, and value is increasing as a new dynamic in the oil market was triggered for the first time in three years.

WTI joined Brent as moving from *"Contango"* to *"Backwardation"*. Backwardation is when there is an industry wide expectation that the price of a commodity (in this case oil) will be higher in the future that it is today. In short, the market believes oil will sustainably increase in value from where it stands today – and this has indeed been the case for the past four consecutive months.

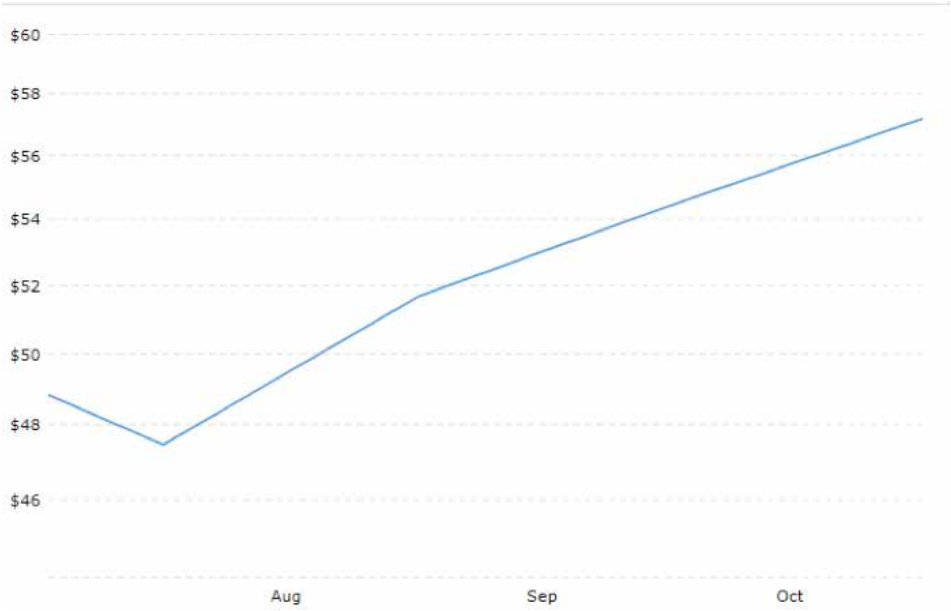

Fig 8. Aug – Nov 4 Month WTI Consecutive Cost Increase [14]

If there is to be a small building of stocks in the Q1/Q2 as suggested in the introduction, it is likely that prices will hold around where we stood in October 2017 (a $60 Brent Anchor), but a stronger finish to 2018 and further market rebalancing, as suspected by Kloza among others, may peak price at $70 for Brent by December 2018.

This would offer an average of $65, which is somewhat inline with the World Bank's revised forecast.

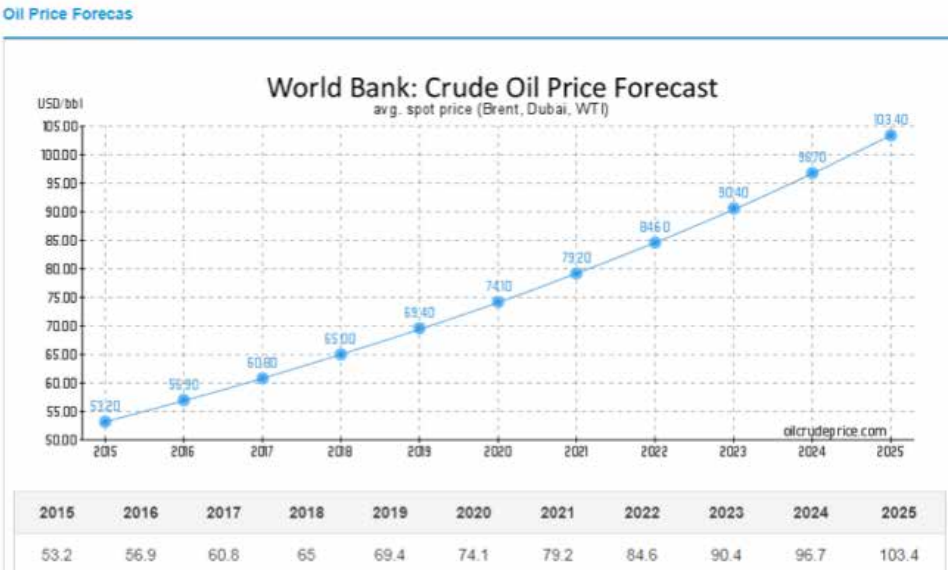

Fig 9. World Bank Crude Oil Forecast [15]

Based on this a fair prediction for the oil price in 2018 is as follows:

	BRENT AVERAGE	WTI AVERAGE
JANUARY - JUNE	$64	$58
JUNE – DECEMBER	$70	$64
2018 AVERAGE	$67	$61

WHAT DOES THIS MEAN FOR WELL INTERVENTION?

Well intervention is a general terminology for any type of well work that takes place on an existing well. For ease of discussion we can silo these services into three phases of a well's lifecyle:

1. Completion Phase: Once a well is drilled a wells team will often be used to stimulate the well through some pumping operations (acid for example) to begin communication between the reservoir and well
2. Production Phase: During a well's production treatments for integrity and production enhancement will have to be conducted. This can be anything from hydraulic fracturing to scale squeezes
3. Decommissioning Phase: At the end of a well's life the well integrity needs to be completely restored ahead of executing a complete plugging and abandonment campaign

Until 2014 the majority of activity centred around the first and second phases, as the business was heavily focussed on identifying big discoveries, bringing them online and then uplifting production as quickly as possible. During this period the oil business was an E&P business.

Throughout 2015 the existing drilling contracts were honoured, however as the rig contracts expired they weren't renewed and the business changed. CAPEX had massive and immediate reductions globally as operating companies focussed on bringing the cost base down as soon as possible. Although also impacted, the OPEX budgets remained a necessity as revenue came from the existing assets and extending, uplifting and optimizing production wells was critical for the industry. During this period the oil business went from *E&P* to just *P*.

Towards the end of 2016 and through 2017 there was another interesting market dynamic. Global regulatory bodies stretching from regions like the OGA's North Sea to Malaysia's MPM created and enforced new P&A guidelines and regulations. Idle wells either have to be abandoned or brought back into production. In recent history the industry has seen P&A activity rise with new projects in Abu Dhabi, West Africa and of course our more established decommissioning markets of the North Sea and Gulf of Mexico. The oil business is now a *P and P&A* business, as far as well service contractors are concerned.

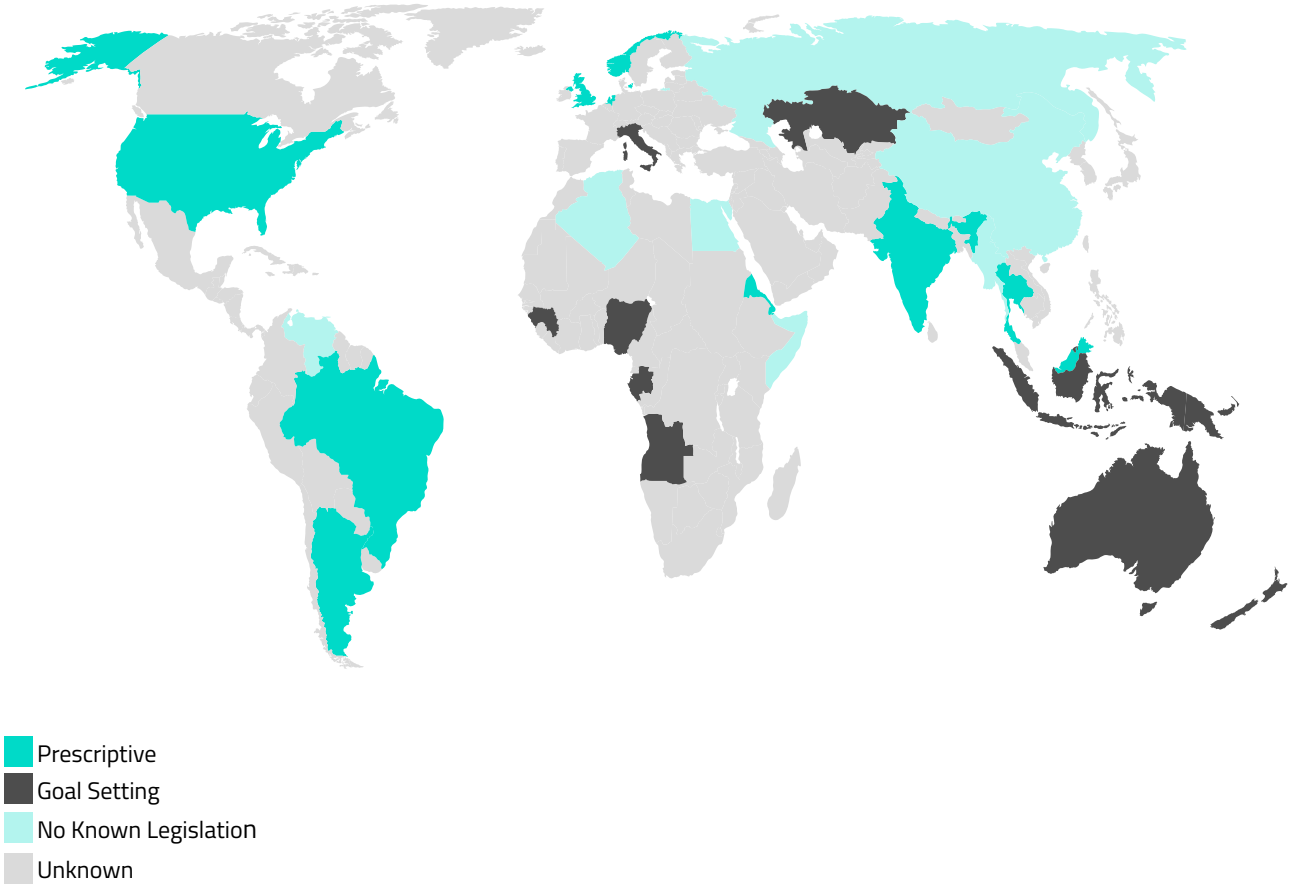

Fig 10. Global P&A Regulatory Development [16]

During the past three years the pendulum has swung towards a business model that is reliant on extending the life of economic production fields and removing idle or non-profitable wells from the portfolio. From our research we do not expect any significant rise in rig activity from 2017-2018, and therefore do not see any further demand for well services at the front end of the well life cycle. However, there will be more activity surrounding the workover of production wells and P&A.

If a field is profitable in the $50 oil environment, workovers can generate a lot more value in a $60 - $70 oil environment in 2018 – alternatively if your wells are cost negative at $50-$60 oil it is likely they are P&A candidates as the regulatory environment will no longer allow them to be suspended until markets improve to make them economic once again.

The below grid outlines some of the applications that will experience a demand increase in 2018:

ECONOMIC WELLS	NON-ECONOMIC WELLS
PRODUCTION PHASE APPLICATIONS	DECOMMISSIONING PHASE APPLICATIONS

APPLICATIONS	APPLICATIONS
Production Enhancement (Stimulation/Perforation)	Critical Integrity Remediation
Integrity Remediation	Plug and Lubricate
Solids Treatment/Management	Plug and Abandonment
DESIRED METHODOLOGY	**DESIRED METHODOLOGY**
Slickline	Riserless Light Well Intervention
Wireline (Open water for subsea)	Wireline (Open water for subsea)
Coiled Tubing (Open water for subsea)	Thru-Tubing
Hydraulic Workover (Advanced Units)	Hydraulic Workover (Advanced Units)
WELL SERVICE DEMAND EXAMPLES	**WELL SERVICE DEMANDS EXAMPLES**
Pumping Acid/Foam	Milling
Hydraulic Fracture	Pulling of Downhole Equipment
Re-Perforation	Wellbore Cleanout (Circulation/Pumping)
Downhole Heat Treatment	Plug Setting
Fishing Tools	Cementing/Cement Squeeze
Downhole Diagnostics/Evaluation	Downhole Diagnostics/Evaluation

** This is exemplary, and by no means exhaustive*

From 2018 more operators will have a focussed well intervention policy that relates to their production efforts (particularly subsea). Infield Systems note that by the end of 2019 the volume of aged subsea wellstock alone will reach 9000 units that demand well intervention services - a 63% increase of well service candidates from 2014[17].

If we take into account that there are vastly more platform wells than subsea wells, the market is on a tipping point of significant demand for well services - (not to mention a wealth of onshore unconventional, conventional and multi-lateral wells which will stretch suppliers further). Market research organisation Markets&Markets shows that global well intervention market spend is expected to grow from an estimated USD 8.18 Billion in 2017 to USD 9.85 Billion by 2022 – supported by an increased demand for the above services[18].

From the P&A point of view the liabilities are very well referenced. Taking the UKCS for example, in an interview with *The Guardian* the regulator stated that in its worst-case scenario the bill could be £82.7bn, with almost half of this sum being dedicated to P&A activity[19]. For service providers in regions with defined regulations and operation practices (which is pretty much all established E&P markets based on Fig 10) the well service market generally operates above the benchmark technical standards. Safety obviously comes first, then an end-to-end intervention/P&A engineered system is designed that…

- Goes far beyond the regulatory minimum standards
- Has flexibility to offer contingencies (for any integrity surprises or equipment failures)
- Robust well service operational models that can over deliver on their promises

In spite of the downturn taking talent out of the industry, squeezing operators and contractors alike and mothballing projects, more intervention, integrity and P&A campaigns are now taking place. With operators developing a defined P&A strategy that is enforced by tough regulators and a greater demand for downhole subsea and drytree production solutions, 2018 is likely to be the most active year for well intervention applications since 2014.

REFERENCES

1. https://oilprice.com/Latest-Energy-News/World-News/Conoco-Boasts-40-Per-Barrel-Breakeven.html
2. http://phx.corporate-ir.net/phoenix.zhtml?c=101801&p=irol-newsArticle&ID=2317454
3. https://www.cnbc.com/video/2017/10/19/get-ready-for-a-tale-of-two-oil-markets-says-opis-tom-kloza.html
4. https://www.thenational.ae/business/energy/aramco-chief-sayslack-of-investment-may-hit-oil-supplies-1.669875
5. http://www.macrotrends.net
6. http://www.macrotrends.net
7. https://oilprice.com/Energy/Oil-Prices/Major-Oil-Traders-See-Upside-In-Oil-Prices.html
8. Global Oil Market Outlook, Dr. Gary N. Ross, Head of Global Oil, S&P Global, 2017 PIRA European Seminar, June 13th, 2017
9. Global Oil Market Outlook, Dr. Gary N. Ross, Head of Global Oil, S&P Global, 2017 PIRA European Seminar, June 13th, 2017
10. Global Oil Market Outlook, Dr. Gary N. Ross, Head of Global Oil, S&P Global, 2017 PIRA European Seminar, June 13th, 2017
11. Global Oil Market Outlook, Dr. Gary N. Ross, Head of Global Oil, S&P Global, 2017 PIRA European Seminar, June 13th, 2017
12. https://www.dailyfx.com/crude-oil
13. https://www.dailyfx.com/crude-oil
14. http://www.macrotrends.net/1369/crude-oil-price-history-chart
15. https://www.oilcrudeprice.com/oil-price-forecast/
16. http://www.offsnet.com/north-sea/item/39-overview-of-international-offshore-decommissioning-regulations
17. https://www.infield.com/market-forecast-reports/
18. http://www.prnewswire.co.uk/news-releases/well-intervention-market-worth-985-billion-usd-by-2022-619152164.html
19. https://www.theguardian.com/business/2017/jun/29/taxpayers-face-growing-burden-for-dismantling-of-north-sea-rigs

OFFSHORE NETWORK WOULD LOVE TO HEAR FROM YOU...

Offshore Network

Offshore Network Ltd. is an independent business intelligence & conference provider catering specifically to the offshore oil & gas industry. We exist to facilitate a safe and efficient future for the exploration and production of oil & gas around the globe. We do this by uniting the most in-fluential figures in the industry to challenge the status quo and share cutting edge innovations.

This all happens at our industry leading conferences and through our original content.
If you would like to contribute to this discussion or are interested in taking part in a future Q&A or article, please contact Offshore Network (www.offsnet.com) today:

info@offsnet.com

Join the Offshore Engineering Group on **LinkedIn**

UK Telephone: (0)203 411 9937
US Telephone: 713-5706-576

Follow Offshore Network on **Twitter**