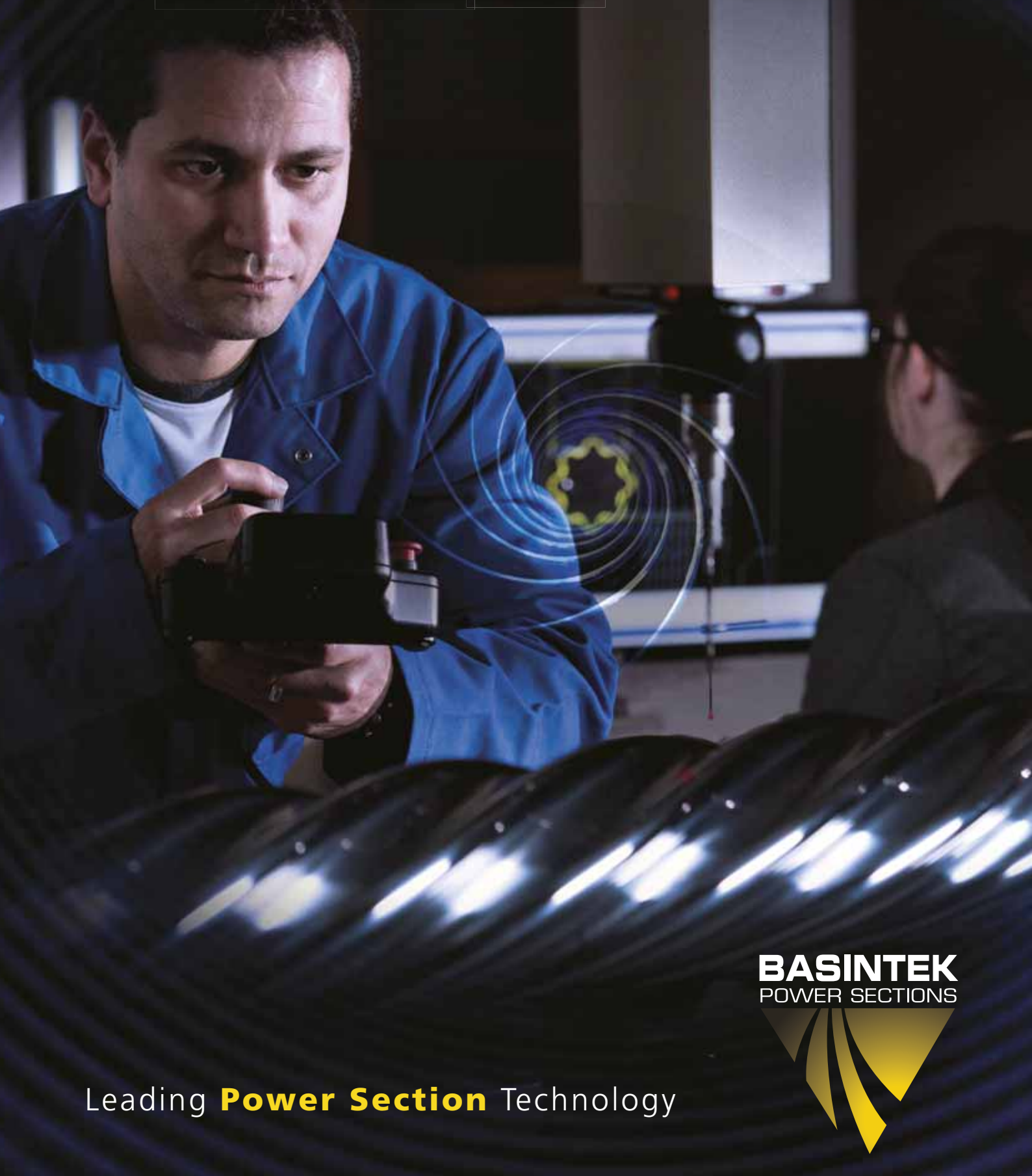


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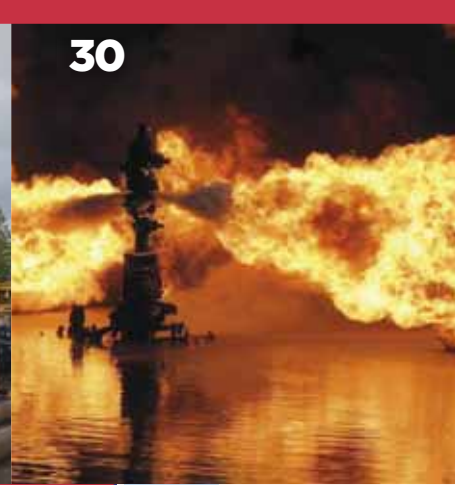
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Comment

March 2018

Contact us



David Bizley, Editor
david.bizley@oilfieldtechnology.com

As we head into spring, there continue to be signs of 'green shoots' of growth emerging across the upstream industry. On the back of sustained oil prices above US\$60/bbl, the industry appears to be slowly recovering.

Perhaps the most obvious success story is the one that never really went away, namely, the US shale industry. By taking advantage of new technologies, established infrastructure, and plentiful DUC wells, US shale operators were able to reduce breakevens and continue producing, even at sub-US\$40 prices. Rising prices, supported by OPEC cuts, have seen US production surpass 10 million bpd with estimates showing that the 11 million bpd barrier could be broken this year.

However, this continued growth has raised some concerns at OPEC as the group loses market share to US producers. OPEC Secretary General, Mohammed Barkindo, was quoted as saying that a "common understanding" between OPEC members and US producers was needed.¹ Nigeria's oil minister, Emmanuel Ibe Kachikwu, was more direct, stating that "We need to begin to look at companies that are very active in these areas and begin to get them to take some responsibilities in terms of stability of oil prices [...] Some of the same companies that are working in shale are the same companies working in OPEC [countries]."² Exactly how this would be achieved is unclear, not least because US companies are prohibited from orchestrating supply restrictions in order to affect prices. The whole 'theme' of the downturn has been one of OPEC reacting to pressure from US shale, and it doesn't look like that's going to change any time soon.

The other positive news comes from the offshore sector, which was badly hit by the downturn. At their lowest, vessel dayrates fell by as much as 75% and the sector overall has seen several years of successively reduced expenditure. However, despite these challenges, there appears to be some light at the end of the tunnel with increasing levels of activity and investment.

According to analysts at GlobalData, the top 10 upcoming offshore oil projects alone are due to receive US\$151.5 billion worth of capital investment over their lifetimes, with US\$97 billion being used to bring an additional 1.6 million bpd to global markets by 2025. The largest of these projects is Norway's Johan Sverdrup, which is expected to produce more than 600 000 bpd by 2024 with an estimated cost of US\$25.4 billion.

Higher prices have also brought on an uptick in exploration activity, which in turn is supporting a rise in rig dayrates. Transocean's CEO, Jeremy Thigpen, commented on the improving market conditions and highlighted how explorers were once again looking in regions characterised by harsh environments: "This upward price momentum has provided some needed confidence among our customers [...] Given the improvements that we've witnessed in harsh environment utilisation and dayrates, we feel strongly this market is in the early stages of a recovery."³

Although the damage done, particularly offshore, will take some time to repair, it seems that the worst is over for the upstream industry – 2018 looks set to be a year of gradual recovery. ■

References:

1. 'Shale boom, oil price stability dominate Houston energy conference' – <https://uk.reuters.com/article/us-ceraweek-energy/shale-boom-oil-price-stability-dominate-houston-energy-conference-idUKKBN1GH3CU>
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3. 'Offshore Oil Recovery Begins in the World's Harshes Environment' – <https://www.bloomberg.com/news/articles/2018-02-21/offshore-oil-recovery-beginning-in-world-s-harshes-environments>

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World news

March 2018

President Energy provides update on operations in Argentina

President Energy, the upstream oil and gas company focused primarily in Argentina, reports record results in January with each concession making good returns and contributing profits.

The company's Argentine assets generated US\$1.3 million after all Opex, G&A and finance costs. Positive cash generation was higher than this at over US\$1.8 million due to continued utilisation of tax credits which are estimated to continue through 2018. President expects to pay no corporation tax this year due to the utilisation of tax losses carried forward.

Sales prices achieved were an average of US\$63.50/bbl for Puesto Flores and US\$53.70/bbl for Puesto Guardian. Both prices are estimated to be at approximately the same level for the current month.

In relation to Puesto Guardian, the concession is now making a significant contribution to the overall profitable results in Argentina and this contribution should increase as the complex work being performed progresses through Q1. In relation to President's Neuquén Basin assets, work has now commenced to test the long shut-in Estancia Vieja field.

Peter Levine, Chairman and CEO, commented: "We are making excellent progress and 2018 has started really well. Every Concession in Argentina is contributing to these results and combined with the US\$200 000 per month free cash generation from Louisiana, the company is in its strongest ever position." ■

Lundin Norway granted drilling permit

The Norwegian Petroleum Directorate (NPD) has granted Lundin Norway AS a drilling permit for well 7220/11-5 S, cf. Section 15 of the Resource Management Regulations. Well 7220/11-5 S will be drilled from the Leiv Eiriksson drilling rig in position 72° 01' 21.08" north and 20° 29' 21.15" east.

The drilling programme for well 7220/11-5 S relates to the drilling of an appraisal well in production licence 609. Lundin Norway AS is the operator with an ownership interest of 40%. The other licensees are Idemitsu Petroleum Norge AS (30%) and DEA Norge AS (30%).

The area in this permit consists of the blocks/parts of blocks 7220/6, 7220/9, 7220/11, 7220/12 and 7221/4. The well will be drilled 4.5 km southwest of the discovery well, 7220/11-1.

Production licence 609 was awarded on 13 May 2011 in the 21st licensing round on the Norwegian shelf.

The permit is contingent upon the operator securing all other permits and consents required by other authorities prior to commencing the drilling activity. ■

NOVATEK signs MOU with Saudi Aramco

PAO NOVATEK has signed a Memorandum of Understanding (MOU) with Saudi Aramco, the Saudi Arabian National Oil Company.

According to the MOU, the parties agreed to collaborate internationally on natural gas projects, including LNG supplies, development of LNG markets, gas exploration and production projects, as well as research and technology development.

NOVATEK's Chairman, Leonid Mikhelson, noted: "We see a wide array of exciting and mutually beneficial energy opportunities to cooperate with Saudi Arabia. Our company owns one of the world's largest high-quality, low-cost conventional gas reserve base and has gained unique and valuable experience of developing LNG-projects in the Russian Arctic area. NOVATEK's strategy envisages rapidly growing our LNG production and attracting international partners, and, accordingly, we welcome the interest of such a globally important company as Saudi Aramco to jointly collaborate with us in gas markets." ■

In brief

Morocco

Chariot Oil & Gas Limited, the Atlantic margins focused oil and gas exploration company, has announced that the Saipem 12000, a sixth generation ultra-deepwater drillship, has commenced its mobilisation to drill the RD-1 well on the Rabat Deep Permits in Morocco (Eni Maroc B.V. 40% (operator), Woodside Energy (Morocco) Pty Ltd 25%, ONHYM 25%, Chariot Oil & Gas Investments (Morocco) Limited 10%.

South Africa

Qatar Petroleum has entered into an agreement with Total of France to acquire a 25% participating interest in the Exploration Block 11B/12B, offshore South Africa.

Once the agreement receives regulatory approvals by the South African government, Qatar Petroleum will have a 25% participating interest in the block, while Total (the operator) will have 45%, Canadian Natural Resources Limited (CNR) will hold 20%, and Main Street 1549 Proprietary Limited (Main Street) will have a 10% participating interest.

Block 11B/12B is located in what is considered to be a frontier area in the Outeniqua Basin, approximately 175 km off the southern coast of South Africa. It covers an area of approximately 19 000 km² with water depths ranging from 200 to 1800 m.

China

G3 Exploration Ltd., an independent specialist in the exploration and development of coal bed methane gas (CBM), with roots in China and a focus on international expansion, has provided a progress update of the exploration and development activities for its Baotian-Qingshan (GGZ) Block, situated in the Guizhou Province, China.

World news **March 2018**

Diary dates

27 - 29 March, 2018

AAPG Global Super Basins

Houston, USA

E: customerservice@aapg.org

<https://superbasins.aapg.org/2018>

30 April - 3 May, 2018

OTC 2018

Houston, USA

E: meetings@otcnet.org

<http://2018.otcnet.org>

20 - 23 May, 2018

AAPG ACE 2018

Salt Lake City, USA

E: convene@aapg.org

<https://ace.aapg.org/2018>

11 - 14 June, 2018

EAGE Annual 2018

Copenhagen, Denmark

E: annual2018@eage.org

<https://events.eage.org>

23 - 25 July, 2018

Unconventional Resources

Technology Conference (URTeC)

Houston, USA

E: urtec@urtec.org

<http://urtec.org/2018>

Web news highlights

- ▶ Norwest Energy awards Xanadu 3D seismic contract.
- ▶ PETRONAS joins FAR to drill offshore The Gambia.
- ▶ Mira 6/2 gas production continues to climb.
- ▶ Deep Sea Mooring commences offshore Trinidad project for Maersk Drilling.

To read more about these articles and for more event listings go to:

www.oilfieldtechnology.com

Wood wins engineering services contract

Wood has been awarded the brownfield engineering services contract for the INPEX-operated Ichthys offshore facilities, located 220 km off the coast of Western Australia and onshore liquefied natural gas (LNG) processing facilities in Darwin, Northern Territory.

Effective immediately, the contract is for five years with a two-year extension option and will be executed from Wood's offices in Perth, Australia. It includes the delivery of engineering services to support the execution of brownfield works as well as technical support services.

It follows the win of a five year contract in September 2016, to provide subsea engineering services to support Ichthys LNG.

Robin Watson, Wood's chief executive said: "We are proud to be offering our diverse capabilities from subsea and topsides to brownfield engineering on this complex project, which has an operational life of at least 40 years." ■

Total enters two exploration blocks

Total-led international consortium (Total 40%, ENI 40%, Novatek 20%) and the government of Lebanon have signed two exploration and production agreements covering Blocks 4 and 9 located offshore Lebanon, in the eastern part of the Mediterranean Sea. These agreements provide for the drilling of at least one well per block in the first three years. The consortium's priority will be to drill a first exploration well on Block 4 in 2019.

As for Block 9, Total and its partners are fully aware of the Israeli-Lebanese border dispute in the southern part of the block that covers only very limited area (less than 8% of the block's surface). Given that the main prospects are located more than 25 km from the disputed area, the consortium confirms that the exploration well on Block 9 will have no interference at all with any fields or prospects located south of the border area. ■

TAG Oil updates Pukatea-1 exploration well

TAG Oil Ltd. has provided the following update with respect to TAG Oil's operated Pukatea-1 exploration well located in the Puka permit (PEP 51135, 70% TAG Oil) in the Taranaki Basin of New Zealand.

Pukatea-1 has reached a final total depth of ~3100 m measured depth after penetrating a (faulted) thickened overlying interval of basement rock without intersecting the Tikorangi Limestone formation. TAG Oil is encouraged by the intermittent hydrocarbon shows that were recorded within the section between ~2520 m and ~2680 m measured depth, and will proceed to run detailed electric wireline logs to evaluate these shows and the entire interval to ~3100 m.

Furthermore, as a result of the previously reported potential oil pay in the well's Mt. Messenger secondary target oil zone, following wireline logging, TAG Oil is planning to initially focus on the Mt. Messenger oil zone and complete the well to enable a future production test. This will allow the Company to evaluate the production potential of the Mt. Messenger oil zone, and a successful test could also result in restarting oil production from the currently suspended Puka oil field.

Toby Pierce, TAG Oil's CEO, commented, "We are encouraged by approximately 160 m of intermittent hydrocarbon shows below the Mt. Messenger section. A similar interval is present in several of the offsetting wells to Pukatea-1, specifically Hu Road-1 and Waihapa-6, and wireline logs will give us more information and clarity around this interval and whether it is worth investigating further." ■



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World news **March 2018**

Aker Solutions wins subsea order for Nova Project

Aker Solutions won an order from Wintershall Norge AS to provide the subsea production system, umbilicals and services for the Nova oil and gas field offshore Norway, highlighting the value of early engagement in projects.

The system will consist of two templates with manifolds, seven subsea trees including one spare, umbilicals and associated tie-in and controls equipment for Nova. The order includes installation and commissioning support services.

“We’re pleased to be selected to deliver the subsea production system for Nova,” said Executive Vice President Knut Sandvik, who heads Aker Solutions’ projects delivery centre. “The cost-optimised system is a result of our close cooperation with Wintershall in the front-end engineering phase and we’ll continue to work together through execution.”

Getting involved in the earliest stage of a field development increases the potential to make a project more efficient, creating more value for the customer. It also puts Aker Solutions in a strong position to secure work in the next phases of a development. Last year, 12 of Aker Solutions’ front-end engineering and design contracts led to fully-fledged projects.

Work for Nova starts immediately and involves facilities in Norway, the UK and Malaysia. Final deliveries are scheduled for 2019 and 2020.

Nova has total recoverable reserves of 80 million boe. The field is expected to come on stream in 2021. Nova will be tied back to the Gjøa platform, which is about 60 km west of Florø in northwestern Norway.

The companies agreed not to disclose the value of the contract, which will be booked in the first quarter. ■

Bibby Offshore completes contract for BP North Sea

Bibby Offshore, a leading subsea services provider to the oil and gas industry, has successfully completed a contract worth more than £2 million for BP in the North Sea.

The project, completed in December 2017, utilised Bibby Offshore’s diving support vessel Bibby Topaz to carry out inspection, repair and maintenance operations in the Rhum gas field, approximately 380 km north-east of Aberdeen.

The scope included control system low insulation resistance diagnostics and component replacements, manual valve operations and ROV inspection works at BP’s Bruce platform, which is located 44 km south of Rhum.

The project was also supported by an onshore engineering team to meet urgent client needs.

Howard Woodcock, chief executive at Bibby Offshore, said: “This is an important contract award for Bibby Offshore, and highlights the ongoing strong relationship between ourselves and BP.” ■

Dril-Quip awarded Ca Rong Do Project contract

Dril-Quip, Inc. have announced that Dril-Quip Asia Pacific Pte Ltd, its wholly-owned subsidiary based in Singapore, has been awarded a contract to supply top tensioned riser (TTR) systems and related services for the development of the Ca Rong Do Project located offshore Vietnam and operated by Repsol with the participation of Mubadala, PVEP and PetroVietnam.

Dril-Quip will provide a drilling TTR system and multiple TTR systems for the production, gas injection and water injection wells. The systems will include tie back connectors, tapered stress joints, riser joints, riser connectors, keel joints, tensioner joints, spool joints, flexible jumpers, surface wellheads, surface trees, control umbilicals and tensioner systems.

Blake DeBerry, President and CEO of Dril-Quip, stated, “We are pleased to be awarded this significant contract that would not be possible without the hard work and dedication of our employees at multiple locations around the world.” ■

NOV contract for subsea water treatment system

NOV signed its first contract for the Seabox™ subsea water treatment system. The contract was signed with a major operator who will deploy the system at an offshore installation in the third quarter of 2018 for an extended test during the 2018/2019 winter season.

The Seabox system enables water treatment to be done directly at the seabed and water to be pumped straight into the injection well. This will allow the operator to optimise waterflooding and improve oil recovery. Two successful pilot projects, backed by the Norwegian Research Council and several major oil companies, have demonstrated that the Seabox system reduces water treatment costs compared to other existing systems. ■

SDX Energy Inc. discovers gas in ONZ-7 well

SDX Energy Inc., the North Africa focused oil and gas company, has announced that a gas discovery has been made at its ONZ-7 development well on the Sebou permit in Morocco.

The ONZ-7 well was drilled to a total depth of 1167 m with 5 m of net conventional natural gas pay in the Hoot formation. The well came in on prognosis but reservoir quality exceeded initial expectations, encountering porosity in the pay section of 35.3%.

The well will now be completed, tested and connected to existing infrastructure. SDX expects to provide a further update on testing results in early February.

Paul Welch, President and CEO of SDX, commented:

“We are very excited to be able to announce another discovery, the fourth from five wells drilled to date in our nine well Moroccan campaign. For this well we used our own high resolution 3D seismic data, as we have for the other successful wells and as we will for the remainder of the campaign.” ■



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10 focused
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GOING FORWARD

Gavin Sutcliffe, dmgs::events, provides an overview of China's increasing impact on the global gas industry.



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Leading analysts Wood Mackenzie forecast global gas demand surging by as much as 41% over the next two decades, with LNG at the forefront of this new global 'dash for gas' as governments seek cleaner energy solutions to meet national energy requirements. The investment needed in driving such expansion of the global gas and LNG industry could reach US\$9 trillion, with most of that earmarked for major new infrastructure.

Who will be the world's most influential supplier?

The challenges of feeding this new demand for gas are sizeable and centre on the key question of who will provide what to whom? Pipeline gas or LNG? And from which supplier? During the recent Gastech 2018 Governing Body meeting in London, discussion focussed on how the world was currently experiencing competition between international gas producing countries to

determine who would ultimately take the spoils and lay claim to the title of world's most influential supplier.

Europe, China and India are among the key theatres of the global gas race. There is clear competition between producers in the US, Australia, Qatar and Russia, and their targets are importers of LNG or pipeline gas. These four regions are looking to project their energy exports throughout the world.

The war on pollution

When President Xi Jinping came to power in 2013, he set about making drastic changes to the country's burgeoning pollution problems, epitomised by his 'war on pollution'. As part of this, Xi led the drive for a cleaner environment, establishing a series of initiatives that have been set by the government to ensure national targets are met.

Five years later and China has started to significantly improve its environmental conditions and meet the targets set, with emissions from energy use declining for two years consecutively.

Many coal-powered generators are either being shut down or replaced with highly efficient and less polluting clean energy alternatives including wind, solar and natural gas. As a result,



the share of coal used in China's overall energy consumption is expected to fall from around two-thirds in 2015, to less than 45% by 2035.

These results have seen China lead the charge in moving to natural gas as an energy resource, with its consumption of the fuel expected to almost double to 11% in 2035.

As a result, northeast Asian spot LNG prices have jumped by more than two-thirds since May 2017 to around US\$10/million Btu currently; above oil-linked LNG contract prices of US\$8 - 9/million Btu – although, the recent crude price rises, if sustained, will soon push these oil-linked deals higher.

In October last year, Chinese gas imports reached 3.4 million t, and there was a rise of over 21% in the average LNG price for cargoes delivered to China and other Asian countries including, Japan, South Korea and Taiwan – the biggest monthly gain since November 2016.

China's speed

The global energy industry has been completely shaken by the development of China's LNG industry, which is progressing at what can only be described as 'an unstoppable pace'.

The five year average growth rate of China's domestic LNG production capacity is 36% with LNG imports growing at a rate of 15%. Domestic production reached 10.1 million t in 2017, up 28% from 2016, and import production reached 38.3 million t, an increase of 43% from 2016.

With Xi's government target set for gas to make up 15% of the country's energy mix by 2030, 5% more than in 2015. An additional 100 million tpy of LNG demand from China would be equal to an increase of more than 20% in total global LNG demand in 2030.

Indeed, China's long-term growth potential remains considerable, despite recent downward revisions. Chinese gas-into-power demand will grow by 366% from 2016 to 2035, as the country becomes the world's largest importer of LNG, overtaking Japan whose gas-into-power demand will fall by 33% as its nuclear fleet ramps up again.

The significance of the growing importance of LNG-based trade is that, unlike pipeline gas, LNG cargoes can be redirected to different parts of the world in response to regional fluctuations in demand and supply. As a result, gas markets are likely to become increasingly integrated across the world.

US deal with China

The recent US\$250 billion US-China deal, as revealed by the White House, has been set up by President Donald Trump to address an imbalance in trade. This new deal, which includes imports to China ranging from helicopters to beef, will act as a green light for China to continue buying US spot LNG and will likely trigger another wave of investments in US LNG production projects later on.

But market conditions could constrain actual US-China physical flows. There could be times when Chinese firms find it more economical to import through the traditional routes of Australian and Qatari LNG, or buy Russian gas via pipelines. As US LNG is sold on a destination-free basis, Chinese firms could well re-sell their volumes in the Atlantic basin if needed.

As to whether that oversupply materialises from now on, it looks as if there will be a demand scramble between China and other Asian nations versus how much new capacity the larger gas producers can add. US output is predicted to continue its steady growth, while Qatar and Russia both declared major new expansion

plans during 2017, which will kick in before the anticipated LNG oversupply ends, potentially adding to the current excess.

As remaining new LNG capacity is rolled out over the next few years, it may be a much closer balance between supply and demand than many had anticipated.

Cost (and infrastructure) is key

As two of the world's key players in the natural gas industry, India and China both struggle with infrastructure challenges. However, Chinese Banks are now offering loans for companies to help facilitate this growing need.

The total value of loans provided from 2014 to 2016 exceeded US\$13 billion, clearly showing the Chinese government's commitment and drive towards LNG development.

December 2017 saw the Asian Infrastructure Investment Bank (AIIB) approve its first loan in China, providing US\$250 million worth of funding for a natural gas project.

Despite being led by China, also its biggest shareholder, the AIIB has spent its first full year funding projects outside of China, mainly along the Belt and Road Initiative (BRI) corridors.

However, AIIB has now turned its attention to its home territory. This new funding project represents the AIIB's first corporate loan to utility company, Beijing Gas Group, for pipeline projects in the nation's capital. As its first loan to China for natural gas, this is hugely symbolic of Beijing's desire to move towards cleaner energy sources.

The previously used, Huaneng coal-fired power plant, with installed capacity of 845 MW, was shut in March 2017 in a bid to reduce harmful emissions in the city. The new investment project is expected to connect 216 750 households across 510 villages to the natural gas distribution network.

As well as investing in infrastructure and helping provide companies with the means to operate and develop natural gas resources, Chinese companies are also making exciting discoveries. This was seen recently, when China's CNOOC made what it claimed to be a mid-sized natural gas field discovery Bozhong 19-6 in Bohai Bay, offshore China.

The company reported that a 19-6 trap was located in the southwest sag of Bozhong south central Bohai, with an average water depth of about 22 m.

The discovery well Bozhong 19-6-1 was drilled and completed at a depth of 4181 m and encountered oil pay zones with a total thickness of approximately 25 m and gas deposits with a total thickness of about 348 m. The evaluation well was tested to produce about 1000 bbls of oil and 6.4 million ft³ of natural gas/d.

Additionally, Chinese energy firms have continued to look towards internationalisation as a way to increase their share in the bolstering industry, launching bids for a stake in gas fields across the world. In 2017, State-owned China Energy Reserve and Chemicals Group (CERCG) launched an AU\$463 million (US\$348 million) bid for Australia's AWE Ltd.

The Chinese firm, which runs oil and gas projects and LNG plants, said it was attracted to AWE for its stake in the Waitsia gas field in Western Australia.

Continuing the conversation

With the world's largest population and an expanding economy, China's demand for energy, and its impact on global energy markets, are set to continue growing for many years to come. The country's expanding gas and LNG markets will be a key theme of discussion at the 2018 Gastech Exhibition and Conference in Barcelona. ■



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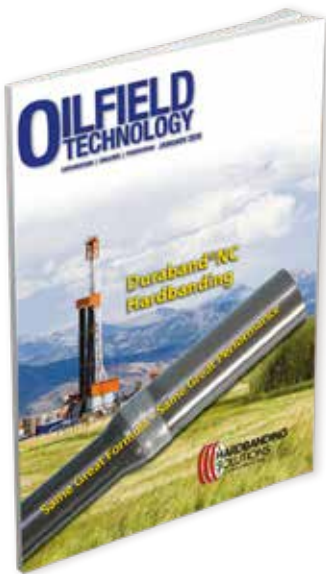


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