Oil & Gas News 石油快讯

Apr 2019 (003/2019)

Focus 本期焦点

Element Six "GP-2 PDC Cutters" supplied by SMT give good drilling performance in Changqing area

由新力驰提供元素六的「GP-2 金刚石复合片」能满足油气井的钻速要求，在长庆地区使用表现良好

Important Websites
重要网站连结

SMT Website 新力驰网站
https://synergymaterial.com/

E6 Website 元素六
https://www.e6.com

SMT @ 1688
新力驰@阿里巴巴
https://shop7588426n98059.1688.com/

Element Six "GP-2 PDC Cutters" supplied by SMT give good drilling performance in Changqing area

由新力驰提供元素六的「GP-2 金刚石复合片」能满足油气井的钻速要求，在长庆地区使用表现良好

经长庆钻进总公司钻井研发中心设计的两款 8 1/2″ 钻头具体情况：

1. 试验井基本情况

试验区块	井队	井号	井型	设计井深	设计位移
靖南	40637	高桥 38-128	定向井	3360	985

2. 钻头使用情况

尺寸型号	地层	使用井段 (m)		进尺 (m)	机械钻度 (m/h)	起钻原因
215.9mm CZS1963B	安定一石千峰	500	2760	2260	20.52	钻时慢
215.9mm CZS1953B	马家沟	2760	3360	600	13.50	钻达井深

第一只钻头钻穿刘家沟进入石千峰米，指示高于区块平均水平，起出钻头新度 60%，钻头保径基本无磨损。

第二只钻头从 2760 钻进至完结，进尺 600 米，机械钻速 13.5 米，磨损等级为 1，起出钻头新度 90%。

Conclusions 结论：

The usage index of Element Six "GP-2 PDC Cutters meets the drilling speed requirements, with good performance, in Changqing area.

元素六的 GP-2 金刚石复合片之使用指标能满足油气井的钻速要求，在长庆地区使用表现良好。

Bringing Affordable Gas To China

为中国带来经济实惠的天然气

蚬壳综合天然气及新能源总监 Maarten Wetselaar 表示，蚬壳新能源业务团队一直在探索机遇，不断自我提升。

蚬壳一直与中国境内外的中国国家石油公司合作，将来自全球各国和地区的安全能源供应给中国，同时与中国公司合作，将他们的产品和服务用于蚬壳的海外项目。

中国积极推动洁净环境，一个巨大的可再生能源市场吸引包括蚬壳在内的全球巨头分一杯羹。

新时代的中国人民追求更高质的生活和能源系统，意味着天然气和可再生能源需求将大增，继而逐步减少使用煤。中国政策亦积极推动转向采用更洁净的能源系统。

Wetselaar 致力带领蚬壳迈向更大的市场占有率，相信在未来 10 到 15 年内，中国的天然气需求至少会增加一至两倍。

蚬壳将继续扩大陕西昌北项目的天然气产能，以能更有效支持中国日益增长的能源需求；同时亦与中国石油天然气集团公司合作，为北京及其周边地区提供天然气。

另一方面，蚬壳亦通过其全球资源和贸易优势为中国提供额外的液化天然气。

Bringing Affordable Gas To China 为中国带来经济实惠的天然气

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Bringing affordable gas to China

Maarten Wetselaar leads Shell's efforts toward two-way energy ties with domestic companies

By ZHENG XIN
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Maarten Wetselaar, Shell's director for integrated gas and new energies, loves sports so much he believes there are clear parallels between sports and the energy sector.

The gas industry, he believes, would benefit by drawing lessons from athletes. Both sports and the energy sector need the right conditions to excel, and both need to commit to a lifetime of self-improvement if they want to win, he said.

"If you do not improve, the competition will overtake you in both sectors, because the competition will always improve."

To better compete in the Chinese gas market, which energy research and consultancy company Wood Mackenzie forecast will be as large as the European gas market within the next 10 years, Shell's new energy business team has been exploring opportunities, Wetselaar said.

Potential investment avenues, and areas where Shell's new technology could be introduced are in focus, he said.

"Many global energy companies compete on one hand, and collaborate on the other hand," he said.

"Shell, which has been partnering with Chinese national oil companies in and outside of China, brings secure supplies of energy from countries and regions around the globe to China, while also partnering with Chinese companies to take their products and services in design, and engineering, to our projects overseas."

After joining Shell in 1995, Wetselaar held a variety of financial, commercial and general management roles in downstream and trading businesses in Europe, Brazil and Ghana.

He became the director of integrated gas and new energies and a member of the executive committee of Royal Dutch Shell in 2015. He is responsible for Shell's integrated gas business, including the industry-leading liquefied natural gas and gas-to-liquids positions.

China's push to clean up the environment is creating a huge renewable energy market, tempting global giants of the energy industry including Shell.

Believing that natural gas will be an essential part of the future energy mix as the world moves to a low-carbon future, Wetselaar vowed to lead Shell toward a larger share of the market.

"China is in a new era and Chinese people need a higher quality of life, which also requires a higher quality energy system, and that basically means less coal and more natural gas and more renewable (energy) in the mix," he said.

Wetselaar said there had been tremendous stimulation in the Chinese energy fields with the idea of transitioning to a cleaner system, with coal being phased out, and other forms of energy coming in.

China is making the single biggest contribution to retiring coal with a phenomenal reduction of coal in the energy mix. This is a result of very deliberate government policies, he said.

"China is only at the beginning of the journey of increased gas which we think will at least double if not triple in the next 10-15 years. Right now the percentage of natural gas in China's energy mix is still relatively small (6.6 percent in 2017) compared to some of the more advanced economies (ranging from 22 percent to 67 percent)," he said.

Wetselaar said Shell will continue to expand the capacity of natural gas in the Changbei project in Shaanxi province to better support the country's growing energy needs, in cooperation with China National Petroleum Corp, the onshore gas field that will provide gas to Beijing and its neighboring region.

"China needs more energy for its economic development and Shell brings secure supplies of energy from countries and regions around the globe to China. We and our Chinese partners complement each other with different strengths and attributes."

According to Wetselaar, the company not only supplies China with gas developed and liquefied by its own joint ventures but also provides additional LNG sourced through its global resources and trading advantages.

Maarten Wetselaar, director of Shell's integrated gas and new energies, speaks during the 23rd World Energy Congress on Oct 11, 2016, in Istanbul. AFP

Bohai New Gas Field Sustains Millions Population For 100 Years

渤海新气田
可供数百万人口用百年

China National Offshore Oil Corporation announced yesterday that the "Bó zhōng 19-6 Gas Field" in the Bohai Sea area has been tested of having a high quality and high-yield oil flow, confirming the proven natural gas reserve exceeds 100 billion cubic meters, which can be used by millions population in a city for 100 years.

Bohai New Gas Field Sustains Millions Population For 100 Years
渤海新气田　　可供数百万人口用百年

hket | 中國要聞 China News 2019年2月26日 星期二 A20

渤海新氣田 可供百萬人口用百年

【本報訊】據央視新聞報道，中國海洋石油集團昨宣布，在渤海海域的「渤中19-6氣田」，測試獲得優質高產油氣流，確定天然氣探明地質儲量超過1,000億立方公尺，可供百萬人口城市居民使用上百年。

中海油：儲量逾千億立方公尺

渤海油田地處京津冀腹地，雖然是中國第二大原油生產基地，但由於複雜的地質構造，近50年的勘探發現儲量都以原油為主，鮮有天然氣發現。央視新聞稱，這是渤海灣盆地50年來最大的油氣發現，「如果全拿到地上的話，有1.5萬個鳥巢體育場的體積」。

中國海油渤中19-6探井項目經理劉寶生表示，此前完成的11口探井均發現有油氣，氣層厚度均超過百米。

天然氣是優質清潔能源，隨着經濟發展，中國東部，尤其是華北地區環境問題日漸突出，對天然氣的需求日增。2018年中國天然氣進口依存度大幅上升至45.3%。管道和液化天然氣（LNG）是進口的主要來源。管道天然氣輸送仍依靠與土庫曼之間的管道運輸。LNG方面，中國的LNG進口主要來自澳洲及卡塔爾等國。

How AI Is Bringing Sweeping Changes To The Oil Industry - Jan 2019

人工智能如何为石油行业带来巨大变化 – 2019 年 1 月

BP 与三藩市的人工智能创业公司 Kelvin Inc 合作，在位于怀俄明州 Wamsutter 的其中一个旧油田，实施了人工智能系统，利用数千个放置在井中的感应器，产生实时数据，创造数字孪生领域，由智能平台驱动，允许油田操作员监控当前读数以及预测变化 – 如温度，压力；公司其后允许人工智能系统进入控制面板，使甲烷失控率降低了 74％，及在削减成本 22％的同时，系统还在该领域增加了 20％的天然气产量。

自动化亦令工人可以使用自动管道处理器，取缔以往的绳索手动操纵管道，大大减少了平台上工作的危险。

最重要的是，感应器技术有望可实践自动操控钻头的可能性。

蚬壳自启用人工智能的无人钻井解决方案，钻井只需要以往六成的时间，开支亦只是过往的四成而已。

How AI Is Bringing Sweeping Changes To The Oil Industry - Jan 2019

人工智能如何为石油行业带来巨大变化 - 2019 年 1 月

In one of its old oilfield in Wamsutter, Wyoming, BP partnered with a San Francisco based AI startup Kelvin Inc to implement an AI system with thousands of sensors placed in the wells that generated streams of data in real-time, which then was used to create a digital twin of the field.

The digital twin powered by the smart platform allows the oilfield operators to monitor the current readings as well as predict the changes -temperature, pressure – if for instance a valve was switched on or off.

It wasn't long before BP decided to allow the AI system access to the console to adjust the controls at its Wamsutter field and the company estimates up to 74 percent reduction in runaway methane, due to effective monitoring and maintenance alone. While slashing cost by 22 percent, the system also increased gas production by 20 percent in the field.

Meanwhile, on Shell's 120,000-ton Olympus off-shore rig in the Gulf of Mexico, workers were often exposed to hazardous conditions as the routinely handle 300-pound steel drill pipes that are 30-foot in length.

But automation has drastically reduced the occupational hazards on the platform. Workers now use automated pipe handler instead of physically maneuvering the pipes using ropes.

Above all, due to advanced development in sensor technology, the technology is at a point where self-steering drill-bits are now within the realm of possibility.

At the moment, Shell places experienced engineers aboard the Olympus to monitor the US$100 million oil wells and steer the diamond-tipped drill bits through 15,000 feet of rock.

While the trend of widespread adoption of AI across all industries set to continue in the coming years, the retail industry is expected to see a notable increase in AI application that will transform the industry altogether. Source: Shutterstock

HERE'S HOW THE AI REVOLUTION IS TRANSFORMING YOUR FAVORITE RETAILERS Tech Wire Asia | 16 January, 2019

The AI enabled drilling solution, which will steer itself with no human intervention allows Shell to drill wells in 60 percent of the time for the 40 percent of the cost.

https://techwireasia.com/2019/01/ai-is-bringing-sweeping-changes-to-the-oil-industry-heres-how/

OPEC Secretary General Worried About Trade War Effect on China and India, Oil Demand's 'Bright Spots' - Jan 2019

石油输出国组织秘书长担心贸易战对中国和印度的影响，石油需求的“亮点” - 2019 年 1 月

石油输出国家组织秘书长 Mohammed Barkindo 对 2019 年实现均衡石油市场的前景持乐观态度，但表示中美贸易战可能会破坏世界原油进口比例最高的亚洲主要市场之增长。

中国是世界上最大的原油进口国，而印度的蓬勃发展将取缔中国，在 2024 年成为全球石油需求量最大的国家。

如果贸易战严重影响中国的增长，亦将会给亚洲其他地区带来冲击，直接威胁到石油生产国的重要收入来源。

OPEC Secretary General Worried About Trade War Effect on China and India, Oil Demand's 'Bright Spots' - Jan 2019

石油输出国组织秘书长担心贸易战对中国和印度的影响，石油需求的“亮点” - 2019 年 1 月

OPEC Secretary General Mohammed Barkindo is largely optimistic over prospects of achieving a balanced oil market in 2019. But if one thing keeps him awake at night, it's the U.S.-China trade war's potential to disrupt growth in major Asian markets that import the highest proportion of the world's crude.

China is the world's largest importer of crude, and its purchases constituted 18.6 percent of total crude imports in 2017. India's booming growth is set to see it overtake China as the country with the world's largest demand for oil by 2024, according to a recent report by energy consultancy Wood Mackenzie. But if a trade war severely hit China's growth, it would send shockwaves through the rest of Asia and threaten crucial sources of income for OPEC's producers.

Already, U.S. tariff pressure and dampened domestic demand have started to manifest themselves in China's economic forecasts. Reuters reported last week, citing sources with knowledge of China's economic policy, that the country is planning to set a lower growth target of 6 percent to 6.5 percent in 2019, compared with last year's target of "around" 6.5 percent.

https://www.cnbc.com/2019/01/13/opec-secretary-general-worried-about-trade-war-effect-on-china-india.html

$60 to $70 Is A Fair Price For A Barrel Of Oil, Egypt's Petroleum Minister Says - Feb 2019

埃及石油部长表示，油价在 60 至 70 美元是合理的价格 - 2019 年 2 月

埃及石油部长 Tarek El-Molla 称，通过减产协议，即将实现每桶石油价格合理化的目标。他告诉 CNBC，「它的价格介于每桶 60 到 70 美元之间。」埃及是中东地区重要的石油和天然气生产国，其目标是在 2019 年将产量适度提高到每天 67 万桶，「随着科技进步，崭新的石油生产方式为市场增加了产量，此等技术亦降低了每桶石油的成本，因此几年前我们可以接受每桶石油 100 或 90 或 80 美元的价格，现在已经变成不可以接受。」

$60 to $70 Is A Fair Price For A Barrel Of Oil, Egypt's Petroleum Minister Says - Feb 2019

埃及石油部长表示，油价在 60 至 70 美元是合理的价格 - 2019 年 2 月

There is a fair price for a barrel of oil and OPEC and its non-OPEC partners are close to achieving it through their deal to cut production, according to Egypt's Petroleum Minister Tarek El-Molla.

"It is in the range between $60 and $70 a barrel … somewhere in this bracket of price," El Molla told CNBC on Sunday.

Egypt is a significant oil and natural gas producer in the Middle East although it's not a member of OPEC and its output is dwarfed by members of the oil producing group and other non-OPEC producers like Russia.

Egypt is aiming to boost production modestly in 2019, to 670,000 barrels a day, although its output still trails that of others in the region. The latest figures from OPEC's monthly report in January showed that Egypt's oil producing neighbours to the west, Libya and Algeria, produced 928,000 barrels a day and a million barrels a day respectively in December. OPEC lynchpin Saudi Arabia produced 10.5 million barrels a day.

"With the advancement of technology, new ways of producing oil have added new volumes to the market and this technology means you're reducing the cost per barrel, and what might have been accepted a few years ago back when we were talking about $100, or $90 or $80, a barrel oil wouldn't be accepted now."

https://www.cnbc.com/2019/02/11/60-to-70-is-a-fair-price-for-a-barrel-of-oil-egypts-petroleum-minister-says.html

South Africa Just Became The World's Hottest Destination For Oil Exploration - Feb 2019

南非刚成为世界上最热门的石油勘探目的地 – 2019 年 2 月

石油地质学家发现南非拥有相当于超过 5 亿桶石油量。

法国石油公司道达尔最近公开发现了南非南海岸 175 公里外的一个大型「天然气凝析油」，可能含有 5 亿至 10 亿桶石油当量，该井延伸至超过 3.6 公里的深度。

凝析油 - 实际上是液体形态的天然气 - 比原油更珍贵的化石燃料。

它的交易价格通常比油价高 5 至 10 美元之间。

South Africa Just Became The World's Hottest Destination For Oil Exploration - Feb 2019

南非刚成为世界上最热门的石油勘探目的地 - 2019 年 2 月

Southern Africa has just become the hottest destination for hydrocarbon exploration in the world.

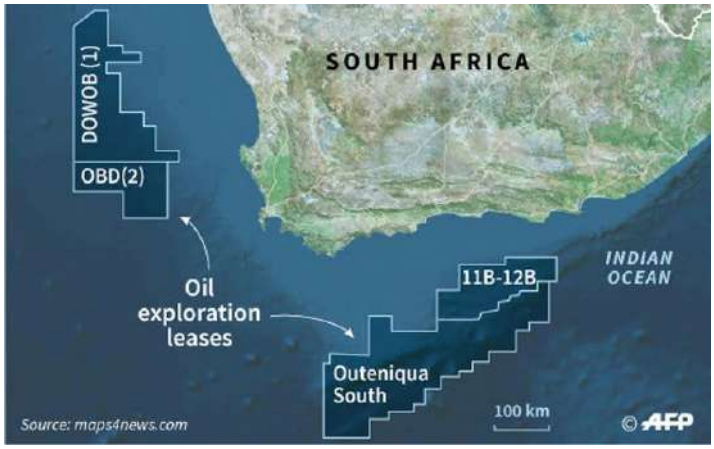
A 'giant discovery' is defined as more than 500 million barrels of oil equivalent… This is by a country mile the largest that has been found. For every barrel of oil geologists find, petroleum engineers find another seven…

Most of the delays… are political… rather than engineering delays… You can put in a pipeline relatively quickly… 2 kilometres per day in the ocean…

French oil firm Total recently made public its discovery of a large "gas condensate" discovery 175 kilometres off the south coast of South Africa at its "Brulpadda" prospects in the Outeniqua basin.

The company says it may contain between 500 million to over a billion barrels of oil equivalent.

The well extends to a depth of more than 3.6 kilometres.



The gas condensate – effectively a liquid form of natural gas - is a more prized fossil fuel than crude oil.

It usually trades at a premium of between $5 and $10 to the oil price.

http://www.702.co.za/articles/337652/south-africa-just-became-the-world-s-hottest-destination-for-oil-exploration

Wild Price Swings May Be The New Normal For Crude Oil Markets As US, Russia and Saudis Vie For Influence - Feb 2019

由于美国、俄罗斯和沙特阿拉伯争夺影响力，原油价格波动可能成为市场的新常态 - 2019 年 2 月

三大石油生产国陷入新的世界秩序意味着原油价格或趋波动。世界上最大的原油生产国 - 美国在对委内瑞拉实施制裁后，俄罗斯、沙特阿拉伯和石油输出国家组织可能会等待采取行动，在伊朗制裁之前急于增加供应导致价格暴跌。

2018 年 12 月的噩梦，布伦特原油波幅以 50 美元为最低，高位见 86 美元，平均价 68 美元。

花旗集团能源分析师 Eric Lee 说：「到 2023 年价格可能只需 45 到 60 美元，因为当超越或低于那个价位时，就会有过多或太少的页岩存量。这意味着每当沙特希望将价格推到这个范围之外时，就会出现对他们造成麻烦的一种对抗反应。」

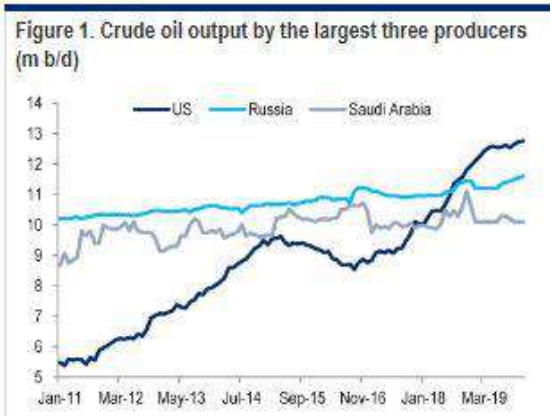
Wild Price Swings May Be The New Normal For Crude Oil Markets As US, Russia and Saudis Vie For Influence - Feb 2019 由于美国、俄罗斯和沙特阿拉伯争夺影响力，原油价格波动可能成为市场的新常态 - 2019 年 2 月

The three largest oil producers are locked in a new world order that could mean more volatile crude oil prices.

The U.S. has become the world's largest producer, and U.S. production has become a major factor in world supply.

Russia, Saudi Arabia and OPEC may wait to act after U.S. sanctions on Venezuela. A rush to add supply ahead of Iran sanctions led to prices cratering.

December 2018 was a real nightmare for the global market, where the swings were $50 at a low, $86 at a high and $68 for the average of Brent crude oil.



"Out to 2023, prices might only need to be $45 to $60 because when you go above that or below that, you have too much shale or too little shale. It means whenever Saudis want to push prices out of that range, there's going to be an opposite reaction to that that gives them trouble," Eric Lee, energy analyst at Citigroup said.

https://www.cnbc.com/2019/02/05/wild-price-swings-may-now-be-the-new-dynamic-for-the-oil-markets.html

Venezuela Sanctions Could Be Much More Impactful Than We Originally Thought - Feb 2019

委内瑞拉制裁可能比我们最初预计的更具影响力 - 2019 年 2 月

委内瑞拉对美国原油出口的中断可能会影响每周约350 万桶的原油进口。

全球原油高库存量可能迫使炼油厂降低产量，使产品市场紧张。

结合均紧张的产品市场和原油市场，2019 年下半年油价可能会大幅上涨，而布伦特原油价格可能会上涨至 90 美元一桶。

Venezuela Sanctions Could Be Much More Impactful Than We Originally Thought - Feb 2019

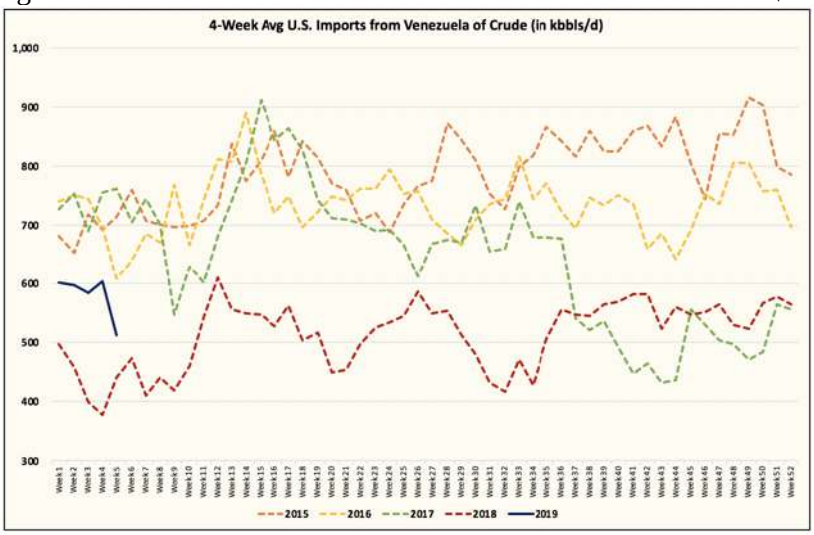
委内瑞拉制裁可能比我们最初预计的更具影响力 - 2019 年 2 月

Venezuela sanctions may be much more impactful than we thought.

Disruptions to Venezuela crude exports to the US could impact up to ~3.5 mbbls per week of crude imports.

Heavy sour crude storage globally could force refineries to cut throughput making product market tight.

Combining both a tight product market and tight crude market, oil price upside could be significant in the 2nd half of 2019. We think Brent could move to $90/bbl.



https://seekingalpha.com/article/4242218-venezuela-sanctions-much-impactful-originally-thought

Shell And Total Looking To Boost Tight Gas Output In Ordos Basin

蚬壳和道达尔寻求在鄂尔多斯盆地提高致密地层天然气产量

尽管中国北方地区面临复杂的地质挑战，国际超级巨头蚬壳和道达尔仍希望提高鄂尔多斯盆地的致密地层天然气产量。

自 2011 年以来，中石油-道达尔合资企业营运着 594 口气井，每天产量为 650 万立方米。

去年年底，中国环境保护部批准了蚬壳的环境影响评估，为鄂尔多斯盆地新昌北油田的拓展开路，估计储量为 117 Bcm。

该设施将在 2024 年达到峰值产能 236 Bcm，今年将建成 4.7 亿立方米的年产能。

最新的政府计划要求到 2020 年将中国的致密地层天然气产量增加到 37 Bcm。

PetroChina And Sinopec Remain Leaders In Drive For Shale Gas

中石油和中石化继续保持页岩气领先地位

由于政府在吸引私营和独立的能源公司方面缺乏成功，中国将继续依赖国内最大的两家能源公司中石油和中石化，盼能于 2030 年将页岩气产量提高到每年 800 亿至 1,000 亿立方米的目标。由于现有油田的自然减少，地质复杂和供水有限，中国在提高页岩气产量方面将面临挑战。

政府补贴是使目前页岩气生产有利可图的关键，中国石油和中石化正在呼吁将现有补贴延长至 2025 年。

两家公司均承认，如果没有政府补贴，他们的大部分出产都是不合乎经济原则的。

FOCUS CHINA 15 March 2019

Shell and Total looking to boost tight gas output in Ordos basin

INTERNATIONAL supermajors Shell and Total hope to boost tight gas production in the Ordos basin despite complex geological challenges in the northern China region, *writes Xi Yihe*.

France's Total has been working with PetroChina since 2011 to develop the Sulige South tight gas field, where the challenges include changing dip, significant back pressure from the horizontal wells and possible leaks from the target reservoir, which have significantly slowed drilling speeds.

Total has completed 560 wells at Sulige South, most of which are directional wells with depths ranging from 3700 to 4200 metres and a kick-off point at around 800 metres.

PetroChina and Total signed a production sharing contract in 2010, with PetroChina as operator, to develop the area.

Production started in 2012 and registered 2.24 billion cubic metres last year, an 11% increase on the field's output in 2017.

The PetroChina-Total joint venture now operates 594 gas wells with an output of 6.5 million cubic metres per day.

In the north of Sulige South, CNPC is operating the giant Sulige tight gas field, which produced 24 Bcm of gas last year from 2042 wells, 1.2 Bcm above the target.

CNPC is building ground facilities to further boost Sulige's production by 7.6 Bcm this year.

Including production from other regions, CNPC plans to raise tight gas production to 32 Bcm by 2020 and further to 35 Bcm by 2025.

Anglo-Dutch supermajor Shell, meanwhile, has just begun to develop the second phase of the Changbei tight gas field in the Ordos basin, which is technically more challenging due to the lower permeability of its tight sandstone reservoirs.

On site: drilling in Shell's Changbei gas field
Photo: SHELL

The second phase, called New Changbei, will tackle secondary reservoirs with hydraulic fracturing technology and horizontal wells.

At the end of last year, China's Ministry of Environmental Protection endorsed Shell's environmental impact assessment, clearing the way for development of the field, which has estimated reserves of 117 Bcm.

New Changbei, which covers an area of 1690 square kilometres in northern China's Shaanxi province and Inner Mongolia region, is planned to be developed in two phases from 2018-2021 and 2022-2024.

The development involves expanding the existing gas plant and building 28 well pads.

Drilling plans call for 310 production wells, eight appraisal wells and two injection wells.

Other offsite facilities include three gas pressure stations and export pipelines spanning 190 kilometres.

The facilities will reach peak production capacity of 2.36 Bcm in 2024, with 470 million cubic metres per annum of production capacity to be established this year.

The first bilateral horizontal well with two 1800-metre extensions was completed late last year. The well has a designed well depth of 6811 metres.

Changbei's first phase, where commercial operations started in 2007, is now producing from 45 wells.

Production at the 1693-square kilometre field with 96.1 Bcm of proven reserves has reached a plateau of 3 Bcm per annum. Production will start to decline this year.

The latest government plans call for increasing China's tight gas production to 37 Bcm by 2020.

PetroChina's Changqing oil and gas field in Ordos basin, where Changbei and Sulige are located, accounts for about 80% of China's tight gas production.

China has an estimated 3.5 trillion cubic metres of tight gas in place, accounting for about 40% of the country's total gas reserves.

About 1.8 Tcm is considered recoverable, which is about 30% of total recoverable gas reserves in China.

Tight gas refers to gas with permeability lower than 0.1 millidarcy. One CNPC official says that development costs for tight gas are higher than those of coalbed methane and up to four times the cost of conventional gas.

The company has been calling for tight gas to be considered an unconventional resource to make its development eligible for government tax breaks and other financial incentives.

PetroChina and Sinopec remain leaders in drive for shale gas

CHINA will continue to rely on the country's top two energy companies, PetroChina and Sinopec, to boost shale gas production to a target of 80 billion to 100 billion cubic metres per annum by 2030, following the government's lack of success in attracting private and independent companies to the sector, *writes Xu Yihe*.

Some are questioning the government's commitment to the initiative, given there have been no discoveries of note in five years of exploration.

In 2013 and 2014, the Ministry of Land & Resources launched two nationwide shale gas auctions covering 21 blocks, which attracted 17 independent companies to participate.

However, no discoveries have yet been reported.

The independents have complained about a lack of data on the acreage offered and limited guidance on where wells should be drilled.

Other industry officials have said the blocks had limited upside potential because all the prospective shale gas blocks were held by PetroChina or Sinopec.

PetroChina now owns and operates 11 shale gas exploration licences covering 51,000 square kilometres, with 10 of those licences located in south-west China's Sichuan basin.

Company chairman Wang Yilin said recently that his company will boost shale gas production to 12 Bcm by 2020.

In addition to shale gas-prone blocks, Sinopec and PetroChina hold most of the country's conventional gas blocks, some of which have overlapping unconventional gas reserves.

PetroChina's target of producing 12 Bcm of Sichuan shale gas by 2020 — and growing that to 24 Bcm by 2025 — could involve drilling more than 300 wells per year.

Future shale gas exploration and production efforts will continue to focus on Sinopec's Fuling play and PetroChina's Weiyuan-Changning fields, which together produced 11 Bcm last year, up 22.2% from 2017, accounting for almost all the country's shale gas output.

Data wells drilled in the western part of Hubei province have turned up 11.68 trillion cubic metres of shale gas in place, according to the Ministry of Natural Resources (MNR).

The MNR claims the discovery has potential production capacity of 10 Bcm per annum, although it could be years before first gas is produced.

The country faces challenges in boosting shale gas production because of natural declines at existing fields, complex geology and limited water supplies.

Much of China's shale gas is trapped in deep reservoirs, often below 3000 metres, and located in small pockets. This, combined with the rugged terrain in many places, makes recovery difficult.

Despite the challenges, PetroChina plans to increase Weiyuan-Changning's shale gas production to 6.5 Bcm through drilling 229 wells.

Government subsidies are key to making current shale gas production profitable.

PetroChina and Sinopec are calling for an extension of existing subsidies until 2025.

The current subsidies, which are due to cease next year, amount to about $0.045 per cubic metre.

Even though PetroChina and Sinopec have said their drilling and well production costs have fallen dramatically since 2014, with drilling costs cut 50% to about 50 million yuan per well, they admit that without subsidies, most of their output would be uneconomic.

CNOOC To Plug In To Digital Revolution

中国海洋石油即将进行科技革新

在近期向员工发出的公开信中，中海油董事长杨华强调，行业面临的挑战是适应科技进步所带来不断变化的经营环境，这问题对他构成巨大的压力。

在降低下一阶段结构性成本方面，科技将发挥重要作用，它还将决定未来的能源格局。

中海油将推动科技化的解决方案，以解放从前禁止的资源，包括开发渤海湾的重油矿，中国东部的致密气和南海的碳氢化合物。

由于报导指石油和天然气是一个对科技化认知甚少的行业，他敦促其员工思考因科技发展而带来的相关的变化。中海油还将为现职员工提供科技培训，并招募更多科技人才。

中海油积极发展为于南海勘探的无人平台和遥控装置，以生产石油和天然气。

杨认为，聘请合适的专业服务提供者对于取得成功至关重要。

科技化肯定会给实际运营带来一些风险，但它将为石油和天然气行业在具有挑战性的勘探和开发环境中保持竞争力，例如成本上涨，油价波动和来自其他能源的竞争。

Future opportunities: CNOOC chairman Yang Hua
Photo: REUTERS/SCANPIX

CNOOC to plug in to digital revolution

IN a recent open letter to employees at China National Offshore Oil Corporation (CNOOC), chairman Yang Hua expresses a degree of frustration with a major challenge facing the oil and gas industry, *writes Xu Yihe.*

He highlights the challenges facing industry to adapt to the changing operating environment brought about by advances in digital technology.

Yang tells employees that the digital world is no longer a fiction as some have imagined. "It is so real that it is confronting me with great pressure," he writes.

The fact that hydrocarbons will remain the world's main source of energy for at least the next decade does not mean that CNOOC can go about its business for another 10 years content it will survive as an oil company, he says.

Oil companies all face the same challenge to cut costs to remain competitive, but conventional thinking will result in only limited success, Yang says.

Digital technology has a large role to play in the next stage of structural cost reduction.

"The application of digital technology will define the future energy landscape," he says.

CNOOC will promote the transformation and restructure its operations — and mindset — around digital technology, he says.

Digitalisation has the potential to unlock reservoir information, boost oil recovery and improve worksite safety and cost efficiency through unmanned platforms, Yang writes.

The technology, he adds, could provide CNOOC with solutions to unlocking previously off-limits resources, including development of heavy oil deposits trapped in Bohai Bay, tight gas in eastern China and hydrocarbons in the South China Sea.

Yang says CNOOC will likely transform into a service-geared company, or a broad energy solutions provider, though it is capable of providing more energy products.

He cites a report showing that the oil and gas industry is less knowledgeable about digitalisation compared with other industries, with only 40% of operations involving digital technology, much lower than the average 49% seen in other industries.

The letter urges employees to think about what changes should be made in terms of organisation, research and goals, as they relate to digitalisation.

CNOOC will help by providing digital training for current employees and employing more people who are skilled in digital technologies.

Yang calls on employees to help develop a "digital roadmap" to guide the company's transformation as it uses technology to maintain high-value creation, to improve operating efficiency and to increase production.

There is no guarantee that Yang's initiative will help CNOOC recover resources that currently are not profitable to develop. But it should help the company work smarter, safer and more efficiently.

As its South China Sea exploration goes deeper and farther from shore, CNOOC is keen to produce oil and gas from unmanned and remotely controlled installations.

However, as the company embraces digitalisation it is likely to find that it lacks some of the skills and know-how needed to make the most of digital opportunities — bringing in the right specialist service providers will be critical for a successful outcome.

Digitalisation does bring some increased risk, such as exposure to power interruptions and potential hacking, but it is set to be a key way that the oil and gas industry can stay competitive in a challenging exploration and development environment marked by rising costs, oil price volatility and competition from other energy sources.

Oil Prices 油价

Brent Crude Oil Prices
伦敦布伦特原油期货
https://hk.investing.com/commodities/brent-oil

(WTI) 原油价格
https://markets.businessinsider.com/commodities/oil-price?type=wti

U.S. Active Drilling Rigs
美国活跃钻油井数目
International Active Drilling Rigs
国际活跃钻油井数目
http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-rigcountsoverview

USD 美金计	Brent Crude 布兰特期油	Oil (WTI) 纽约轻原油	Active Oil Rigs 活跃油井	
			US 美国	Int'l 国际
3 Apr 2019	69.75	62.73	1,006	1,027
2 Apr 2019	69.57	62.56	1,006	1,027
1 Apr 2019	61.19	61.77	1,006	1,027
29 Mar 2019	67.60	60.20	1,016	1,027
15 Mar 2019	67.04	58.41	1,027	1,027
28 Feb, 2019	66.41	57.27	1,047	1,023
14 Feb, 2019	64.60	54.48	1,049	1,023
31 Jan, 2019	61.14	54.03	1,059	1,025
15 Jan, 2019	60.58	52.02	1,075	1,025
31 Dec, 2018	54.16	45.86	1,083	991

Price Performance 价格表现

3M 三个月	+7.21%	+12.26%		
6M 六个月	+26.77%	+35.00%		
One Year 一年	-17.77%	-16.65%		
Since 自 2019	+28.45%	+35.42%	+13	+48

Reminder 提示

Exhibitions 展览会

Contact us 联络方式

Tel 电话 : 852 2882 1163

Fax 传真 : 852 2882 9168

Email 电邮 : info@synergymaterial.com

Exhibitions 展览会	Place 地点	2019
SPE Hydraulic Fracturing Technology Conference & Exhibition	德州 Texas	5-7 Feb
International Conference on Gas, Oil & Petroleum Engineering (GOPE-2019)	三藩市 San Francisco	18-20 Feb
SPE/IADC Drilling Conference & Exhibition	海牙 The Hague	5-7 Mar
SPE Middle East Energy Summit	麦纳马 Manama	18 Mar
Middle East Oil & Gas Show & Conference	麦纳马 Manama	18-21 Mar
International Petroleum Technology Conference (IPTC)	北京 Beijing	26-28 Mar
International Petroleum & Petrochemical Technology Conference (IPPTC)	北京 Beijing	27-29 Mar
China International Petroleum & Petrochemical Technology & Equipment Exhibition	北京 Beijing	27-29 Mar
Offshore Technology Conference (OTC)	休斯顿 Houston	6-9 May
SPE Offshore Europe 2019 Oil & Gas Conference & Exhibition	阿伯丁 Aberdeen	3-6 Sept
Society of Petroleum Engineers (SPE) Annual Technical Conference & Exhibition	卡尔加里 Calgary	30 Sept - 2 Oct