SPECIAL REPORT: LOGISTICS & STORAGE SEGMENT PLAYS KEYROLE

Oil&Gas MIDDLE EAST

NEWS, DATA AND INFORMATION FOR THE MIDDLE EAST'S ENERGY PROFESSIONALS

August 2016 • Vol. 12 • Issue 08

Merger impact

We delve into the integration of Abu Dhabi's IPIC and Mubadala / *p48*

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The country's oil sector is like a phoenix rising from the ashes / *p54*

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INTERVIEW

THE TOTAL CHAMPION

French energy behemoth Total has overcome stiff competition from its rivals to emerge victorious in its bid to win an operating stake in Qatar's Al-Shaheen oilfield – one of the largest in the world

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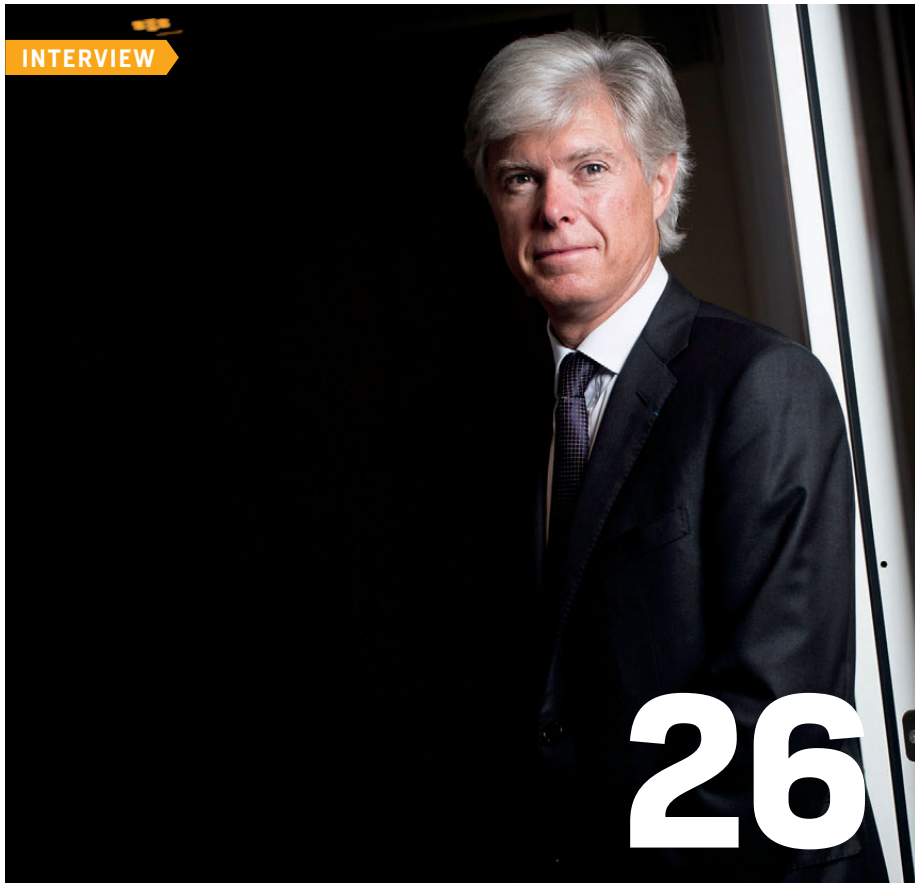

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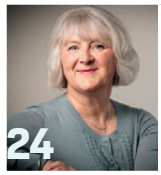

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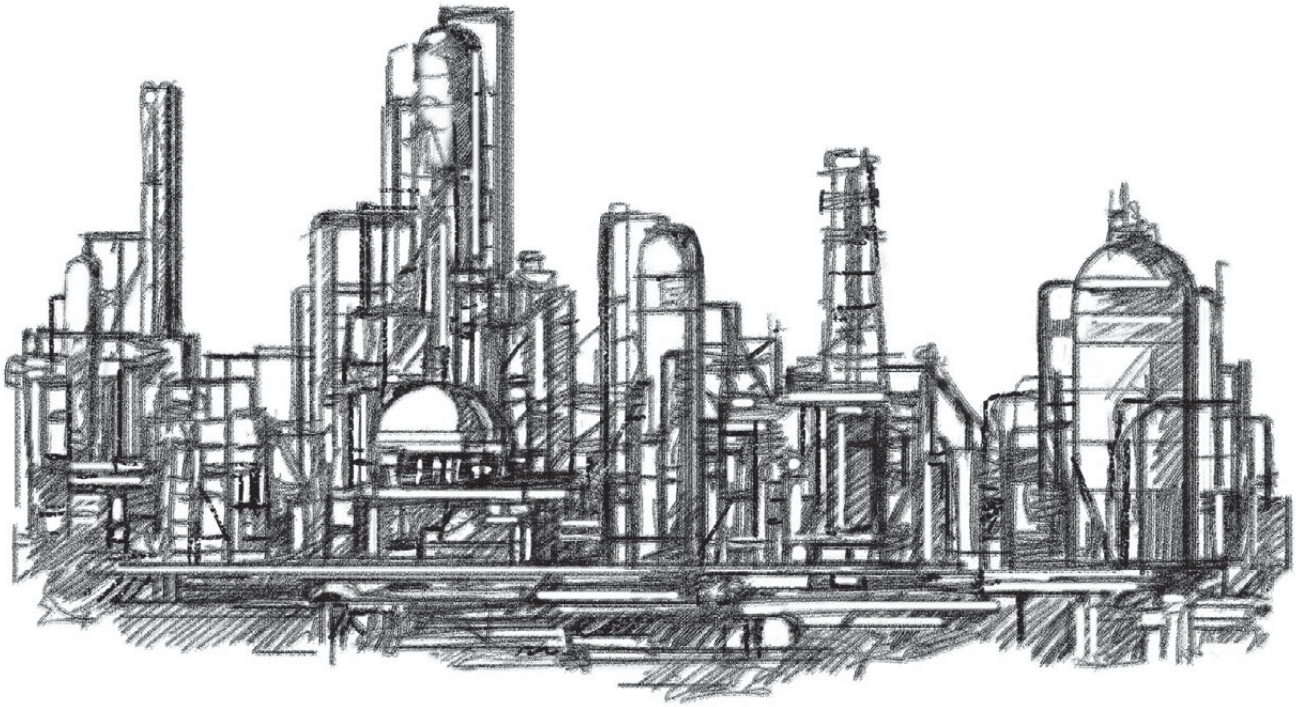

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Action-packed month for GCC O&G projects

For the oil and gas sector, July was a blockbuster month, with two highly anticipated projects in the limelight

THIS ISSUE: Abu Dhabi wishes to boost its SWF by merging two major investment firms. Is the UAE treading Saudi Arabia's path?

Activity in the oil and gas industry, especially for the last year or so, since it began struggling under below-par crude oil prices, has been erratic and tricky to predict. We observers, much like regional energy sector companies, have learnt to adjust to the new realities of an era of low oil prices and thus expect operations and transactions to remain subdued.

Then, in just one month, significant progress is made on two mega-projects, both worth billions of dollars and capable of breathing life (and hope) into the regional industry. July 2016 was definitely an exciting month.

State-owned Qatar Petroleum, after months of justified scrutiny, awarded the contract for a partner to operate one of the world's largest offshore oilfields to Total. The French oil and gas doyen emerged as the victor of a hotly-contested race to win a 30% stake in Al Shaheen oilfield for 25 years, beating the bid from the previous operator, Denmark's Maersk Oil, to retain control.

Intrigued by the manner in which Total came from out of left field to defeat stiff competition from its global rivals and win this landmark contract, I arranged an exclusive interview with the French energy giant's E&P chieftain – possibly the first since this decisive victory for the organisation – to get to the bottom of this and other company news (see p26).

The other prime project is one that could hold the key to Saudi Arabia's future electricity production capabilities, the Fadhili gas programme, for which owner Saudi Aramco awarded around $13.3bn-worth of contracts.

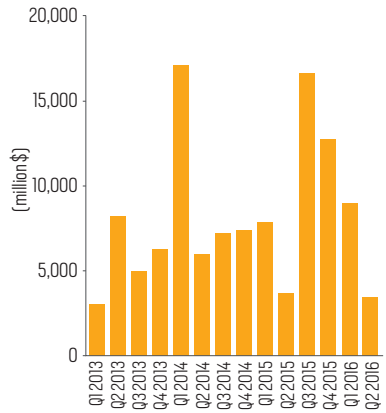
Scheduled to be completed by the end of 2019, the Fadhili gas project aims to become a key component of the Kingdom's master gas system, processing gas from both onshore and offshore fields. The new Saudi Aramco mega-project will help boost production and supply of clean-burning natural gas, lessening dependence on oil for power generation.

Here's hoping that the rest of this year continues to be just as eventful for the region's industry.

And, speaking of exciting events, I'd like to take this opportunity to remind you that time is running out for you to nominate your company, project or colleagues for the *Oil & Gas* and *Refining and Petrochemicals Middle East* 2016 Awards, with the August 21 deadline swiftly approaching. For the last seven years, our Awards have recognised the industry's biggest stars so, if you make the cut, the spotlight could be on you.

Indrajit Sen
Reporter, *Oil & Gas Middle East*
indrajit.sen@itp.com

GCC spending on oil, gas and chemicals projects



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America has the most oil!

The US possesses bigger oil reserves than even Saudi Arabia or Russia, and over 50% of the remaining oil is in the form of unconventional shale oil, according to Rystad Energy

The US holds more oil reserves than any other nation in the world, including Saudi Arabia, Russia and Venezuela. That conclusion comes from a new independent estimate from Rystad Energy, a Norwegian consultancy. Rystad estimates that America holds 264bn barrels of oil, more than half of which exists in the form of shale. That total exceeds the 256bn barrels found in Russia, and the 212bn barrels located in Saudi Arabia.

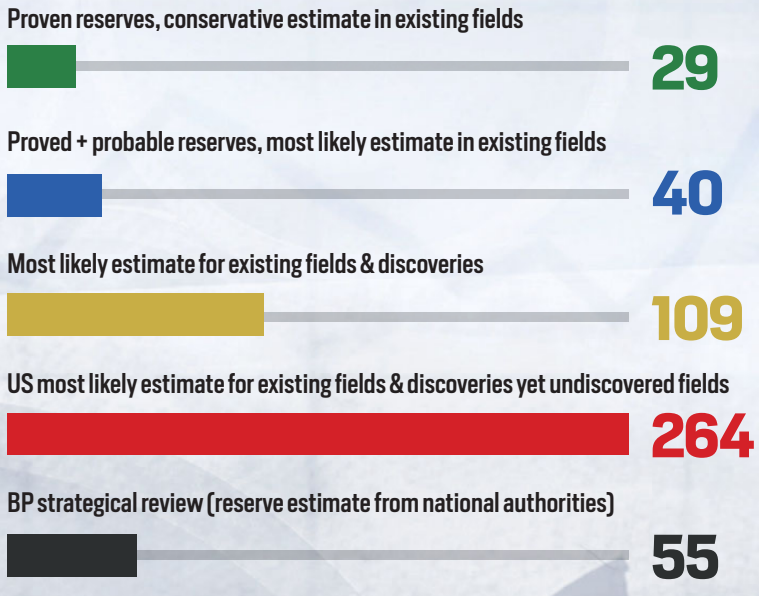
The findings go against conventional wisdom that Saudi Arabia and Venezuela hold the world's largest oil reserves. The US Energy Information Administration (EIA), for example, pegs Venezuela's oil reserves at 298bn barrels, the largest in the world. Rystad Energy says that these are inflated estimates because much of those reserves are not discovered. Instead, Rystad estimates that Venezuela only has about 95bn barrels, which includes its estimate for undiscovered oilfields.

For the US, more than 50% of the remaining oil reserves are in unconventional shale oil. Texas holds more than 60bn barrels of shale oil according to the new data.

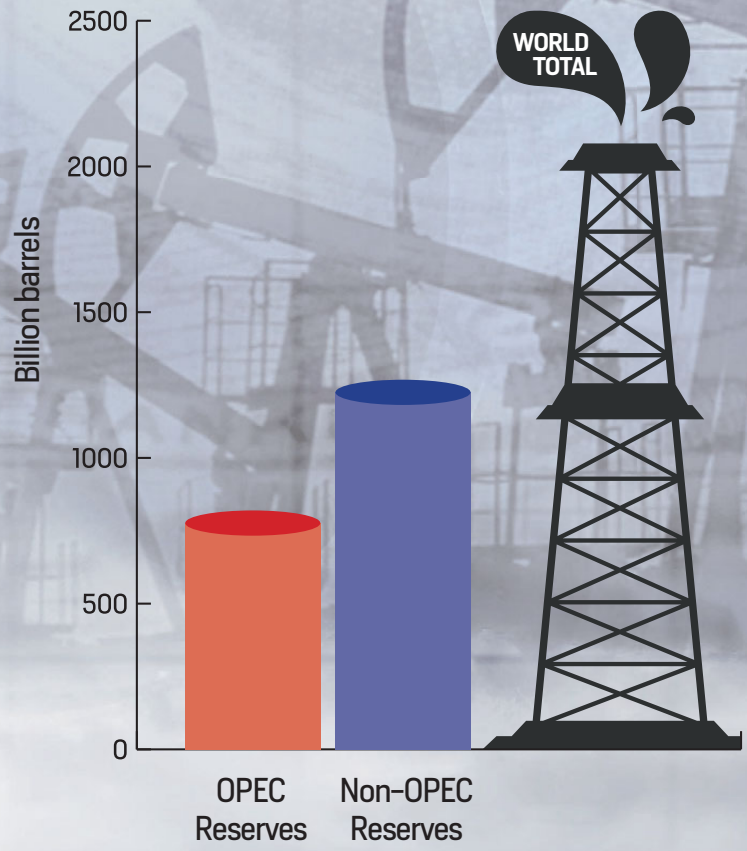
New data from Rystad distinguishes between reserves in existing fields, in new projects and potential reserves in recent discoveries, and in yet undiscovered fields. An established standard approach is applied to all fields in all countries, Rystad said, which means reserves can be compared apples-to-apples across the world. Other public sources are based on official reporting from national authorities, which are in turn based on diverse and opaque standards, Rystad said.

Estimates of US crude reserves

Figures are in billions of barrels



World's total oil reserves stand at 2092bn barrels, Rystad says



Oil reserves by country

Rystad Energy recently released a new independent estimate of world oil reserves. According to the estimate, the US now holds more recoverable oil reserves than both Saudi Arabia and Russia. More than 50% of remaining US oil reserves are in the form of unconventional shale oil.

Figures are in billions of barrels

CANADA	IRAN	BRAZIL	IRAQ	VENEZUELA	MEXICO
167	143	120	117	95	72

OIL-TO-CHEMICALS

Upstream and downstream integration for KSA

The kingdom's industrial giants have agreed to study the feasibility of the project, which could cost up to $30bn

Words: ***Slavka Atanasova*** and ***Indrajit Sen***

Aramco and SABIC hope to develop a crude oil-to-chemicals complex in KSA.

Saudi Arabia's upstream and downstream giants Aramco and Saudi Arabian Basic Industries Corporation (SABIC) are looking into the possibility of developing a crude oil-to-chemicals plant in Saudi Arabia. The two energy giants signed an agreement late in June to conduct a feasibility study on the development of such a facility.

The agreement also contains key principles of co-operation that will form the basis of a joint venture (JV) between the firms, should the joint study reach a positive conclusion. The programme, which could cost upto $30bn, would allow petrochemical products to be produced directly from crude oil instead of refining it into intermediate feedstocks, such as naphtha.

"Our agreement with SABIC reflects our vision to build on Saudi Arabia's global leadership in crude oil production and commodities export by substantially increasing the production of oil-based petrochemicals and further optimising value across the entire hydrocarbons chain," Amin H Nasser, president and chief executive officer of Saudi Aramco, said at the agreement signing ceremony.

"This agreement will help spur a new era of industrial diversification, job creation, and technology development in Saudi Arabia, particularly through downstream conversion of speciality chemicals by small- and medium-sized enterprises (SMEs)," Nasser said.

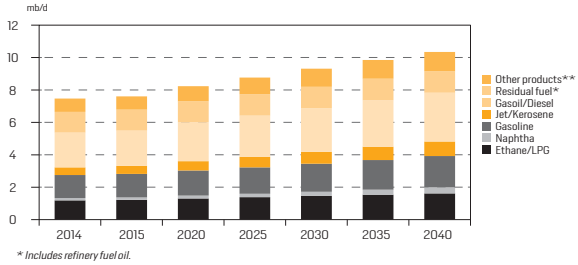
The stakeholders plan to create a fully integrated petrochemical complex, which maximises chemical yield, transforms and recycles by-products, drives efficiencies and scale and resource optimisation, and diversifies the petrochemical feedstock mix in Saudi Arabia.

$30BN

The estimated cost of Saudi Arabia's integration project.

Commenting on the aims of the partnership, Yousef Abdullah Al-Benyan, vice chairman and CEO of SABIC, said: "We are hopeful that our agreement to conduct a joint feasibility study on the development of an integrated crude oil-to-chemicals complex in Saudi Arabia will ultimately lead to a

Reference Case outlook for oil demand by product in Middle East: 2014-2040



* Includes refinery fuel oil.
** Includes bitumen, lubricants, petroleum coke, waxes, still gas, sulphur, direct use of crude oil, etc.

Source: OPEC

Refining projects boom as GCC focus shifts downstream

Integration between the refinery and petrochemical sectors in the GCC region is becoming increasingly important as chemical producers feel ethane feedstock availability tighten and oil majors seek to add value to their crude oil production. Investment in new refinery capacity has resurfaced in recent years as a result, even if the current fall in oil prices and hence government and company revenues is causing some delays to plans. Once operational, the new refinery capacity will bring the potential for a wider slate of downstream petrochemicals to be produced from refinery streams.

↑ SABIC says the project will support its growth strategy in line with Vision 2030.

new era for the kingdom, driving strong economic growth, creating many new opportunities for aspiring young Saudis, and playing a significant role in the kingdom's economic transformation."

An industry source familiar with the project told *Reuters* the scheme could create as many as 100,000 direct and indirect jobs. "It makes absolute sense as Aramco is specialised in oil and refining, and SABIC in petrochemicals," the source said.

The prospect of a fully integrated crude oil-to-chemicals complex in Saudi Arabia will support both SABIC's growth strategy and Saudi Arabia's Vision 2030, according to SABIC's chairman.

Prince Saud bin Abdullah bin Thenayan Al-Saud, who is also the chairman of the Royal Commission for Jubail and Yanbu, has said that the agreement compliments the company's growth strategy to become a world leader in chemicals, as well as its leadership's vision for Saudi Arabia to be a pioneering and successful global model of excellence. It is also poised to improve the relationship between the kingdom's two industrial conglomerates, Prince Saud believes.

"SABIC's 2025 strategy is a map that shows us how to become more global, more distinctive in our product offering, and more integrated in our operations. This announcement is another major step toward achieving this goal; this project will positively reflect on the local market through creating more business opportunities, high-value job creation, and technological innovation," he was quoted as saying.

"By working together, Saudi Aramco and SABIC are supporting the kingdom's economic transformation and creating 'Chemistry that Matters' for future generations," he remarked.

The integration move has been described by one Continued on page 12>>

THE PROJECT: THREE THINGS YOU NEED TO KNOW...

1 The agreement will see Saudi Aramco and SABIC conduct a feasibility study into an integrated facility. It also contains key principles of co-operation that will form the basis of a joint venture (JV) between the firms, should the joint study reach a positive conclusion.

2 The stakeholders plan to create a fully integrated petrochemical complex, which will maximise chemical yield, transform and recycle by-products, drive efficiencies and scale and resource optimisation, and diversify the petrochemical feedstock mix in Saudi.

3 The project would allow petrochemical products to be produced directly from crude oil instead of refining it into intermediate feedstocks, such as naphtha. It could create 100,000 direct and indirect jobs, in line with Saudi Arabia's Vision 2030.

Continued from page 11>> analyst as "long overdue", given that both companies are competing in the same markets. The expert said that co-operation between the two would eliminate the duplication of projects. Aramco's participation could benefit SABIC by giving it better access to funding as well as assistance in marketing products, Mazen al-Sudairi, head of research at Al-Istithmar Capital, told *Reuters*.

However, both Aramco and SABIC have previously refuted media reports that claimed that the two energy giants had plans to merge their petrochemical businesses. "The companies wish to clarify that they have no plans to pursue this option", they said in a joint statement in May, adding that they would "continue to explore mutually beneficial opportunities to work together as partners".

Speaking of larger economic ramifications, the announcement of Aramco and SABIC's joint study comes just a couple of months since Saudi Arabia's Deputy Crown Prince Mohammed Bin Salman called for more industry collaboration and the creation of new jobs in the kingdom as part of Riyadh's Vision 2030.

The country's leadership has long been working towards building a post-oil future by developing new downstream industries, integrating its existing refining assets with newly built petrochemical plants and thus generating more job and investment opportunities for the local population.

"Saudi recognised some time ago that oil was losing market share to natural gas and renewables," said Paul Hodges, special advisor to ICIS and chairman of International eChem. "Last December's climate change conference in Paris reinforced this message, making it essential that the country moved quickly to reduce its current dependence on oil revenues, and diversify its economy."

↑ The signing ceremony of the agreement between Saudi Aramco and SABIC, which took place in late June.

Hodges cited Saudi's major expansion of downstream product volumes over the past few years and some of its world-class petrochemical investments, such as Sadara and SATORP, as "evidence for its new policy" to move away from a crude oil economy. Higher product volumes are in addition to its actual oil exports and confirm that the days of OPEC oil quotas are in the past, Hodges noted.

"The oil-dependent Kingdom of Saudi Arabia (KSA) has a long-term blueprint to transform itself into a more diversified economy, with non-oil government revenues projected to increase six-fold to 1 trillion Saudi Riyals ($27bn) by 2030," Nikhil Salvi, manager of the investment research practice at Aranca, said.

"It's an ambitious dream to transform an economy that relies on crude oil exports for more than 70% of government revenues. Deputy Crown Prince Mohammed bin Salman's 15-year economic plan is the boldest attempt yet in the kingdom's history to spur additional revenue streams amid a steep fall in commodity prices. The shift from oil-dependent economy to 'live without oil by 2020', as foreseen by Deputy Crown Prince Mohammed, is a huge step in this direction," Salvi added.

Alongside government entities like the Saudi Arabian General Investment Authority or SAGIA, the sole purpose of which is to encourage investment in the kingdom's non-oil sector, Aramco has increasingly been looking for ways to diversify its portfolio away from crude oil export into refining, petrochemical and chemical production. All of this has been in line with the government's strategic vision to diversify revenue away from crude oil export and support the development of downstream industry in the kingdom.

Shashank Shekhar, PetChem editor at S&P Global Platts, says, "What distinguishes Saudi Arabia's Vision 2030 from similar attempts by governments in the region over the past decade is the urgency of ground results rather than the luxury of dogmatic planning."

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UPDATE

Coming up:

Aramco signs $13.3bn deals for Fadhili gas programme

Scheduled to be completed by the end of 2019, the Fadhili gas project aims to become a key component of the Kingdom's master gas system, processing an estimated 2.5bn scf per day of gas from both onshore and offshore fields

THE KEY BENEFIT
The Fadhili project will process a total of 2.5bn scfd of non-associated gas, including 2bn scfd of offshore gas from the Hasbah field and 500mn scfd of onshore gas from the eastern Khursaniyah field.

Saudi Aramco president and CEO Amin H Nasser on July 20 presided over a signing ceremony of the Fadhili gas project, marking a new milestone in the company's drive to expand gas production and supply to meet growing domestic demand for energy.

Scheduled to be completed by the end of 2019, the Fadhili gas project aims to become a key component of the Kingdom's master gas system, processing gas from both onshore and offshore fields.

The new Saudi Aramco mega project will help boost production and supply of clean-burning natural gas, lessening dependence on oil for power generation.

Together with Wasit and Midyan, Saudi Aramco's two other new major gas projects, Fadhili will add more than 5bn standard cubic feet per day (scfd) of non-associated gas processing capacity.

The increase in the supply of natural gas will grow above 17bn SCFD by 2020, enabling opportunities in Saudi industries such as steel, aluminium and downstream value-added industries.

The project will be developed at a total cost that exceeds SAR50bn ($13.3bn) with emphasis placed on In-Kingdom expenditures, benefiting localisation initiatives that will reach 40% of the total cost of establishment.

The plant is expected to accommodate 4,500 jobs for Saudis between professional training and permanent and temporary jobs.

The Fadhili training programme, to be set up in partnership with project contractors, will provide Saudi nationals with opportunities to gain work experience and technical skills.

Specifically, Fadhili will process a total of 2.5bn SCFD of non-associated gas, including 2bn SCFD of offshore gas from the Hasbah field and 500mn SCFD of onshore gas from the Khursaniyah field.

It is expected to produce 1.5bn SCFD of sales gas, 4,000 tons per day of sulphur, and will supply 470mn SCFD of gas to an adjacent cogeneration power plant, which will provide Fadhili with power and steam requirements, and also supply about 1,100 megawatts of electricity to the domestic grid.

QUOTE: "ARAMCO'S MULTI-BILLION DOLLAR INVESTMENT IN FADHILI WILL CONSIDERABLY INCREASE THE SHARE OF GAS IN THE KINGDOM'S ENERGY MIX AND FITS IN WITH OUR LONG-TERM STRATEGY TO LOWER EMISSIONS." – CEO

Iran, Kurdistan collaborating on oil pipeline project: Report

The two sides plan to build a pipeline that could transfer 250,000 bpd of oil

PIPELINE The Kurdistan Regional Government (KRG) and Iran are reportedly looking to enter a co-operation deal that would see Kurdish oil being exported to the Islamic Republic.

The two sides are planning to build a pipeline that could transfer as much as 250,000 barrels of oil per day from Kurdistan to Iran, *Al Jazeera* news network has reported.

A deal has yet to be officially signed, as technical aspects and political implications are still being debated by the two sides, the Middle East news broadcaster has said. However, if finalised, the deal will reportedly include exporting both oil and natural gas.

According to reports, Kurdish oil will probably be pumped to Iran from fields in the Sulaimaniya and the Kirkuk regions, although the latter is currently part of an ongoing disputed area between the governments of Iraq and Kurdistan.

250K

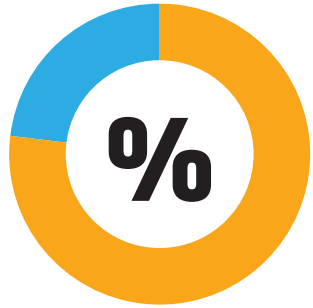
Barrels per day of oil is what the proposed pipeline will be carrying.

5.6TN

cubic metres is the estimated gas reserve of Iraq's Kurdistan region.

SPOT POLLS

CAN DISRUPTIVE TECHNOLOGIES ACCELERATE THE TRANSFORMATION OF THE OIL AND GAS INDUSTRY IN A LOWER PRICE ERA?



77% Yes

23% No

Source: Gulf Intelligence

APICORP and Bahri launch $1.5bn shipping fund

The Arab Petroleum Investments Corporation (APICORP) and The National Shipping Company of Saudi Arabia (Bahri) on July 17 established the APICORP Bahri Oil Shipping Fund (ABOSF) to acquire about 15 Very Large Crude Carriers (VLCCs) over three phases, with total investments of up to $1.5bn composed of debt and equity.

REGION

AROUND THE GCC

Latest developments across the region

1. BAHRAIN

Fitch Ratings has downgraded Bahrain's long-term foreign currency issuer default rating (IDR) to 'BB+' from 'BBB-' and long-term local currency IDR to 'BB+' from 'BBB', becoming the latest agency to move its ratings on the Gulf nation into junk territory, as oil prices remain weak. Fitch said in a statement that lower oil prices are causing a 'marked deterioration' in Bahrain's fiscal position.

2. KUWAIT

Dubai-based Penspen and Dar Al Handasah, operating in a joint venture, have been awarded a new project management contract by the Kuwait Gulf Oil Company to manage the engineering, procurement and construction of a new gas and condensate pipeline. The pipeline runs both offshore and onshore from Khafji in Saudi Arabia to the final destination of Mina Al Ahmadi in Kuwait.

3. OMAN

Petroleum Development Oman has successfully raised $4bn from a group of international financial institutions. The borrowing will take the form of a five-year pre-export facility which was provided to PDO by a syndicate of international banks. HSBC Bank Oman acted as the sole international financial advisor. The loan was priced at 160 basis points over the London Interbank Offered Rate (LIBOR).

4. QATAR

Qatari liquefied natural gas producer RasGas has reached a deal to supply France's EDF with up to 2mn tonnes of the fuel annually. State-owned RasGas in July said it will begin delivering the LNG to a terminal in Dunkirk, France, starting next year. Financial terms have not been disclosed. RasGas already has three existing long-term LNG agreements with EDF subsidiaries in Italy and Belgium.

5. SAUDI ARABIA

Saudi Arabia is keen on expanding its investments in China's energy industry, according to its Energy Minister. Khalid Al Falih has said he wants to see new investment projects carried out by Saudi and Chinese sovereign wealth funds. Both the Kingdom and China share interest in crude oil storage and industrial development and there is room for trade growth in energy and other hydrocarbons products.

6. UAE

A delegation from Malaysia is understood to have visited Abu Dhabi in July for talks on how to resolve a long-running dispute between the International Petroleum Investment Company (IPIC) and Malaysian state fund 1MDB. The payment row hinges on a 2012 deal in which IPIC guaranteed $3.5bn of bonds to 1MDB, and the former agreed to repay $1.4bn in collateral to Abu Dhabi.

KSA plans country-wide gas pipeline

NATIONAL SCHEME Saudi Arabia is planning to build a Kingdom-wide gas pipeline to supply gas to houses and companies, a local newspaper has reported.

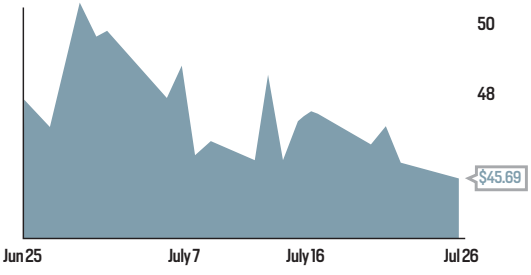
The project would first target large cities and would be executed in several stages as a joint venture between the public and private sectors, Fahd bin Jumma, deputy chairman of Shura's Economy and Energy Committee, was quoted as saying by Arabic daily *Aleqtisadiah*.

The Ministry of Energy and the Electricity and Cogeneration Regulatory Authority have studied the proposal, which is yet to be approved by Saudi Arabia's Shura Council, the formal advisory body in the country.

Votes in favour or against will be cast in August before it is presented to King Salman for review.

DATA SNAPSHOT

BRENT CRUDE OIL PRICE



Brent crude prices witnessed a subdued month, dropping to about $45, from the gains it made previously. *Source: oil-price.net*

Construction of Jazan project starts

Facility to supply energy and feedstock for Saudi Aramco's Jazan refinery and terminal

GROUNDBREAKING Construction has started at a multi-billion dollar industrial gas complex that will serve Saudi Aramco's Jazan refinery and terminal.

The contract was awarded to ACWA Holding and Air Products by Aramco in 2015 and the two companies formed Jazan Gas Projects Company to build, own and operate probably the world's biggest industrial gas plant.

The gas complex will require 600 MW to operate and will consist of six air separation trains. The plant will use technology to produce oxygen and nitrogen which will supply the gasifier to generate the gas necessary to run the power generators and to provide feedstock to the refinery and the Jazan Economic City.

The plant is estimated to generate enough electricity to cover the refinery's needs and enable the development of small-scale industries.

ON COMPLETION
The complex will supply a total of 75,000 metric tonnes per day of industrial gas, 20,000 oxygen and 55,000 nitrogen, for 20 years to Saudi Aramco's refinery.

IN BRIEF

Shell has asked Saudi Aramco for up to $2bn as part of the breakup of their giant Motiva Enterprises refining joint venture in the US. The payment would be compensation for the Saudi oil giant retaining a larger share of the nearly two decades-old JV. The split was announced in March and will be reportedly complete in October.

OneSubsea, a Schlumberger company, has been awarded an EPC contract in Egypt for the newly discovered Zohr offshore gas field. As per the deal from Petrobel – worth over $170mn – OneSubsea will supply the subsea production systems for the first stage of Zohr, located in the Shorouk Concession.

IN QUOTES

"The challenges lie ahead of us and now we have a lot of work to do to be ready on July 14th, 2017, when the North Oil Company takes over as operator."
Arnaud Breuillac, Total's president of Exploration & Production.

"The merger has the potential to be very positive. Hopefully the merged entity will be more efficient and have greater firepower for investments."
Richard Devine, partner – Oil and Gas practice at Clyde & Co.

"By focussing on improving infrastructure, Iraq is showing a long-term commitment to international oil companies developing its largest oilfields."
Paul Hickin, associate editorial director at Platts.

India's L&T wins $1.6bn gas field contract from Aramco

The L&T-led consortium won the Hasbah offshore gas field expansion deal

CONTRACT Larsen & Toubro (L&T), India's largest engineering and construction company, said a consortium led by its hydrocarbon unit has won a $1.6bn gas field contract from Saudi oil giant Aramco, in a sign that demand is picking up in the key Middle East market.

L&T Hydrocarbon Engineering has tied up with Emas Chiyoda, a subsea services joint venture between Singapore's oilfield services provider Ezra Holdings and engineering company Chiyoda, for the expansion of the second phase of Hasbah offshore gas field located off the coast of Saudi Arabia, the company said in a statement late in July.

L&T said its share of the latest contract is roughly 60% of the overall value.

The gas from the fields will be transported to feed the Fadhili Gas plant, the first project in Saudi Arabia which when completed will treat gas from both onshore and offshore fields.

The project is likely to be completed in three and a half years and will supply 2.5bn standard cubic feet of gas per day to meet Saudi Arabia's growing domestic energy demand, L&T said.

This is the second major contract the consortium of L&T and Emas has won from Aramco.

60%

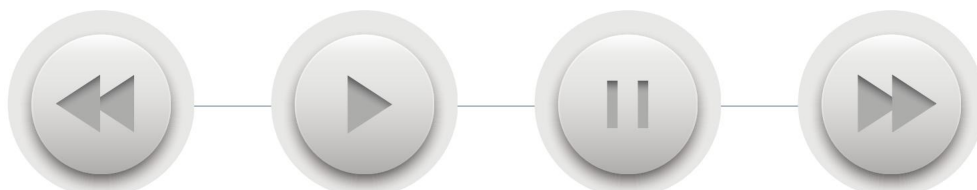
of the value of the contract – awarded to the consortium that includes Emas Chiyoda – is Larsen & Toubro's share.

2.5BN

standard cubic feet of gas per day is what the Hasbah offshore gas project will generate to meet Saudi Arabia's electricity demand.

PLAY/PAUSE:

Who's moving up in the oil and gas world this month, and who's falling away?



Kuwait's acting Oil Minister Anas Al-Saleh has revealed that the government is currently looking into the potential privatisation of four companies part of state-owned Kuwait Petroleum Corporation.

The Qatar Petrochemical Company is on track to expand its 800,000 metric tonnes ethylene complex located in the Mesaieed industrial city. The project is expected to raise ethylene capacity to about 1.2mn MTPA.

Qatar has made marginal progress by signing an MoU with Morocco for a deal to supply LNG to the Kingdom's 5bn cubic metre per year-capacity LNG import facility at Jorf Lasfar. Russia and the US are in the hunt too.

Eni Iraq, a subsidiary of Italian oil and gas major Eni, has awarded Drake & Scull International a $61.5mn EPC contract for a water injection network installation project at the Zubair oilfield in Basra, Iraq.

Iraq beats Saudi Arabia in Q2 to bag top exporter spot in India

Iraq became India's top oil supplier on the back of selling discounted heavy crude

IRAQ SELLS MORE

Iraqi oil accounted for about a fifth of Indian imports in Q2 2016, up from 16% a year ago, according to *Thomson Reuters Supply Chain & Commodities Research.*

MARKET SHARE Iraq overtook Saudi Arabia for the first time to become India's top oil supplier in the second quarter of this year, Reuters reports.

Iraq bagged the top spot in the Indian market on the back of sales of discounted heavy crude that refiners have also been using to make bitumen to build roads in the world's No.3 oil consuming nation.

Saudi Aramco has traditionally been the main supplier to India and Riyadh could face pressure to deepen crude price cuts to regain market share.

Iraqi oil accounted for about a fifth of Indian imports in Q2 2016, up from 16% a year ago, according to trade sources and ship-tracking data compiled by Thomson Reuters Supply Chain & Commodities Research.

The Saudi market share in India over the period fell to about 18% from a fifth last year, marking the first time Iraq has overtaken Saudi Arabia in an entire quarter.

UPCOMING EVENTS
INDUSTRY CALENDAR

- SPE Annual Technical Conference and Exhibition – September 26–28, 2016
  Dubai World Trade Centre
- SPE Reservoir Characterisation Workshop – October 11–12, 2016
  W Doha Hotel & Residences, Doha, Qatar
- Bottom of the Barrel Technology Conference Middle East & Africa 2016 – October 26–27, 2016
  Four Seasons Hotel Bahrain Bay, Manama
- Gulf Safety Forum 2016 – October 30–31, 2016
  Hilton Hotel, Doha, Qatar

50%

DEVON ENERGY CORP. HAS AGREED TO SELL ITS 50% STAKE IN CANADA'S ACCESS PIPELINE TO CANADA PENSION PLAN INVESTMENT BOARD-BACKED WOLF MIDSTREAM INC FOR $1.1BN.

8

CYPRUS' ENERGY MINISTER HAS SAID EIGHT COMPANIES HAVE FORMALLY APPLIED TO CARRY OUT EXPLORATORY OIL AND GAS DRILLING IN WATERS OFF THE ISLAND'S SOUTHERN COAST.

3.2%

THE NIGERIAN GOVERNMENT HAS ANNOUNCED THAT IT HAS SIGNED $80BN WORTH IN OIL AND GAS DEALS WITH CHINESE COMPANIES.

100,000

UP TO 100,000 WORKERS MAY GET THEIR JOBS BACK IN THE US, AS THE AMERICAN OIL AND GAS INDUSTRY WOULD NEED TO ADD 80,000 TO 100,000 JOBS BETWEEN NOW AND THE END OF 2018, GOLDMAN SACHS PREDICTED IN A RECENT REPORT.

13

THE INDIAN GOVERNMENT HAS BEGUN CONSULTATIONS FOR AN AMBITIOUS PLAN TO MERGE 13 STATE OIL COMPANIES TO CREATE A GIANT CORPORATION THAT WILL GENERATE MASSIVE ENERGY REVENUES.

$113MN

SAPURAKENCANA MEXICANA HAS BEEN AWARDED A CONTRACT WORTH $113MN EPC CONTRACT FOR A 36" X 18KM SOUR GAS PIPELINE (KMZ – 76) FROM PLATFORM E–KU–A2 TO PLATFORM CA–AJ–1 (J4) IN CIUDAD DEL CARMEN, CAMPECHE, MEXICO BY PEMEX EXPLORATION AND PRODUCTION.

2.9MN BPD

BRAZIL'S STATE-OWNED PETROBRAS HAS SAID THAT NEW WELLS HELPED IT PUSH OIL AND GAS OUTPUT TO A RECORD HIGH IN JUNE - AN AVERAGE OF 2.9MN BOEPD, A RISE OF 2.35% FROM MAY.

69MN TONNES

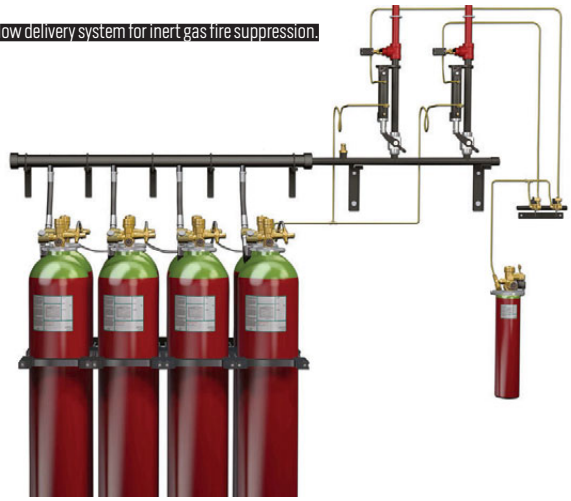
ALGERIA'S STATE ENERGY COMPANY SONATRACH, SAYS THERE HAS BEEN INCREASED PRODUCTION AT MANY OF ITS FIELDS. OIL OUTPUT WILL REACH 69MN TONNES IN 2016, WHILE GAS PRODUCTION WILL RISE TO 132BN CUBIC METRES.

Have your say:
Contact indrajit.sen@itp.com

Driving development in fire suppression

Protecting against fire risk plays a vital role in today's safety–first approach to operations, according to Tyco Fire Protection's **Alan Elder**.

About the author: Alan Elder is Tyco's sales director of Fire Suppression Products – EMEA.



The i-Flow delivery system for inert gas fire suppression.

The factors influencing the design, specification and use of fire suppression systems are changing. Typical considerations, such as the effectiveness of the system and agent, cost of ownership, and health and safety, remain key aspects of the selection process. Added to this is the impact of changes in environmental legislation and the greater effect these will have on the fire suppression industry, and subsequently the system choice available to fire safety engineers and system designers.

The impact of legislative change

Regulatory change translates into modifications, and sometimes transformations, of the solutions available to the market. In March 2014, the European Parliament supported a European Commission proposal to reduce the use of hydrofluorocarbons (HFCs) and greenhouse gases as part of the F-gas Regulation. This requirement to cut HFCs to 79% below average 2009-12 levels by 2030 was mandated effective from January 2015, with phase-down commencing from January 2016. Fire suppression systems are directly impacted by this regulation, as they have some of the highest global warming potential (GWP) in comparison to other sectors.

Given that some fire suppression systems have a service life of 20 years, it's likely that older installations were designed with HFCs. Any HFC-based system already in-situ is also affected by the F-Gas regulation, including system recharging. As a result, fire suppression system owners not only face price increases as a resulted of limited HFC availability, but also must be aware of potential end-of-life and decommissioning costs for their existing systems when an alternative must be installed.

As the fire suppression market evolves and moves forward, there is a drive for innovation and technology development that supports viable alternatives to HFCs. The complexity of engineered fire suppression systems requires a reliable solution that is matched to the application risks and takes into account the specific considerations in relation to pipework design, venting and storage of the extinguishing agent containers.

Effective fire suppression

Even before the introduction of the F-gas Regulation, fire suppression solutions using inert gases have long provided an effective alternative to HFC-based and halon systems. These solutions combine three primary gases – nitrogen, argon and carbon dioxide – to deprive the fire of oxygen and eliminate the potential for combustion. Inert gases displace a significant amount of the atmosphere within the protected space in order to suppress a fire. For inert gases to successfully control a fire, the oxygen level must be lowered to 15% or less, requiring 35-50% of the atmospheric volume to be replaced within a discharge time of 60 or 120 seconds. This change to the atmospheric conditions in the space requires appropriate venting to exhaust ambient atmosphere and release the inert gas on suppression of the fire, and presents one of the

most significant challenges to system designers when engineering a gaseous fire suppression system.

Conventional inert gas systems can cause potential over pressurisation, resulting in collapsed walls, blown-out doors and damage to a building's structure, particularly in enclosed spaces such as data centres, electrical control rooms and laboratories. This is a result of the initial flow spike and peak pressure during initial discharge of the inert gas, and it is this pressure data that determines the specification of the system pipework and venting. To further reduce the risk of over pressurisation, larger size and high-pressure pipework based on hydraulic calculations defined by the system storage pressure is required, which can increase the complexity, cost and installation time of the fire suppression system.

To maximise the amount of inert gas within a specific system, the agent is stored in pressurised containers at up to 300 bar. This storage pressure differs across regional markets and is influenced by varying factors, with the typical storage pressure in Europe at 300 bar, 150-200 bar in the US, and 200 bar in the Middle East. In the US market in particular, storage pressures are lower than those in


The iFlow valve regulates discharge pressure.

Europe due to the infrastructure that supports the refill of gas containers restricted to the 150-200 bar pressure range. The storage containers are the most expensive component in an inert gas fire suppression system, so designing a system at the highest storage pressure possible reduces the number of containers required to hold the inert gas. The current 300 bar inert gas fire suppression systems are maximising the capability of existing gas container design, and additional ancillary components such as orifice plates and manifolds are required in certain system designs.

Inert gas fire suppression

Overcoming the key design and engineering challenges of inert gas fire suppression systems is the stimulus for new, innovative technologies that can improve performance and reduce costs for system owners. To support this industry improvement, Tyco Fire Protection Products has developed its unique iFLOW delivery system for inert gas fire suppression systems.

The iFLOW system provides regulated discharge pressure to eliminate the potential for flow spikes and peak pressure. This controlled flow of the inert gas enables smaller diameter, lower pressure pipework and reduced pressure relief venting to help design engineers minimise complexity in their system, and therefore unnecessary pressure venting costs.

Time for a change

The shift in market dynamics within the fire suppression industry has increased the use of alternative systems to reduce the reliance on HFC and halon-based agents. Product development and innovation form a key part of this transition. It is experienced manufacturers, such as Tyco Fire Protection Products, working closely with industry associations and standards authorities, that are helping to drive the trend towards more effective, 'greener' fire suppression technology.

Have your say:
Contact indrajit.sen@itp.com

The oil power-play in the Middle East

Both OPEC and non-OPEC countries need to come to a conclusion to freeze crude oil production levels to ensure the oil price does not fall lower, says CEO of Sun Global Investments, **Mihir Kapadia**.

About the author:
Mihir Kapadia is the CEO of UK-based Sun Global Investments.

The Middle East has become one of the fastest-growing consumers of oil in recent years.

As a result of young populations and booming economies stimulating a surge in fuel demand, the Middle East has become the fastest-growing region for oil consumption, bar China, over the last decade. The Middle East is not only one of the world's most important producers and exporters of oil; in recent years it has become one of the most important and fastest-growing consumers of it, too.

We recently saw volatility in the oil price and it is important to note that if the oil price changes too quickly we will see auto-corrections. Insiders often talk about oil as trading within certain ranges – an increase in crude oil to $50 per barrel or more creates an important psychological shift and is indicative of a more significant move to come.

Bankruptcies in the sector have been bringing down production in the US, seen as one of the key elements to the supply glut being reversed. Recent Baker Hughes data showed an almost 50% decline in rigs in the US in the last year.

Talking about the current volatility of the oil price, it can and should be explained from a 'supply and demand' perspective, however that would be simplifying a very complex set of reasons and factors that affect volatility of oil prices. Politics and currency wars have not just been an influential factor for the volatility of oil prices, but also for other commodities. Rising global economic activity can increase demand and push prices higher, and fluctuations in global growth and oil demand are one possible explanation for the volatility.

Oil prices fell by almost 50% during the 2008 crash, primarily due to a pronounced slowdown in global economic activity, however in recent years the price of oil has decreased for a number of additional reasons. These include the unwillingness of OPEC to reduce supply to an already over-supplied market. The decline of other currencies relative to the US dollar makes oil more expensive for non-US consumers – that reduces the demand for oil, thereby reducing the price.

On the political front, the announcement of a nuclear deal with Iran means oil related sanctions are lifted and therefore another market for oil has opened. Oil prices are, of course, affected by events that have the potential to disrupt the flow but large swings in oil prices often come as a surprise and can be a reflection of changing global economic conditions.

Global oil stocks could begin falling by the end of the second quarter due to the disruptions in Canada and Nigeria. Cheaper petrol is also expected to drive demand. The US government estimates fuel demand for cars will this year surpass a previous record set in 2007. But where exactly the market goes from here is anyone's guess, so investors should be prepared for any

eventuality. The much-anticipated rebalancing of the market may still take a little more time.

Iran's return to the market has seen an aggressive focus on market share but beyond a certain limit Iran would need Western investment and expertise to increase its oil output. Furthermore, Iran's oil supplies have entered at a time when the oil market is oversupplied and there are renewed economic concerns, which will dictate a lesser demand in the oil demand growth. Iran has also tried to pre-empt its regional rival, Saudi Arabia, and is beginning to offer more 'attractive' prices. However the pricing of Iranian oil will depend on how soon massive cuts in capital expenditure by private companies will affect the output and how rapidly Iran ramps up its sales.


Rising global economic activity can increase demand and push oil prices higher.

Both OPEC and non-OPEC countries need to come to a conclusion to freeze crude oil production levels to ensure the oil price does not fall lower. On the other hand, if production begins to fall short of demand, oil prices could spike: the exact opposite of what we are experiencing today. The bottom line is that investors need to be prepared for both scenarios.

Looking further afield, the Indian government is looking at spurring industrial growth and its economy is rearing to take off; sustaining this growth in India requires huge amounts of energy, thus crude consumption will go up. The Chinese economy, which has been slowing, will also pick up, again leading to demand for crude, and we will also see the US economy improve.


Both OPEC and non-OPEC countries need to come to a conclusion to freeze crude oil.

As global economies are picking up, the major oil companies have started cutting down on new investments; high-cost projects such as deep offshore projects in the pipeline will be slowed down as there is little use in bringing them onstream just to sell in a low market. The net effect of all this will be a fall in production.

However, economies picking up and consumption increasing do not happen overnight. We believe oil prices in the future should hover around the value of $65 as shale producers will become more active at these levels.

Major oil-consuming powers such as China, India, the US and Europe will all continue to influence the price. At the same time, however, the oil wars have not ended and there is sufficient scope for ramping up capacities in Middle Eastern regions. Overall, what will be key to stabilising oil prices will be a steady environment with a lot less volatility.

INTERVIEW

Feeling the pulse

Dr Margaret Crichton, managing director of People Factor Consultants (PFC), is a leader in the development of human potential, and specialises in non-technical skills essential for workplace safety. Here, she shares her insight into how employees operate as individuals, and the impact that has on their day-to-day job performance.

INTERVIEW: INDRAJIT SEN

I was always interested in psychology and, while working in the School of Psychology at the University of Aberdeen, I had the opportunity to work on a project examining decision-making by nuclear on-scene emergency response personnel. This led to me complete a PhD in decision-making under stress on nuclear power installations, which then expanded to include other high-hazard environments, such as offshore oil and gas production and drilling, police, fire, aviation, medicine and ministerial departments.

All industries benefit from insight into non-technical skills and my research has shown that they are vital for safe and effective performance, particularly in high-hazard environments.

> "ALL INDUSTRIES BENEFIT FROM INSIGHT INTO NON-TECHNICAL SKILLS."

People are the heart of any business, and a successful 21st century business should know and understand its workforce, identifying what makes them tick and putting the support systems in place to help them meet their potential.

Understanding how an individual performs tasks in the workplace, I can identify the skills required by individuals and teams, highlighting where training and coaching can enhance these skills. From a safety perspective, assessing competency and investigating incidents and near misses to capture the human factor aspects, can give a much fuller understanding of what has contributed to the event.

In 2015, we launched a portable version of our high fidelity power distribution simulator. It gives candidates as close to an offshore experience as possible, without the risk. It also plays a fundamental role in broadening the scope of safety training that PFC can deliver to the Middle East, and globally.

> "A SUCCESSFUL 21ST CENTURY BUSINESS SHOULD UNDERSTAND ITS WORKFORCE, IDENTIFYING WHAT MAKES THEM TICK."

The simulator recreates a realistic, recognisable working environment for our delegates, allowing us to assess every aspect of both technical and non-technical skills, providing instant feedback that can be practised and improved in this safe environment.

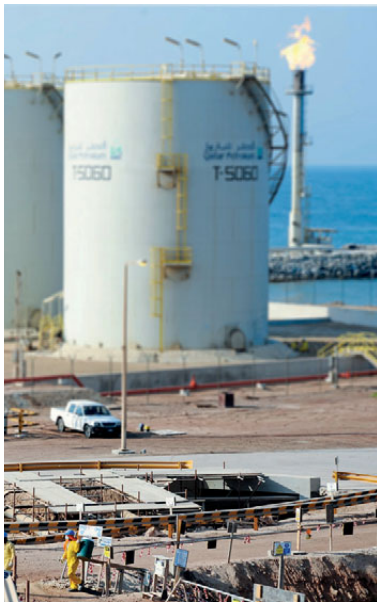
At a time when the industry is under immense pressure, so too is its workforce, and we strive to ensure companies worldwide remember how important and essential technical and non-technical training is for safe working environments.

While PFC provides technical training, my focus is on the complementary non-technical skills that individuals need to be able to perform their jobs safely – the social, cognitive and personal skills that complement technical knowledge. The skills are represented by effective teamwork and good communication, which is led by the ability to assess situations, make decisions and demonstrate leadership, and supported by a work/life balance to lessen the effects of stress and fatigue. This is a measurable outcome that has been assessed in a number of industries.

This understanding is even more important during a downturn. The global oil and gas industry currently faces an uncertain economic climate, and times like these reiterate the importance of understanding your workforce, knowing what makes them tick, feeling the pulse.

WHAT ELSE DO YOU NEED TO KNOW ABOUT MARGARET?

As a chartered psychologist, she has an acute awareness of the decision-making processes that individuals go through in the workplace, especially in high-pressure environments.



In the first major interview since winning the bid to operate one of the world's largest oilfields – Al-Shaheen in Qatar – Total's E&P chief, Arnaud Breuillac, tells *O&GME* what the landmark win means for the French energy giant, and opens up about plans for re-entering Iran.

THE FRENCH JUGGERNAUT

WORDS: INDRAJIT SEN

Total has won a 30% stake in a historic new 25-year contract to operate Qatar's Al-Shaheen, one of the largest offshore oilfields in the world. This is Total's second major upstream development deal in the GCC in as many years. How do you feel about this achievement?
It was an historic day and a new milestone in our longstanding relationship with Qatar. In early May, we celebrated our 80 year presence in Qatar, and less than two months later, we came back to sign the agreement for a 30% stake in the new operating company that will continue to operate and develop Al-Shaheen. We are honoured to have been entrusted by Qatar Petroleum (QP) to join them on this major asset. With a production of 300,000 barrels per day, Al-Shaheen is the largest oil field in Qatar and one of the largest in the world. As it is comparatively low-cost in a period where we are reviewing and assessing our assets on a merit curb basis, it is also the type of asset that we want to have in our portfolio.

What factors do you think enabled Total to beat the stiff competition from its global peers?
Qatar Petroleum was looking for a partner with

The profile photos of Arnaud Breuillac have been taken by Denis Allard, REA–Total, in an exclusive photoshoot for *Oil & Gas Middle East*.

world-class technical abilities, and I think we provide just that. In the end, we know that it was the technical and commercial quality of our offer that allowed us to come out on top. We devoted a lot of preparation and energy to this bid, with more than 150 people involved, from a variety of departments: our team in Qatar, our teams from business development, our teams from project and operations, HSE and legal in the HQ. This across-the-board collaboration paid off, and I'd like to say that this was truly a great effort.

The Jubail refinery is operated by SATORP, a joint venture between Saudi Aramco (62.5%) and Total (37.5%).

Now that QP has announced Total as its partner for Al-Shaheen, could you outline how Total plans to develop this vast oilfield?

The challenges lie ahead of us, and now we have a lot of work to do to be ready on 14 July, 2017, when the North Oil Company takes over as operator. Our first objective is to maintain a safe production of 300,000 bpd for 25 years. Then, in collaboration with QP, we will study whether the production can be increased to a higher level without putting the ultimate oil recovery for the field in jeopardy.

Signing ceremony of the deal for Al-Shaheen oilfield in Qatar.

What of existing operator Maersk Oil's employees working on Al-Shaheen; would Total offer jobs to them along with QP?

300,000 BPD

TOTAL SAYS THAT ITS OBJECTIVE IS TO MAINTAIN A SAFE PRODUCTION LEVEL OF 300,000 BPD FOR 25 YEARS FROM AL-SHAHEEN OILFIELD IN QATAR.

Saad al Kaabi, the CEO of QP, has made it very clear: on the very day that he signed the deal with Total, he also signed a letter to every employee guaranteeing them a job in the new venture. It is both a question of social duty and a sound economic decision: this field has been in production for almost 25 years and the operating teams have immensely valuable knowledge and experience that we will need for the next 25 years. We will rely on the teams with know-how, while also sending about 100 secondees to the new operating company.

What other activities are Total involved with in Qatar?

We have been in Qatar for 80 uninterrupted years, and we are present all over the oil and gas value chain: exploration and production, refining and petrochemicals, and the marketing of lubricants. As well as operating Al Khalij offshore fields, we own significant interests in the most prominent energy joint ventures in Qatar, including Qatargas 1 & 2, Dolphin Energy, Ras Laffan Refinery, Qapco and Qatofin. And I can tell you that Total's integrated model is a key strength in Qatar, just as in the rest of the world.

Can you elaborate on the Dolphin Gas project and

"OUR PAST COMMITMENT AND THE SATISFACTORY EXECUTION OF OUR PROJECTS ARE THE MAIN REASONS WHY THE IRANIAN AUTHORITIES HAVE EXPRESSED A DESIRE TO SEE TOTAL RETURN TO THEIR COUNTRY."

the part that Total has played in executing this tri-nation gas pipeline project? How is it helping the UAE and Oman meet gas requirements?

Dolphin Energy, the Gulf's first and largest gas infrastructure, linking several countries in the GCC, is a unique example of regional integration, and of the benefits of economic co-operation and partnerships. It supplies the UAE and Oman with natural gas produced in Qatar, in the North Field. It is processed at Ras Laffan and then exported to the UAE through a 360km subsea pipeline. Total is proud to be part of this trans-border initiative, to have been a founding partner, involved since its inception, and to be able to deliver fully reliable gas supplies to our customers. We are hoping to see even more gas flowing through the pipe.

Energy is a long-haul industry, says Breuillac.

Total is exploring energy opportunities in Iran. What are the company's expectations in the post-sanctions period?

Total has a long history in Iran, where we started operations in 1954. Then, in the mid-90s, we signed four buyback contracts under which we agreed to finance and develop several fields for turnkey delivery to state-owned NIOC. We also worked on a certain number of new oil and gas projects before negotiations were disrupted as a result of the economic sanctions in 2010. We have nonetheless maintained our office in Tehran during these years. Energy is a long-haul industry and I believe our past commitment and the satisfactory execution of our projects are the main reasons why the Iranian authorities have expressed a desire to see Total return to their country.

Total has reportedly signed an MoU with Iran's NIOC during Iranian President Hassan Rouhani's visit to France earlier this year. What did this cover?

When President Rouhani visited Paris in January this year, I signed – on behalf of Total – an agreement that essentially covered two topics.

First, the purchasing of crude oil from Iran, for our refineries in Europe, which is interesting when you remember that French refineries were initially designed to process sweet Iranian crude. The other topic was a memorandum of understanding giving access to technical data, in order to allow us to assess potential developments.

What are your thoughts on Total's chances in Iran and how successfully do you believe the firm can do business in the Islamic Republic?

Iran has huge oil and gas reserves with relatively low production costs. With a population of 80 million, Iran is also a vast market that offers opportunities: for instance, strong domestic demand for gas sales. We are exploring opportunities and we need to find a mutually acceptable and profitable business framework.

Total is exploring profitable opportunities in Iran, says Breuillac.

At the beginning of 2015, Total renewed its concession pact with ADCO for another 40 years. Of what significance was this deal, and how will you help ADNOC to meet its target of raising oil production?

Winning the entry into the new ADCO concession, for the next 40 years, was a major success. Especially as we have been chosen first, among a number of reputable oil majors, and entrusted with the role of technical leader. I cannot stress enough how important it has been for us to obtain 10% of a 1.6 billion bpd concession. ADCO allows us to strengthen our position in the Middle East, which is a key area for us. In the current environment, when the price of oil is low, we are focussing on the best barrels, with low technical costs. In that respect, the ADCO concession is a great asset to have in our portfolio.

Total's subsidiary – Total Abu Al Bukhoosh – has been operated by Total since its inception. What is your take on Total ABK and how do you plan to grow this subsidiary?

As the operator of the Abu Al Bukhoosh oilfield since 1974, Total became the first foreign company to directly operate both an oil and a gas field in the UAE. What makes us most proud is that we have been able to maximise recovery, reaching a 50% rate on some of the oil reservoirs, where the industry average is more often around 35%. We were able to do that thanks to our advanced understanding of reservoir management. We are also operating the Khuff gas development on behalf of ADNOC.

What are your plans to strengthen your foothold in Abu Dhabi? Are there any new agreements that Total might be planning with ADNOC?

Our priority today is ADCO, where work is ongoing to unlock all the value of the field. The Abu Al Bukoosh and ADMA concessions will expire in 2018, however, so we are definitely

50%

TOTAL HAS MAXIMISED ITS RECOVERY FROM THE ABU AL BUKHOOSH OILFIELD, REACHING A 50% RATE ON SOME RESERVOIRS, WHERE THE INDUSTRY AVERAGE IS AROUND 35%.

The Qapco petrochemical plant is located in Mesaieed, Qatar.

willing to continue to develop those fields along with ADNOC.

Total's involvement in Saudi Arabia has been mainly limited to the refining and petrochemicals sector. Do you intend to raise Total's upstream profile in KSA by collaborating with Saudi Aramco?

We are following with great interest the changes that the country is going through, and the long-term vision that its leaders are deploying for the years to come, which implies transitioning to a more diverse economy. The Vision 2030 roadmap has certainly caught the attention of the world. We have a great downstream partnership with Saudi Aramco through our Satorp joint venture, and we have demonstrated that we could be partners of choice in the Middle East, as well as reliable operators. So we hope to have the opportunity to further develop our partnership with Saudi Aramco in the future.

What would you say of Total's gas production capabilities? Does the company have plans to boost its gas portfolio or would you rather focus on the upstream oil E&P business?

"WE ARE DEFINITELY BOOSTING OUR GAS PORTFOLIO, AND MORE PARTICULARLY LNG. GAS WILL PLAY AN IMPORTANT PART IN HELPING US TO ACHIEVE A MIX WITH A LOWER CARBON INTENSITY. IT IS A CRITICAL PART OF OUR ROADMAP."

We are definitely boosting our gas portfolio, and more particularly LNG. Ten years ago, the ratio was about two-thirds oil and one-third gas in our global portfolio. In 2015, it was 50/50. And given that gas is a market with a growing demand – the fastest-growing fossil fuel segment – the share of gas in our portfolio is set to increase. Gas will play an important part in helping us achieve a mix with a lower carbon intensity, as it is a less emissive fossils fuel. It is a critical part of our roadmap. From September, our gas business will be lodged in a new branch – Gas, Renewables and Power – which is designed to maximise the potential synergies between these businesses, and help us to become a more integrated actor along the gas value chain. As our recently published *Integrating Climate to our Strategy* report sets out, gas is instrumental to helping us achieve the ambition of becoming the responsible energy major.

What can you tell us about Total's global financial results so far in 2016, and the various factors that are affecting this?

In 2015, Total posted the best results among the majors. While the oil price went down by 50%, our adjusted net income was down by only 18%, at $10.5bn. We showed a very strong resistance in a difficult environment. This achievement was made possible thanks to our integrated model, and the great contribution of our downstream businesses. But I have to stress that our upstream business also showed a great resilience, and was able to deliver the cashflows, thanks to a 9.4% increase in output. This year will be in the same spirit as 2015, with an even higher level of discipline: we will curb our CAPEX and allocate them wisely, be stringent on operating costs, so as to remain the lowest technical cost producer among majors, and keep our focus on delivering projects.

"[TOTAL'S] CAPEX PEAKED AT $28BN IN 2013, AND WE ARE NOW TARGETING LESS THAN $19BN FROM 2016, WHICH IS A MORE SUSTAINABLE LONG-TERM LEVEL."

Is Total going to lean more towards its downstream/refining business in the future, as developing the petrochemicals side appears to be becoming more profitable for energy giants?

From the beginning, Total has been a fully integrated company. I have already stressed the benefits of being active all over the oil and gas value chain, as it has helped Total to perform well in 2015. While some integrated oil and gas companies decided in recent years to split their businesses, we have been determined to stick to this fully integrated model, which is a defining feature of Total. Going forward, expect Total to remain a big player all over the value chain, including downstream.

Much like other global energy giants, Total has announced plans to reduce capital expenditure. Does this mean Total is going to reduce its expenditure on aspects such as oilfield services, HSE, or IT and digitalisation? Is this just a measure to withstand the low oil price period or has the company entered into a new era where it has revised its global business strategy?

The whole industry has been cutting CAPEX. In 2014, the industry worldwide invested $700bn, which is now closer to $400bn. This happened in reaction to the falling oil prices, as adjusting your CAPEX level is always a move that pays off in the short term. Total has done the same: our CAPEX peaked at $28bn in 2013, and we are now targeting less than $19bn from 2016, which is a more sustainable long-term level.

But reducing CAPEX does not mean changing strategy. If anything, it means focussing even more on your strategic strengths. It forces you to allocate your CAPEX in the most efficient way. The one thing that will never be compromised as a result of cost-cutting is safety, which is a cornerstone of our strategy and a value across the company.

Does Total plan to reduce its workforce globally and, if so, in which particular countries or regions would lay-offs be executed, and how would you go about doing this?

The current environment has made it essential to adapt, and we believe that we have been particularly responsive, as demonstrated by our results in the last 18 months. Cutting CAPEX, adjusting our exploration budget, reducing operating costs through a company-wide effort, and reviewing our operating methods, are all means of adapting. When it comes to the workforce, we have a different approach from most of our competitors. We consider that the investment in the development of employees is too valuable to waste. Our employees are an asset for the company and we know that we will need them for our future.

"There's something special about these O&GME Awards..."

Sriram CMP, director of the Sharjah-based manufacturing enterprise, Betec Cad, talks about why he is proud to be a sponsor of an industry event as distinguised as the *Oil & Gas* and *Refining & Petrochemicals Middle East* Awards 2016

↑ This year's *Oil & Gas* and *Refining and Petrochemicals Middle East* Awards will build on the success of last year's event to celebrate innovation and achievement.

How do you think the *Oil & Gas Middle East* and *Refining and Petrochemical Middle East* Awards benefit the industry? Why do you believe it is so important to celebrate success in the region's energy industry?

To answer both the questions, we would say that earning an award or receiving an award or awards is basically like adding a feather to the cap. Also, awards are something that speak for themselves. They help motivate individuals and organisations to work together and strive to achieve them.

It is very important to celebrate success, be it as a person or the collective efforts of an organisation, as it showcases the hard work, trust, quality and many other valid factors that go in to achieving success and recognition. Therefore, success should be appreciated and celebrated. Speaking specifically about the energy industry, this particular industry is the key driving forces of the nation. The efforts taken in developing alternative and newer technologies must definitely be recognised, appreciated, celebrated and, most importantly, be used in optimal ways so that we don't end up depleting them.

What was it that made you decide to sponsor this event specifically?

Success is something that must be recognised. One can achieve this recognition when they can showcase themselves or market themselves so people know about their very existence. Particularly, awards are something that bring various industries under one roof and recognise their efforts by appreciating them and providing a stage or platform to market themselves and, importantly, meet existing, new and prospective clients and others to develop B2B (business-to-business) relations in order to encourage and establish themselves furthermore.

As it is your first time as a sponsor, do you agree that our awards truly recognise quality work and talent in the industry?

The *Oil & Gas* and *Refining & Petrochemicals* Awards definitely do recognise quality work in the industry. It would be better if the organisers award manufactures as well, in the same way as they do consultants and contractors, so that every industry gets equal recognition. We as a manufacturer put in a lot of effort into researching, manufacturing, testing, certifying a product and then releasing it into the market. Also, keeping in mind the amount of competition we have today, it always helps to acknowledge the best of the lot in all aspects. Also, as a matter of fact, it would be more encouraging to decide or nominate a winner on a jury basis as well as on a market research basis submitted by different organisations.

→ Recognising achievement in the oil and gas industry helps to support the sector's continued growth.

This year we have introduced the first-ever category for the refining and petrochemical industries – 'Downstream Project of the Year'. We believe that with so many great projects coming on stream at the end of this year and at the start of 2017, it is essential to recognise the effort and hard work of those involved. What is your opinion?

As I mentioned earlier, it is very important to celebrate success, be it that of a person or the collective efforts of an organisation, as it showcases the hard work, trust, quality and many other valid factors that all contribute to achieving success and recognition.

The oil and gas industry has experienced some significant challenges in the past year and a half. What further challenges do you believe the sector will see going forward?

Keeping in mind the critical position of the oil and gas industry due to the depleting resources, we definitely have to brace ourselves. Looking at the rapid urbanisation and globalisation and the amount of resources we are utilising, the future is going to be pretty challenging as we need to research for alternative technologies to fulfill our needs.

Our industry has come a long way since oil was first discovered in Texas. Although there are numerous opinions about what the future holds for the oil and gas industry, there is one irrefutable fact that affects not only our industry, but the world as a whole. Things have changed significantly and the global demand for energy will continue to grow. This is mainly due to population growth and the desire of developing countries to attain economic success. At what rate the demand will grow is hazy right now, but regardless, the demand for energy is inarguable.

For ongoing energy needs, new breakthroughs in technology to help, develop and even produce more oil and gas are required. Technology has been one of the major drivers behind our industry's ability to deliver increased oil and gas production in a safe and efficient manner, while continuing to consider the environmental impacts. Definitely, R&D (research and development) for alternative energy sources will thrive over the conventional oil and gas industry, considering the demand of energy in future.

HOW TO NOMINATE

We've streamlined our nomination process this year to make it even easier to nominate your colleagues. All entries must be submitted online and can be made by the nominees themselves, a customer, supplier or partner.

The final deadline for submissions is **August 21, 2016**, after which, all nominations will be collated and sent to our panel of judges for review.

To nominate, please visit: **www.arabianoilandgas.com/oil-gas-awards/** and follow these steps:

1. Go to the Awards website, **www.arabianoilandgas.com/oil-gas-awards/**.
2. Click 'submit nominations' on the Awards homepage.
3. Click on 'choose categories' and pick the category for which you would like to make a nomination.
4. Enter nomination details, including the name of the company or person that you are nominating.
5. A sample entry is provided on the website for your reference.
6. Describe, in 500 words or fewer, why you think this nominee deserves to win.
7. Attach supporting files, or E-mail larger files to: **oagawards@itp.com**.

And the categories are...

The *Oil & Gas* and *Refining & Petrochemicals Middle East* Awards have unveiled three new categories this year for wider industry recognition

HSE Product/Application of the Year

A new category, this award will recognise the best oil and gas product that has aided companies in their efforts to improve health and safety. The winner could be a highly advanced computer programme or a simple winch – what's important is its positive impact on health and safety.

HSE Initiative of the Year

Health, safety and environment is the cornerstone of the oil and gas industry. This award will recognise a specific initiative that has helped to reduce accidents and problems in the workplace. Entries should be supported by data that demonstrates the success of the initiative.

CSR Initiative of the Year

Corporate social responsibility initiatives have become a priority for most companies in the oil and gas industry. This award will recognise a CSR programme that has provided demonstrable and lasting benefits to its targeted beneficiaries.

In-Country Value (ICV) Strategy of the Year

Localisation is now at the top of the agenda for the region's NOCs. This award will recognise a successful localisation strategy, how it has been implemented, what benefits it offers the company and the employees, and how successful the strategy has been.

Training Initiative/Programme of the Year

Billions of dollars are being invested to train the next generation of oil and gas professionals, as well as enhancing the skills of the existing workforce. This award will go to the training programme or initiative that has made a real difference in the upstream or downstream sector. Entries from both individual companies and training organisations will be accepted.

Operational Excellence Strategy of the Year

With the region's operators looking to squeeze every last drop of profit out of their valuable hydrocarbon reserves, operational excellence is becoming more important than ever. Operational excellence means doing the right thing, each and every time. This award recognises the most innovative and ambitious operational excellence project in the region.

Technical Innovation of the Year

IT and technology are becoming the backbone of the modern upstream operation, from digital oilfields to 3D modelling and pipeline sensors. This project-based award will recognise a project that demonstrates a successful and innovative technical solution to an upstream oil and gas problem.

Enhanced Oil Recovery Project of the Year

Many of the GCC's energy reserves are located in challenging locations, sometimes in rock formations that have developed over millions of years. As a result, companies are increasingly investing in enhanced oil recovery techniques to boost production. This award will go to the most successful and innovative project that has used EOR technology.

EPC Project of the Year

The Middle East is a hotbed for highly experienced, skilled and proficient EPC contracting firms. The work of EPC firms is vital to determining the success of any exploration project. Outstanding EPC work can be the difference between a project coming in on time and on budget – both of which are hugely important in oil and gas projects. This award will go to the most accomplished example of an EPC project in the region over the last 18 months.

Young Oil & Gas Professional of the Year

Concerns about young, emerging talent in the oil and gas industry are not new. However, companies in the region are investing heavily to bring through skilled engineers and executives. The award is open to employees aged 30 and younger, and will go to the candidate whose work has had an overwhelmingly positive impact on his or her company over the past 18 months.

Oil & Gas Woman of the Year

This award will recognise an outstanding female achiever who has a successful track record and has made a telling contribution to the hydrocarbons industry. The GCC boasts a wealth of female talent in oil and gas, with thousands more highly talented engineering graduates helping to make the region a hotspot for industry excellence.

Oil Field Services Company of the Year

Oil field service companies drive the entire upstream sector, providing every conceivable type of service, from hiring out moveable accommodation, to rope access, to seismic exploration and deep water oil exploration. This award will look for the most successful and innovative completed oil field services company in the Middle East region over the last 18 months. It is open to small, medium and large companies that have showcased interesting solutions or innovations for an upstream partner, or that demonstrate a project that has been completed exactly to specification, on time and on budget.

Downstream Project of the Year

Some of the region's long awaited refining and petrochemical projects are coming on stream by the end of this year, bringing to the fore scores of new products to the GCC. It is projects like these that will help diversify GCC economies, make them more competitive on a global scale, and create more jobs for their young and growing populations. Downstream Project of the Year will aim to select the most outstanding, ambitious and game-changing project in the GCC's refining and petrochemical sector.

Plastics Innovation

If innovation is destructive for industries in general, for plastics, it is seen as a driver for constant improvement and growth. In recent years, the GCC has made significant strides in increasing its capabilities to become a leading regional player able to compete on a global scale. Innovation is most needed in hard times like these and the companies of tomorrow will be the companies

that make innovation their long-term strategy. This award is designed to recognise innovation in new product development and application in the rapidly-growing plastics and plastics conversion sectors in the region and globally.

Sustainability Initiative

Once the industry's buzzword, sustainability has become an integral part of every operator's business strategy. From improving energy efficiency and water management, to reducing their environmental footprint and CO_2 emissions, companies are becoming ever more committed to making their business sustainable, realising the benefits both for their bottom line and the society in which they operate. The Sustainability Initiative Award will recognise excellence in the field of sustainability in both upstream and downstream oil and gas.

EPC Team of the Year

More often than not, the successful execution of projects is the direct result of hard work and effort on the part of close-working teams. Recognising their achievement has become crucially important given the rising complexities and challenges they face on a daily basis. EPC Team of the Year will aim to select the oil and gas professionals who have exhibited ostensible skills working in a team, and contributed significantly to the timely and successful execution of the project on which they were assigned to work.

Oil&Gas MIDDLE EAST

A SPECIAL REPORT INTO A KEY SEGMENT OF THE REGIONAL UPSTREAM INDUSTRY

MARKET FOCUS
An overview of the region's logistics mega-projects/*p40*

KNOWLEDGE PARTNER
Shipping is the most efficient means of LNG transportation according to Qatar's RasGas/*p42*

+ TECH FOCUS
SUPPLY CHAIN INNOVATION IS VITAL/P44

SPECIAL REPORT

LOGISTICS & STORAGE

Oil & Gas Middle East analyses the handling and transportation capacities of the regional industry and delves into the measures that midstream players are taking to improve the sector's stockpile management, freighting capabilities and supply chain effectiveness

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COMMENT

EDITOR'S LETTER

Indrajit Sen is the reporter for *Oil & Gas Middle East*. He can be reached at: indrajit.sen@itp.com

Midstream is the trump card

In this intense competition for greater market share, those players that can successfully overcome logistical challenges to effeciently transport their produce will be the winners

According to a recent report, Saudi Arabia is expected to invest nearly SAR22bn or $5.86bn in a project to build a shipyard to construct large vessels for its oil industry. Yes, you read it correctly – $5.86bn!

The project in the Eastern Saudi port of Ras Al-Khair will be a joint venture between state oil giant Saudi Aramco, the National Shipping Company of Saudi Arabia, the UAE-based Lamprell and South Korea's Hyundai Heavy Industries, Arabic daily *Aleqtisadiah* reported.

Despite the regional oil and gas sector heavily curtailing spending, logistics and storage continues to be one of the few areas of investment, where NOCs in particular are pooling funds in order to efficiently store their (enormous) produce and export it to customers in the minimum time.

The global oil industry, which is worth trillions of dollars, gets 80% of its revenues from the sale of fuels. It needs to further diversify into adjacent areas, however, to counter a serious threat from alternative fuels and battery technologies, according to a report from Lux Research.

You might remember that in February this year, His Highness Sheikh Mohammed Bin Zayed Al Nahyan led a UAE delegation that signed several crucial deals with India, among which was a deal from ADNOC to use India's multiple and upcoming storage facilities for strategic reserves, in return offering New Delhi the privilege of using about two-thirds of the stored oil for free.

The move is testament to the huge importance the region's energy sector attaches to the midstream segment and its development. In times like these, when the Middle East's oil and gas producers are engaged in a stiff contest for a bigger share of the fossil fuel consumer market – both among themselves and with global players – those that possess market leading storage, handling and transportation capabilities will emerge victorious.

As the global demand for natural gas rises due to multiple factors, and producers scramble for market share, building and expanding LNG terminals has become more crucial than ever.

A case in point is Qatar's RasGas, our Knowledge Partner, which has thrived on its excellent LNG handling and ferrying capabilities to win buyers from Asia to India and Europe. Its giant storage tanks, combined with a fleet of ships, tells you how far a state-owned company – with above par midstream credentials – can go.

Logistics mega-projects in the spotlight

Governments throughout the GCC are continuing to invest heavily in the improvement of their various logistics and transportation facilities, particularly those utilised by the oil and gas sector

WORDS: MICHAEL GORDON

↑ **The development of logistics projects relies on continued growth in freight volumes.**

In recent years, vast sums of money have been invested in the transport infrastructure by governments right across the Middle East, in an attempt to diversify their oil- and gas-dependent economies.

A recent example is the King Abdullah Economic City Port in Saudi Arabia, which began operating in January 2014. The port has a capacity of 1.3mn 20ft-equivalent units (TEUs), which is expected to rise to 4mn TEUs by 2016, 7mn by 2018 and, ultimately, 20mn. As 25% of the world's trade passes through the Red Sea on the way to the Suez Canal, the developer, Emaar Economic City, hopes that the port will turn into a global hub, in the same way as the ports in Dubai or Abu Dhabi have in the Gulf.

Other multi-modal hub developments in the region include the $14bn development of the port of Sohar, Oman, in conjunction with a new airport at Muscat, and the 2mn TEUs Doha seaport in Qatar, which complements cargo operations at the new Hamad International Airport.

In the UAE, DP World's new terminal in Jebel Ali will add a further 4mn TEUs, at the same time as the development of the Dubai World Central Al Maktoum International Airport (DWC) and the expansion of Dubai International Airport (DXB). Additionally, Khalifa Bin Salman Port has been completed adjacent to the Kizad trade zone and Abu Dhabi International Airport.

However, the development of so many logistics projects is not without risk, as they rely on continued growth in freight volumes. Many of the forecasts were made during the mid-2000s, when global trade was booming and, with demand falling away, the Qatari authorities have announced that Phase 1 of the Doha seaport project will

open with just half its capacity being used. To utilise all its planned capacity by 2030, direct volumes would have to grow at 15% a year, according to Transport Intelligence (Ti), which is one of the world's leading providers of expert research and analysis dedicated to the global logistics industry.

Last year, DP World's port volumes in the UAE rose by just 2.7%. In Oman, the volume of cargo handled by Port of Salalah grew by 6.5% and that of Port Sultan Qaboos by 5.5%. In air freight, cargo volumes in Doha rose by 4.7%, followed by Dubai International Airport with a 6.8% rise, and Abu Dhabi's airport saw an unusual surge in cargo of almost a quarter, according to Ti.

Furthermore, these growth figures may not be wholly new business, created by attracting volumes to the region, but rather a result of cannibalisation, with the mega-hubs of Dubai and Abu Dhabi coming at the expense of smaller port and airport locations like Fujairah and Sharjah.

However, the foundations are strong. To diversify from being just a refuelling point for air freight carriers and shipping lines, the Middle East has created hub and spoke operations, offering many advantages, such as free trade zones, open sky policies, easy customs procedures, and a lack of corruption.

The Gulf countries' advantage in transport and logistics assets led to the increase in popularity of sea-to-air products – consignments that start off as sea freight are offloaded in the Middle East and then shipped by air to a final destination, mainly in Europe.

A lack of air cargo capacity out of India meant that shippers could more easily move goods by sea to a major port such as Dubai, and then air freight the goods to Europe. The imbalance of air cargo flows into the Middle East, which left air carriers looking for back-loads to Europe, supported the sea-to-air product and resulted in a reduction in transit time of a week or more. Today, Dubai International has

↑ **DP World's port volumes in the UAE rose by just 2.7% last year.**

56 truck docks for import, export and perishable cargo, with seven dedicated to sea-to-air traffic. Both Dubai's airports are integrated with the main sea ports of Port Rashid and Jebel Ali.

International manufacturers are increasingly turning to Dubai as a base for their distribution facilities at hubs such as the Jebel Ali Free Zone. Companies are increasingly basing their distribution operations in the Gulf due to its business-friendly attitude, a fact that was borne out by the *2014 Agility Emerging Market Logistics Index*. The report concluded that, in terms of market compatibility, which measures how favourable conditions are for business and trade, Qatar, the UAE, Oman, Saudi Arabia, Kuwait, and Jordan dominated. When it came to connectedness, meanwhile, which measures the quality of the transport infrastructure, the report's top 10 included the UAE, Oman, Saudi Arabia, Bahrain and Qatar.

TERMINAL SOLUTION FOR QATAR'S RASGAS

Over the years, Qatar's state-owned gas producer has displayed exemplary midstream capabilities in the form of impressive shipping terminals and mammoth storage facilities. By virtue of these, the company has been able to make a splash in some of the biggest consumer markets around the world, including India and Europe

WORDS: INDRAJIT SEN

Qatar's RasGas is the epitome of how a state-owned natural gas producer and exporter can maintain profitability when the revenues of NOCs are being squeezed. Moreover, RasGas exemplifies how a local energy producer, by strengthening its midstream capabilities, can take on mighty liquefied natural gas (LNG) suppliers and punch above its weight to carve out a massive chunk of the consumer market for itself.

RasGas' secret to success lies in relying on shipping as an effective method of LNG transportation and persistently expanding its LNG terminals. RasGas' long-term chartered fleet of 14 conventional LNG carriers, 12 Q-Flex vessels and one Q-Max ship, delivers cargoes to customers worldwide and enables Qatar to achieve unprecedented economies of scale.

In December 2014, RasGas delivered two milestone LNG cargoes to Petronet LNG's import terminal at Dahej in India. The first, discharged by the 266,000m^3 Mekaines, was the largest-ever shipment of LNG unloaded in the nation. Mekaines was the first Q-Max LNG carrier to visit India. The second consignment, carried by the 138,000m^3 Disha, was the 1,000th RasGas cargo shipped under its long-term agreement with Petronet. For RasGas, in terms of sales volumes, India is its second-largest customer after Korea.

For India, RasGas is its largest – and currently only – long-term supplier. Petronet imports 7.5mn tonnes per annum (Mtpa) of LNG from RasGas under a 25-year agreement. In April 2014, the Indian company signed up for a further 800,000 tonnes of RasGas LNG for delivery over a 12-month period. RasGas shipped 9.1mn tonnes of LNG to Petronet in 2014, plus an additional 0.9mn tonnes of spot cargoes to GAIL, GSPC, Reliance and Shell.

It doesn't stop there. Late last month, RasGas announced that Ras Laffan Liquefied Natural Gas Company Limited (RL 3) has entered into a new LNG sales and purchase agreement (SPA) with French energy company EDF SA (EDF). Under the terms of the SPA, RL 3 will deliver up to 2mn Mtpa of Qatari LNG into EDF's new terminal in Dunkerque, France, starting in 2017 and over the medium term. This new agreement complements three existing long-term SPAs between RasGas ventures and EDF Group subsidiaries for the delivery of up to 4.6 Mtpa to Edison in Italy and up to 3.5 Mtpa to EDF Trading in Belgium.

RasGas also marked a significant

↑ **The state-owned Qatari gas producer RasGas is focussed on continuing to expand its LNG terminals.**

milestone this year with its delivery of the 500th LNG cargo to its long-term customer CPC Corporation, Taiwan (CPC). The cargo was loaded aboard CPC's TaiwanQatar vessel at Ras Laffan port on March 5. In 2011, RasGas and CPC signed a second long-term contract for the supply of LNG from RasGas, which increased the annual long-term sales to over 5mn tonnes per year to CPC and Taiwan. In addition, RasGas has delivered 72 cargoes – approximately 4.4mn tonnes – of LNG to CPC on a spot basis since 2007 to date.

RasGas' midstream prowess is further complimented by its excellent storage facilities. RasGas is one of the world's leading LNG enterprises – its total annual production capacity is 37.1mn tonnes, and its integrated supply chain includes facilities to extract, treat, liquefy and export natural gas around the world. In that supply chain, the focus naturally falls on the offshore wells and production platforms, the pipelines, the seven onshore LNG trains and the dedicated fleet of LNG carriers.

But a key – and often overlooked – link in the chain is the 11 storage tanks in which the company's primary product is held prior to final loading at Ras Laffan port. Of these tanks, three are for the rich LNG produced by RasGas Trains 1, 2 and 3, and eight for the lean LNG produced by Trains 4, 5, 6 and 7.

The three rich LNG tanks are owned by RasGas, while the lean LNG tanks are jointly owned and shared with its sister company, Qatargas. The tanks are huge. Each one has a diameter of 74.3m and thus covers an area of more than 60% of a football field, and is tall enough to accommodate a 17-storey building. Depending upon which LNG trains a tank serves, it typically takes between two and three days to fill it to its total volume of 140,000m^3, the same capacity as a conventional LNG carrier.

That eight of the 11 LNG storage tanks are shared by RasGas and Qatargas is no mere technical detail: it provides Qatar with a clear commercial advantage. "The fact that the tanks are supplied by two LNG production companies means that if one company's facilities are out of action for some reason, the other company will ensure continued supply," Aditya Eranki, offsite asset manager at RasGas, is quoted as saying in the company's internal magazine. "This is a huge added value to our customers. No other LNG producers in the world enjoy this competitive advantage."

↑ **Relying on shipping for the transportation of its LNG has proved to be extremely efficient for RasGas.**

> "THE FACT THAT THE TANKS ARE SUPPLIED BY TWO LNG PRODUCTION COMPANIES MEANS THAT IF ONE COMPANY'S FACILITIES ARE OUT OF ACTION FOR SOME REASON, THE OTHER COMPANY WILL ENSURE CONTINUED SUPPLY."

The tanks are of the above-ground 'full containment', tank-within-a-tank type: a pre-stressed, reinforced-concrete outer tank, a 9% nickel-steel inner tank and, between the two, perlite powder as a thermal insulator to maintain a temperature of –160ºC.

In some countries – including Japan, Malaysia, South Korea and Taiwan – underground LNG storage tanks have been built, in cylindrical, spherical and 'bullet' designs. Underground storage provides some insulation advantages but is dependent on local conditions, and most major producers use above-ground tanks similar to those at Ras Laffan port.

Whether LNG tanks are above-ground or not, clean LNG causes no corrosion, so there is no need for regular shutdowns: the tanks' exteriors are inspected periodically to ensure their integrity, and the perlite is topped up approximately every 10 years. The tanks are designed for intervention-free use over 25–30 years, operated and maintained by a dedicated team of 60 staff.

In the final analysis, the 11 LNG storage tanks that are owned by RasGas at Ras Laffan form a critical link in the supply chain, as well as an integral element in Qatar's LNG success story.

TACKLING THE SUPPLY CHALLENGE HEAD-ON

By following the example set by other industries and replacing traditional manual methodologies in the supply chain with the latest innovations, the oil and gas sector could enjoy greater efficiencies and tighter cost control. *Michael Gordon* explains

At a time when regional National Oil Companies (NOCs), International Oil Companies (IOCs) and other private players are scrambling for market share, rapid and effective transportation of the produce to eager consumers has become more crucial than ever.

Over the past decade, companies across the entire oil and gas value chain enjoyed the boom in drilling and the linear midstream and downstream projects as activity soared, fuelled first by high natural gas and then oil prices. However, today the global oil and gas industry is in the midst of one of the most severe downturns of the last 30 years, with industry revenues for 2015 dropping to 20% below that of 2014, and industry profits shrinking by as much as 30%. That declining trajectory continues in 2016, according to Alix Partners, a leading global business advisory firm.

Nevertheless, the latest data also suggests that the GCC's oil supply has reached a historic high of over 31mn barrels per day (bpd), which accounts for 35% of global oil supplies.

To maintain that advantage, Alix Partners suggests that producers must take action on several fronts, including driving higher capital efficiency, improving field productivity, and reducing general and administrative (G&A) spending.

Similarly, Lux Research says that cost-cutting, diversification into other areas of production such as high-value chemicals, and advances in technology and supply chain innovation are all key to fighting off the growing challenge.

Lux Research analysts found that upstream costs in 2014 were 25 to 30% below 2012 highs, largely driven by a collapse in demand. Further, they offer continued cost savings over the next decade, thanks to advances like robotics, improved fracturing methods, lean engineering, and treatment solutions for flowback water.

Specialty 'high-value' chemicals could make a difference between profit and loss for oil majors, and steer them into an industry that is less vulnerable to regulatory limits, according to Lux Research analysts. However, oil companies must first position themselves to manufacture unusual, high-value chemicals rather than just the commodities that most produce today, warns Lux.

↑ **Supply chain innovations could be key to tackling financial challenges.**

Nick Coaton, general manager – Track & Trace Solutions at Swire Oilfield Services, argues that the oil and gas industry must follow the lead of industries such as retail and defence, which are taking advantage of technologies such as the internet of things (IoT), automated asset tracking, 3D printing and predictive analysis to bring value to operations and provide business intelligence that was previously hard to obtain. By replacing traditional, manual methods in the supply chain with the latest innovations, these industries are reaping the rewards of standardisation, simplified processes and more accurate intelligence – all leading to more efficient operations and tighter cost control, benefits that the oil and gas industry could also enjoy.

The industry needs to take advantage of existing standards, which do not necessarily come from the oil and gas space. In a presentation entitled *Forging a world leading supply chain*, Harry Brekelmans, projects and technology director at Shell, noted a recent example where the Anglo-Dutch energy giant was able to save $50mn in shipyard expenses by using existing metrics.

↑ Oil and gas operations could benefit from lessons learned in other sectors.

At the same time, he contended that the oil and gas industry needed to set new standards, and referenced Shell's participation in a new joint industry project that is working to standardise subsea processing systems.

More efficient execution in cyberspace is an important part of this, he noted. Improvements here could lead to better tracking of tools and equipment, and greater use of cyber systems could also help improve construction management.

Brekelmans noted that Shell is using some of these systems for its Prelude FLNG project, and added that the company believes it can save 10 to 15% through the implementation and use of such tools.

The industry also needs to make greater use of off-the-shelf technology, Brekelmans observed. He cited the use of a Veros Systems monitoring programme that Shell had recently deployed, which allows operators to better plan their maintenance programmes.

Brekelmans underscored the importance of 'co-innovative technology', wherein operators and vendors work together to develop the products and systems the industry needs. He noted that Shell had recently worked with vendors and suppliers to develop swellable packers and swellable dope pipe, an effort that enabled Shell to save 50% in the cost of tubing on one project.

While the advent of technology has helped companies to find and extract more oil, little has been done to embrace modern enterprise resource planning (ERP) systems for supply chain and procurement solutions. ERP systems can provide inventory management, demand forecasting, contractor management, master data management and e-procurement. In turn, this could automate workflows; improve sourcing and transaction cycle times; tighten integration with suppliers and customers; generate accurate inventory information, complete spend information and supplier performance metrics; limit manual intervention and errors; and reduce internal procurement costs.

BUILDING OIL AND GAS SUPPLY CHAINS

WORDS: Vinodkumar Raghothamarao, customer engagement manager, Epicor Software Corporation

Oil and gas companies operate in dynamic and complex environments, where they face constant challenges, especially in terms of supply and demand. Oil and gas companies need to focus not only on their product supply chains, but also on the non-hydrocarbon supply chains that handle the parts, materials and services required to run the business.

The non-hydrocarbon supply chain is critical to delivering the equipment and services required to find, extract, refine and market oil and gas. Procurement and supply chain strategies are among the most critical issues facing oil and gas companies. In addition, factors such as oil prices and industry capital spending, among others, are rapidly changing the oil and gas landscape.

It means that international and national oil companies need to reassess the effectiveness of their procurement and supply chain. They will require new, robust strategies that can deal with the complexity of this mid-term business environment. Oil and gas supply chain practices in certain geographies lag behind those of other industries, which use advanced techniques, such as optimised inventory management and collaborative supplier relationship management. There are a number of opportunities and areas where supply chain practices can be improved among IOCs and NOCs.

According to *Harvard Business School Review*, purchased products and services account for more than 50% of the average oil and gas company's total costs. Even a 5% reduction in purchase costs can result in a significant increase in companies' profit margins. There are a number of areas that

↑Vinodkumar Raghothamarao of Epicor Software.

firms can target to achieve this, including supply chain market intelligence; demand planning; materials or supplier relationship management; supply chain technology; and supply chain talent.

'Supply chain market intelligence' is the process of acquiring and analysing information in order to understand the present and future market. It supports current and future sourcing and market sector strategy execution, and enables the business to better anticipate changes in the external marketplace so it can react before others do. Effective supply chain market intelligence helps oil and gas companies deal with strategic supply chain challenges such as constrained capacity, infrastructure and volatile markets. It also helps companies make the right decisions about which markets to buy from, how to determine the right price to pay and what benchmarks and targets will provide a competitive edge.

Effective demand planning is the next step to improving the supply chain. It is a key factor in determining future requirements, which in turn helps to step up or step down supply, and leverage demand based on scalability. Many of the oil and gas supply chain and procurement executives across the globe agree that challenges arise when their demand-planning measures do not match their forecast expectations. The main reason for this is because it is only being used in selective areas. For example, oil and gas companies may use demand planning in limited areas such as long lead-time capital equipment, but not for other areas of the project, which can cause cost overrun. Beyond that, many oil and gas companies do not use demand planning at all, leading to a situation where internal customers are not linked to any structured planning process.

The oil and gas industry is heavily dependent on suppliers to provide complex services and technical equipment to support ongoing projects and operations. However, contract management and supplier relationship management are not usually at an acceptable level, and as a consequence, the oil and gas companies take on supplier risks. To improve supplier relationship management, companies should adopt a method of supplier benchmarking. Firms need to measure the robustness and performance of different contractors for various spend categories, and constantly seek dialogue with them so that the suppliers are in unison with the necessary obligations in terms of safety, training, equipment and staffing requirements. When it comes to contract management, too many oil and gas companies are still operating with inefficient processes. ●

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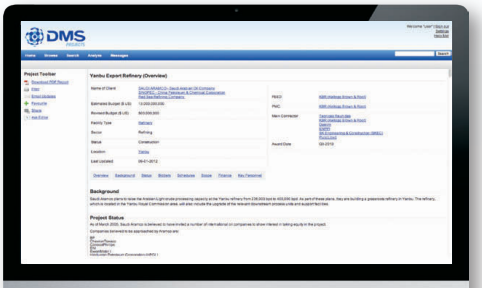
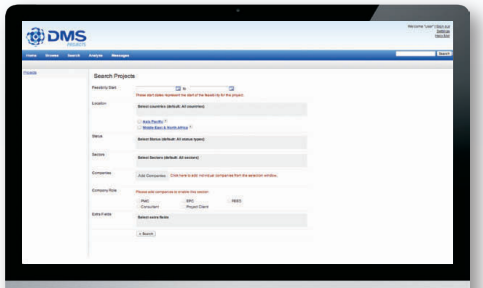


Project Overview



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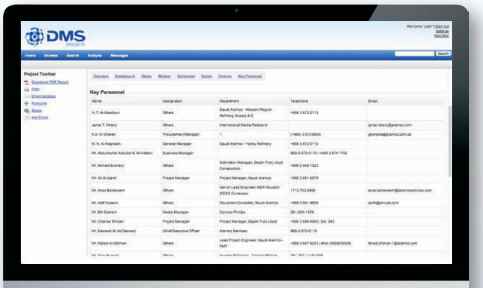
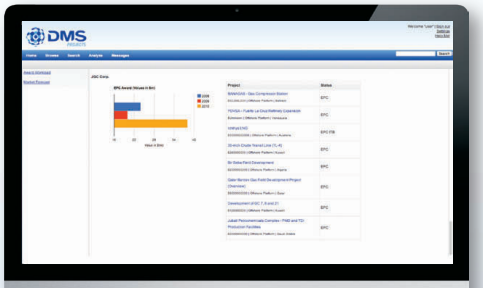
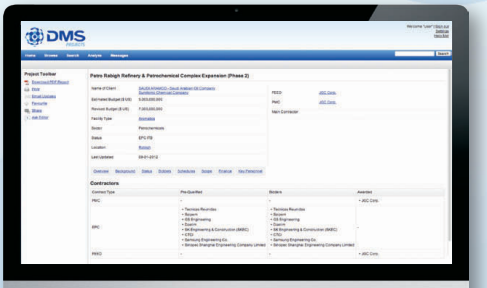


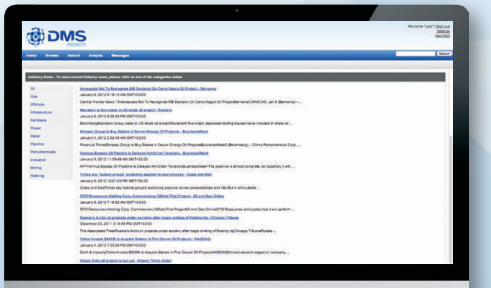
Key Personnel



Market Forecast



Bidders List



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WORDS: INDRAJIT SEN

A MERGER FOR THE AGES IN ABU DHABI

In its bid to reduce dependence on oil and gas revenues, Abu Dhabi has decided to integrate two of its largest investment firms – IPIC and Mubadala – into a single entity that will have a portfolio of around $125bn. Will this merger, which is being seen as the emirate's first step towards transforming into an investment-driven economy, bear fruit?

The merger aims to help Abu Dhabi's economy reduce dependence on oil and gas revenues.

In times like these, 'optimisation' appears to be the only reasonable economic policy, business approach or corporate strategy that will help the Middle East's oil and gas-dependent governments and companies navigate the financial doldrums in which the currently finds themselves mired. The leadership in Abu Dhabi seems to have done just that by recently deciding to pool the resources of two of its biggest investment corporations to create a single entity with such a huge and varied portfolio, so plump with ready-to-invest funds, that it can assist the emirate's economy in becoming investment-driven.

His Highness Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, Deputy Supreme Commander of the UAE Armed Forces and Chairman of the Abu Dhabi Executive Council, on June 29, ordered the merger of Mubadala Development Company and the International Petroleum Investment Company (IPIC), streamlining the country's investment strategy as it weathers a slump in oil prices that has dented the state's exchequer. The resolution will combine the two Abu Dhabi government-owned investment funds into a new body that will hold roughly $125bn in assets across businesses ranging from computer chips to renewable energy.

The decree from Sheikh Mohammed bin Zayed al-Nahyan emphasised the potential synergies realisable by the tie-up, in industries including, – most obviously – energy, where IPIC's activities are concentrated. Mubadala's mandate is more general – to invest at home and abroad across sectors the development of which is adjudged to advance Abu Dhabi's wider economic aims.

"The combined entity will realise synergies and growth in multiple sectors including the energy and utilities sector, technology, aerospace, industry, healthcare, real estate and financial investments," says the decree, details of which were made public by state news agency *WAM*. The decree continues: "It will also have the ability to contribute more significantly to the diversification of the economy, in line with the Abu Dhabi Plan and the country's long-term vision."

The move has been welcomed by all as wise and timely – one that would help the Abu Dhabi-led UAE build the foundation for a stable financial future and significantly reduce its reliance on fossil fuel revenues. "The merger has the potential to be very positive. Hopefully, the merged entity will be more efficient and have greater firepower for investments. The success or otherwise of the venture, however, will need to be judged over a number of years," says Richard Devine, a partner who heads the Oil and Gas practice at Clyde & Co.

ICIS MENA's Muhammad Fadhil.

> "THIS MERGER IS A CONSOLIDATION OF THE SOVEREIGN WEALTH SECTOR IN THE UAE AND IS CONSISTENT WITH MOVES SEEN ELSEWHERE IN THE GCC."
> MUHAMMAD FADHIL, REGIONAL MANAGER, ICIS MENA.

"This merger is a consolidation of the sovereign wealth sector in the UAE and is consistent with moves seen elsewhere in the GCC region. The sector will benefit from expected cost cuts, driven by streamlined operations," Muhammad Fadhil, regional manager at ICIS MENA, tells *Oil & Gas Middle East*. "During the consolidation process, the government will expect to benefit from economies of scale. The new entity will see value in complementing each other and addressing gaps in market expertise."

Sirine Tajer, managing director of MENA Energy Partners, says: "There seem to be two main rationales for the merger. First, the merger allows [Abu Dhabi] to leverage on Mubadala's robust management to handle the assets of IPIC, which presently

> "THE MERGER ALLOWS [ABU DHABI] TO LEVERAGE MUBADALA'S ROBUST MANAGEMENT TO HANDLE THE ASSETS OF IPIC [AND] TO OBTAIN AN ENTITY WHICH IS VERTICALLY INTEGRATED."
> SIRINE TAJER, MANAGING DIRECTOR OF MENA ENERGY PARTNERS.

↑ Left: Richard Devine, a partner at Clyde & Co. Right: Sirine Tajer, managing director of MENA Energy Partners.

↗ No timeline has been set for the merger as yet.

has a thin senior management – this is a human resource leverage effect. Secondly, the merger allows [Abu Dhabi] to obtain an entity which is vertically integrated, benefitting from both upstream (Mubadala) and downstream (IPIC) assets."

She also cites another potential benefit of the merger, quoting state media, which said: "It would also build on the creation of quality, long-term employment and development of human capital in critical sectors for the emirate."

According to the decree, a joint committee will be established to oversee the merger, chaired by Deputy Prime Minister Sheikh Mansour bin Zayed Al Nahyan – who also chairs both companies – with Mubadala chief executive officer and managing director Khaldoon al-Mubarak as his vice-chairman, and also including the UAE's Energy Minister and IPIC managing director Suhail Mohamed Al Mazrouei. The two vehicles will continue to act independently until the process of integration is completed, for which no timeline has been set. "It's difficult to predict a timetable but frankly that is not what excites me about this initiative. I am sure a streamlined strategic investment approach is already in place. That will be key and represent the positive upside of this initiative," Jon Nash, a partner at law firm Dentons Abu Dhabi office, told this magazine.

Bigger and better

The most recent financial statements show that Mubadala holds around $67bn in assets and IPIC approximately $58bn, with the two Abu Dhabi companies burdened with around $42bn in combined debt – the bulk of over $30bn borne by IPIC. The energy-focussed IPIC is also by far the more troubled. As per results released on June 30, IPIC slumped to a $2.6bn loss last year as a consequence of write-downs of $8.1bn – chiefly caused by the global oil market downturn.

IPIC, the older of the two vehicles, created in 1984, is also facing the particular problems induced by exposure to the scandal-hit Malaysian government development fund 1MBD, which IPIC announced in June it would take to international arbitration in order to recover $6.5bn in alleged unpaid obligations.

In a statement accompanying the results, managing director Al Mazrouei nevertheless professed confidence in the strength of the firm's business. "IPIC remains in a strong position due to an

$125BN

THE MERGER WILL COMBINE THE TWO GOVERNMENT-OWNED ENTITIES INTO A NEW BODY THAT WILL HOLD A TOTAL OF APPROXIMATELY $125BN IN ASSETS.

↑ Recent financial statements show that Mubadala holds approximately $67bn in assets while IPIC holds around $58bn.

investment portfolio that is diversified throughout the hydrocarbon value chain, as well as prudent financial management," he asserted. "We believe IPIC is well-positioned as a strong complement to Mubadala, as global energy demand gradually resumes its upward trend."

On the other hand, Mubadala's 2015 profit increased by 12% to $317mn on the back of higher income from a variety of non-oil sectors, including semiconductors, real estate, healthcare and financial investments. Mubadala already has a dedicated energy 'platform' comprising Mubadala Petroleum and clean energy unit Masdar. The former's interests are currently concentrated in upstream exploration and production (E&P), mainly in Southeast Asia, but includes a stake in Oman's largest enhanced oil recovery (EOR) project at the Mukhaizna field.

Mubadala also has stakes in Dolphin Energy, operator of the Qatar-UAE-Oman gas pipeline – and, alongside IPIC, in the Emirates LNG vehicle for a long-planned LNG import terminal at Fujairah. It's non-oil and gas holdings include semiconductor maker Globalfoundries and renewable energy company Masdar, as well as stakes in Fairfield, General Electric Co and Washington-based private equity firm The Carlyle Group.

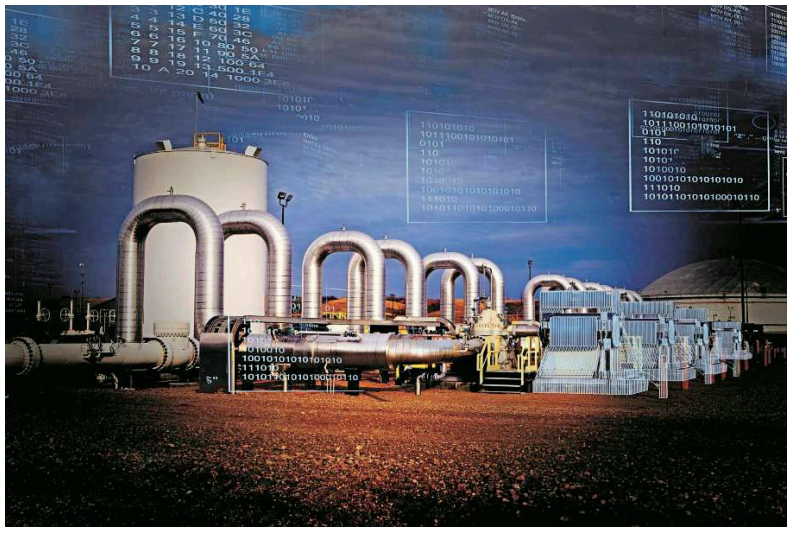
IPIC holds stakes in several energy-related companies and owns most of Abu Dhabi-based Aabar Investments, the holdings of which include partial ownership of space tourism startup Virgin Gallactic. Morever, the company's energy sector interests are more globally-diverse and more downstream-focussed, including majority ownership of Austria's Borealis – state-owned Abu Dhabi National Oil Company's (ADNOC) joint venture partner in Abu Dhabi Polymers Co (Borough), which owns and operates the emirate's main petrochemicals complex at Ruwais.

The market is already abuzz with how the yet-to-hatch enterprise will grow, and analysts seem to be casting their lots on the sort of investments it will make.

"The new company is likely to continue to invest both in the upstream and the downstream sector. A single united company will profit from the economies of scale," Ehsan Ul-Haq, a senior analyst at London-based KBC Energy Economics, believes.

Tajer agrees, saying, "New energy investments will be long-term (and not short-term), guided and balanced between upstream and downstream, as profitability of each segment depends on the cycle we are in," she says. "In addition, given the importance of the reduction of dependence on the hydrocarbons sector and economic diversification for the UAE – like all other GCC countries – I do expect further investments in renewable energy and other sectors which have been cited by the Crown Prince's Court [such as technology, aerospace, industry, health care, real estate and financial investments]."

Dentons' Nash also chooses to believe that the merged body will be inclined to invest more in non-energy assets. "Both groups have considerable assets outside of energy [in real estate, aerospace and technology]. While I am sure the new entity



↑ Left: Ehsan Ul-Haq, senior analyst, KBC Energy Economics.

Right: Jon Nash, partner, Denton's Abu Dhabi office.

→ The new entity will most likely be looking to acquire distressed assets in the oil and gas sector.

will be looking at acquiring good distressed assets in the oil and gas space, there is a natural tendency in the current economic climate to look at utility assets and their steady revenue streams as well," he says.

Yet there seem to be other experts, such as Devine of Clyde & Co, who are not entirely sure about which direction Abu Dhabi's wealth portfolio will take, and prefer to wait and watch. "It is not clear what investment strategy the new company will employ. Mubadala has a range of investments outside of the energy sector and it's not clear that oil and gas or other aspects of the energy chain will be a focus," Devine says. "SWFs (sovereign wealth funds) don't necessarily have the same investment constraints as publicly listed companies, so the new company might be able to take a longer-term view of investments. This means it may be able to invest in sectors that are unfashionable and better value presently, on the basis that they will recover in due course."

$42BN

THE TWO ABU DHABI COMPANIES HAVE APPROXIMATELY $42BN IN COMBINED DEBT, WITH THE MAJORITY BEING BORNE BY IPIC.

Taking a cue from Saudi?

The Kingdom of Saudi Arabia – by far the most affected by the free-fall of crude oil prices – adopted a similar approach earlier this year when, in April, dynamic Deputy Crown Prince Mohammed Bin Salman declared that Riyadh plans to sell around 5% of its biggest asset, Saudi Aramco, through an IPO, and eventually transfer the shares to the kingdom's SWF, the Public Investment Fund.

"IPOing Aramco and transferring its shares to PIF will technically make investments the source of Saudi government revenue, not oil," the prince said in an interview to Bloomberg. "What is left now is to diversify investments. So within 20 years, we will be an economy or state that doesn't depend mainly on oil."

The unprecedented plan to sell part of its national oil company – albeit just the downstream assets – to create a gigantic SWF worth trillions of dollars, and laying out a comprehensive policy, as envisaged in the Saudi Vision 2030, to further lead the country away from its addiction to oil revenues, is being considered by many as not just Saudi Arabia's effort to adjust to the new realities of a low oil price era, but also as a blueprint for other GCC states to adhere to in order to secure their future.

So is the UAE, by choosing to create a massive and diverse investment portfolio, following Saudi's lead? Not according to the experts.

"I don't think that's necessarily the case. The low oil price environment is making the UAE – and KSA – think about costs carefully. Lower oil revenues are driving efficiencies in both the public and private sector. Abu Dhabi may simply have thought that having two entities with the same ultimate ownership operating – and potentially competing – in similar spaces was unnecessary," Devine believes.

Nash offers a similar view, "I don't think the UAE follows anyone's lead. Abu Dhabi's growth has been phenomenal in recent years. Inevitably, it has had to look to reorganise its assets to ensure as streamlined delivery of return as possible. Abu

"LOW OIL PRICES HAVE FORCED GOVERNMENTS IN THE MIDDLE EAST TO LOOK THOROUGHLY AT THEIR INVESTMENTS [AND ARE] RESULTING IN MORE M&A ACTIVITY."
EHSAN UL-HAQ, SENIOR ANALYST, KBC ENERGY ECONOMICS.

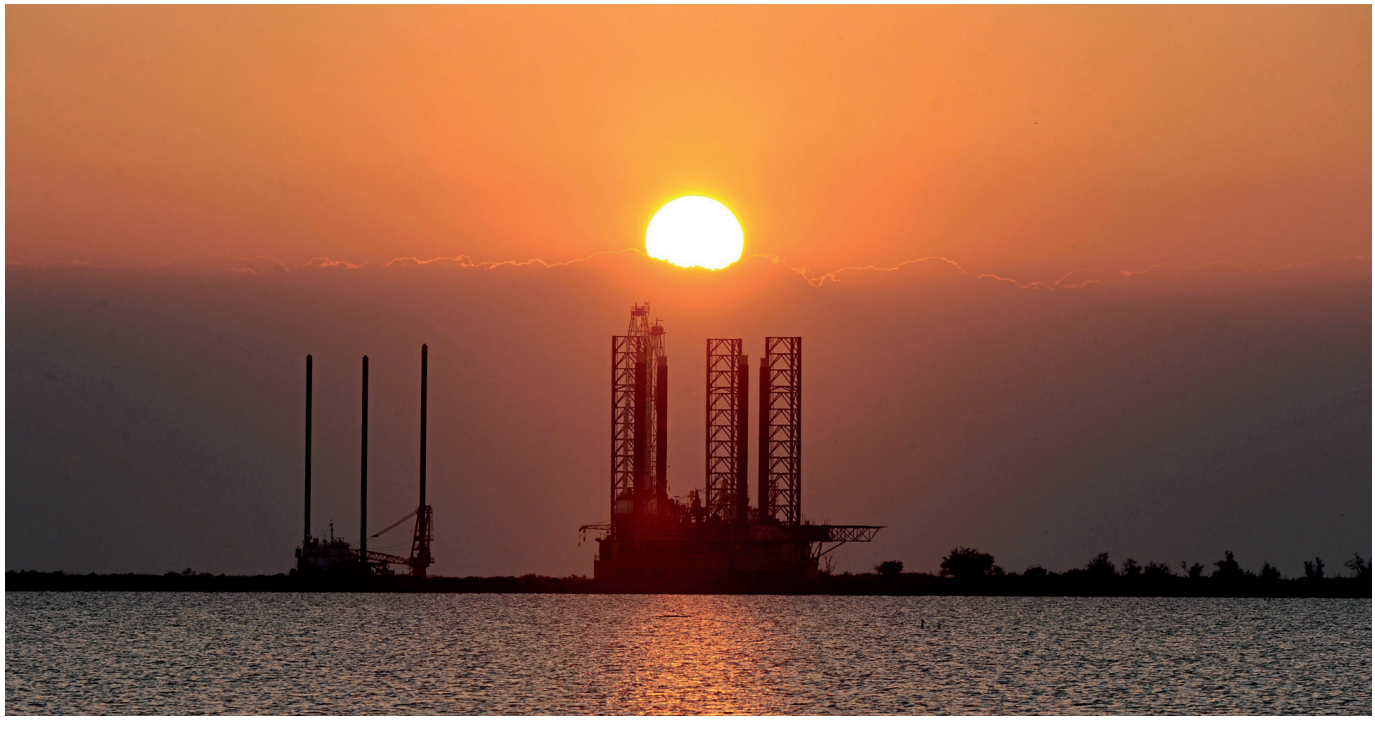
↑ Abu Dhabi has been going through a period of restructuring.

Dhabi has actually been going through a period of considered restructuring and consolidation for a few years now. This is another [significant step on that road]."

Tajer, in unison, further explains: "I do think that the UAE or Abu Dhabi has been in advance vis-à-vis Saudi Arabia in the creation and management of its SWF. The ADIA (Abu Dhabi Investment Authority) was created in 1976 and IPIC in 1984. Furthermore, without counting TAQA and the new international investment arm of ADNOC, taken together, the SWFs of UAE – ADIA ($777bn), ADIC ($110bn), Mubadala ($68bn) and IPIC ($58bn) – are second only to China's."

Industry observers feel it might be premature to say that the UAE has implemented the Saudi diversification formula and support their argument by saying that they do not expect any shares sale of ADNOC in the foreseeable future. Whether or not Abu Dhabi is following Saudi's lead could be debated for a long time. But there's no denying the fact that in a bid to remain competitive in a testing economic climate, governments are aggressively pressing ahead with consolidating their assets and operations – something that has led to a spike in mergers and acquisition (M&A) activity in the region.

"I think, lower oil prices have forced governments in the Middle East to look thoroughly at their investments. It is also resulting in more M&A activity," Ul-Haq says. "However, the UAE's sovereign funds could weather the storm much more easily than the other funds, as the UAE economy is not as much dependent on oil prices as other governments in the Middle East are. IPIC and Mubadala have much more experience in diversifying their investments than other sovereign funds."



IRAQ'S UNENVIABLE JUGGLING ACT

Iraq's oil sector resembles a phoenix rising from the ashes, as two foes pull on its tail feathers – the low oil prices since mid-2014, and the economic and social destruction wrought by ISIS in the north. Can Iraq sustain its rising oil production amid escalating pressures?

WORDS: MICHELLE MEINEKE

→ Iraq's current production stands at 4.5mn bpd, slightly below January's record high of 4.8mn bpd.

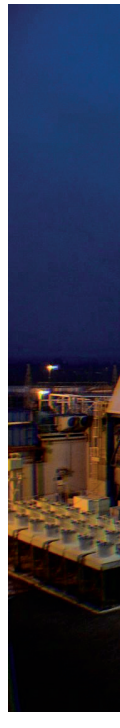
↘ Oil exports account for almost 90% of government revenues, with Baghdad making $3.84bn in June.

An unfortunate track record means Iraq's oil sector is increasingly characterised by its ability to bounce back from crippled finances and broken energy infrastructure. In 2003, Iraq had hundreds of burning oil wells, spluttering oil production, and the state-owned Iraq National Oil Company was in disarray. In 13 short years, OPEC's second largest producer has bolstered oil production to a record high despite the heavy economic toll of ISIS' swift march onto northern Iraqi soil in early 2014.

"Iraq has been plagued by the actions of ISIS. With major setbacks in the fight against the terrorist group in Iraq, the Obama administration has been faced with questions about its strategy," Luis E Giusti, a senior advisor on energy and national security for Washington-based thinktank the Center for Strategic and International Studies told *Oil and Gas Middle East*. "But what is remarkable is how little the crisis is affecting Iraq's oil sector, as the country has succeeded in steadily boosting oil output."

Iraq's current production, which includes output in the semi-autonomous region of Kurdistan, is around 4.5mn bpd. Kurdistan produced 567,000 bpd in June, according to the Kurdistan Regional Government's (KRG) Ministry of Natural Resources. Iraq's production has fallen slightly on the record high of 4.8mn bpd in January, due to power outages, infrastructure maintenance and unpredictable weather patterns. Still, current production marks a 7% increase on the 2015 average of 4.2mn is nearly double the 2010 average of 2.4mn bpd.

This bullish trend meant that Iraq and Saudi Arabia spearheaded the rise in OPEC's average crude oil production of 31.8mn bpd last year – an increase of 800,000 bpd from 2014. Iraq's exports from its southern ports are approximately 3.14mn bpd in June. Oil exports accounts for almost 90% of government revenues, with Baghdad making $3.845bn in June after selling at an average price of $40.37 a barrel. Baghdad must also meet swelling domestic energy demand, which is expected to climb by 4% a year between 2015-2035, according to energy consultancy Wood Mackenzie.



Political hurdles

Iraq's plans to bolster production capacity to as high as 6mn bpd – a 33% hike – by 2020 faces a

"WE ARE GOING TO SEE PRODUCTION PLATEAU AND START TO DECLINE LATER THIS YEAR, AS GOVERNMENT TURMOIL AND SPENDING CUTS AFFECT PROJECTS NEEDED TO SUSTAIN OUTPUT."
RICHARD MALLINSON, ANALYST AT ENERGY ASPECTS.

barrage of cynicism, as energy stakeholders expect Baghdad to focus the country's thinning cashflow on improving security. More than 250 people were killed on July 2 by the single deadliest of the many car bombings that have occurred in Baghdad since the 2003 US-led invasion, and 10mn of the country's 37mn people need humanitarian assistance.

Meanwhile, the always tense and occasionally stormy relationship between Baghdad and the semi-autonomous Kurdistan Regional Government (KRG) continues. A brief illustration of the discord occurred last year, when the KRG independently sold off all of its own oil to raise cash without Baghdad's permission after failing to receive the proper allocations in Baghdad's 2014 and 2015 budgets. Baghdad countered that the KRG failed to deliver the agreed oil transfers. The KRG are revisiting plans to build a 250,000 bpd export pipeline of Kurdish oil to Iran in a bid to strengthen the government's energy economics, which are also hampered by prolonged shutdowns on its sole export pipeline from Kirkuk to the Turkish port of Ceyhan. Mounting economic strain is also fuelling political bickering in the upper echelons of Iraq's government.

"Politically, things have worsened dramatically in Iraq," Richard Mallinson, an analyst at consultancy Energy Aspects told *Bloomberg* after protesters accusing the government of stalling reforms stormed parliament in Baghdad on April 30. "It is a negative for the country's oil industry over the medium term. We are going to see production plateau and start to decline later this year, as government turmoil and spending cuts affect projects needed to maintain output."

Fragile economics

Iraq's economy is nearing a precipice. Brent oil prices are hovering around $50 a barrel, which is 60% lower than in mid-2014 and more than a third

below the estimated $81 a barrel that Iraq needs to keep its budget balanced. Plus, the Central Bank of Iraq's stock of foreign reserves, which includes gold, fell from $78bn in late-2013 to around $50bn in May this year, according to ratings agency Fitch. The $50bn represents nine months of external payments under current conditions and does not account for a significant deterioration in security, or another sharp fall in oil prices.

In a bid to encourage growth and stabilise the financial sector, the International Monetary Fund (IMF) suggests that the legal framework of the Central Bank of Iraq needs to be strengthened, state-owned banks need to be restructured and exchange restrictions need to be gradually removed. The IMF also advises measures to prevent money-laundering, counter the financing of terrorism and strengthen the anti-corruption legislation. All good advice, but energy stakeholders wonder how quickly changes can be implemented considering the number of balls strained officials in Baghdad are already struggling to juggle. The IMF's approval of a $5.34bn, three-year stand-by arrangement in early July should temporarily ease some pressure.

Iraq has the potential to recover from a low base and grow at 7.2 % in 2016 and hover around 5% in the next few years, according to the World Bank's latest Iraq Economic Outlook report. The forecast relies on an increase in oil-related foreign direct investment (FDI), structural reforms, the implementation of IMF's programme and an unlikely but possible reduction in ISIS' influence. Equally, a weakening oil price, more social instability sparked by reforms – such as public pay structures – or ISIS' capture of even one of Iraq's giant southern oilfields would create a much more unnerving future.

Paul Hickin, associate editorial director of Europe and Africa's Oil News and Analysis, S&P Global Platts. ↓

"EXISTING ARREARS SHOULD BE PAID DOWN FOLLOWING [...] THE IMPLEMENTATION OF CONTROLS TO PREVENT THE FURTHER ACCUMULATION OF ARREARS."
MIN ZHU, DEPUTY MANAGING DIRECTOR AND ACTING CHAIR OF THE IMF'S EXECUTIVE BOARD.

Nurturing foreign allies

International energy companies' support lies at the heart of Iraq's ability to both sustain and ramp up oil output amid tremendous pressure. But it has not been an easy road. Iraq still had $3.6bn in arrears to pay to international oil companies as of late-June, which it has committed to paying off by the end of September by increasing oil allocations to the firms.

"The accumulation of large external arrears to international oil companies and domestic arrears in 2015 was unfortunate. Existing arrears should be paid down, following a due process of checking their validity and the implementation of controls to prevent the further accumulation of arrears to international oil companies and domestic suppliers," Min Zhu, the deputy managing director and acting chair of the IMF's executive board has said.

Financial and technological expertise provided by international oil companies have been deeply interwoven into the narrative of Iraq's oil sector since the beginning – it is a relationship that Iraq cannot afford to jeopardise. BP's involvement began in the 1920s, for example, when it helped Iraq locate, produce and export oil from Baba Gurgur, Kirkuk, which was the largest oilfield in the world at the time. The development of the Rumaila field decades later, which now accounts for a third of Iraq's production, illustrates the integral role of foreign allies in providing financial springboards from which Iraq can strengthen its economy.

In 2009, a 25-year technical service contract

14MN BPD

IRAQ IS EXPANDING ITS OIL STORAGE CAPACITY IN THE SOUTH TO 14MN BPD – FROM TODAY'S CAPACITY OF 11.5MN BPD – BY THE FIRST QUARTER OF 2018.

↑ Iraq's oil sector relies heavily on the financial and technological expertise of international oil companies.

(TSC) was signed between Iraq's South Oil Company (SOC), BP (47.6%), PetroChina (46.4%) and the country's State Oil Marketing Organisation (SOMO) (6%) to re-develop Rumaila. The Iraqi government receives around 98% of the revenue from the joint venture that was established in 2010 and spearheaded by BP to operate the field.

The TSC has been extended to 2034 with the aim of increasing production to 2.1mn bpd from the 1.34mn bpd in 2014, according to BP, which would mark a 57% increase in a decade. If the development is successful, it would more than double the 950,000 bpd produced at Rumaila in 2010.

Four other giant oilfields make up the majority of Iraq's production. The 450,000 bpd from West Qurna 1 is developed by Exxon Mobil, the 405,000 bpd from West Qurna 2 is developed by Lukoil, with 220,000 bpd and 360,000 bpd from Shell's Majnoon and Eni's Zubair, respectively, as outlined by Hayan Abdulghani Abdulzahra, the head of the SOC to *Reuters*.

Iraq is expanding its oil storage capacity in the south by 21% to 14mn bpd by the first quarter of 2018, from today's 11.5mn bpd, and plans are underway to build the country's fourth single point mooring (SPM) facility by mid-2017. Aside from reducing the number of costly export bottlenecks, increasing storage capacity allows sellers to store their products and wait for the inevitable rise in oil prices before going to market. Widening the country's export capacity will also enable Baghdad

↑ By focussing on improving infrastructure, Iraq is showing a commitment to international oil companies developing its largest oilfields.

to take advantage of the growing number of energy supply deals along the 'New Silk Road', which stretches from Beijing to Lagos.

"Iraq's Ministry of Oil appears to be laying the foundations to grow the country's crude exports and production, having made output growth a top priority. By focussing on improving infrastructure, Iraq is showing a long-term commitment to international oil companies developing its largest oilfields," Paul Hickin, the associate editorial director of Europe and Africa's Oil News and Analysis at global energy pricing agency and news provider S&P Global Platts, told *Oil and Gas Middle East*.

"Finalising the southern infrastructure project with ExxonMobil and China National Petroleum Corporation by the end of the year would be a real statement of intent," Hickin added.

The SOC is searching for investments to support the Integrated South Project, which consists of building oil pipelines, storage facilities and enhanced oil recovery (EOR) at several small southern fields, including the Luhais, Nassiriya, Tuba, Nahr Bin Umar and Artawi oilfields. The state of current negotiations is vague, despite initial plans to bolster production by 45% to 350,000 bpd this year.

Iraq's ambitious tone is reassuring investors, but sentiment only goes so far. Shell has reduced its workforce at the Majnoon oilfield near Basra and Baghdad has asked to only pay the China National Petroleum Corp (CNPC) for its efforts to double production at the Halfaya oilfield to 400,000 bpd once oil is actually produced. Debt-ridden Gulf Keystone, which produces 40,000 bpd from the Shaikan oil field in Iraqi Kurdistan and has proven and probable reserves of 639mn barrels, completed a forced restructuring in mid-July. Bondholders swapped $500mn in debt for an 85.5% equity stake, while a $7mn payment from the KRG in mid-July for the Shaikan oil exports in May could also relieve some pressure.

The outlook for Iraq's oil industry is too unpredictable to even speculate. Will ISIS push southwards and derail oil production, will social unrest escalate and force Baghdad to deepen spending cuts, will oil prices soften again, or will deteriorating relations between Baghdad and Erbil mark the start of a new chapter of challenges? In Iraq, uncertainty is the only certainty.

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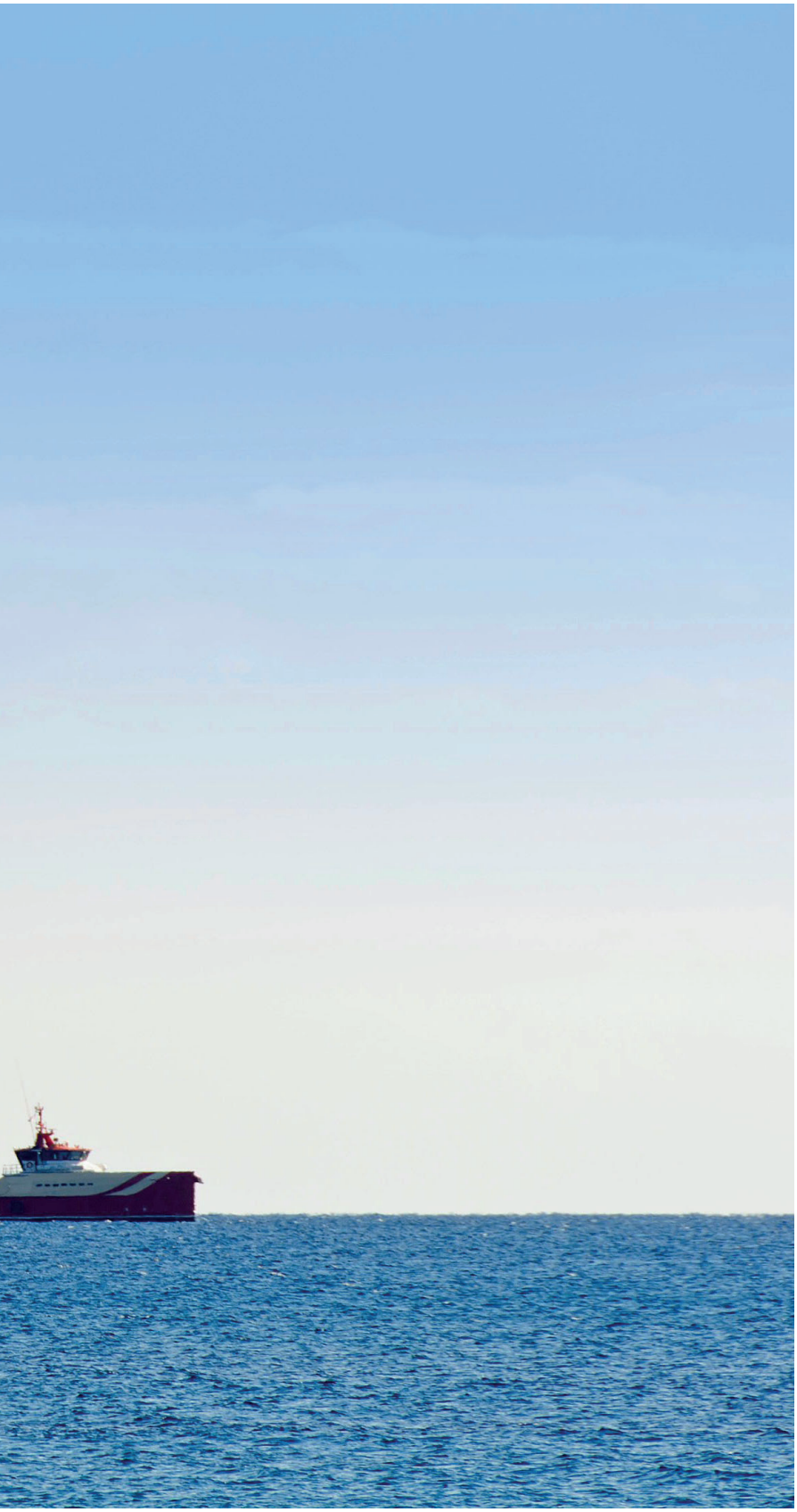
WHY IS LEBANON LOOKING TO SHIFT GEARS?

Transitioning from being an importer to become a key producer of oil and gas could see Lebanon transform into an energy exporter and help the country reduce its spiralling public debt.



Seismic studies in Lebanese territorial waters indicate the presence of oil and gas deposits.

EXPLORATION & PRODUCTION

LEBANON'S PRODUCTION AMBITIONS

The Levantine country is striving to transition from its position of being an importer of fossil fuels to become a key oil and gas producer, by embarking on an ambitious campaign of exploring its seemingly significant offshore and onshore reserves.

WORDS: VAROUJ TENBELIAN

"Prospecting for oil is a dynamic art. The greatest single element in all prospecting – past, present and future – is the man willing to take a chance," Everette Lee DeGolyer, a prominent American oilman, geophysicist and philanthropist once said.

For more than 15 years now, documented news about Lebanon sitting on an offshore wealth of oil and gas resources has attracted multinationals towards the sector. Huge investments in this sector promise to create a new resource for oil and gas through the development of large-scale drilling and extraction projects.

Seismic studies conducted by British Spectrum Company and Norwegian survey company PGS (Petroleum Geo-Services) in Lebanese territorial waters in 2002 and 2006 respectively indicated the presence of gas and oil deposits. The seismic data showed that offshore, Lebanon has a favourable petroleum geology including source rock,

→ The whole of the Levant Basin is estimated to contain around 1.7bn barrels of recoverable oil and 122tn cubic feet of recoverable gas, according to the US Geological Survey.

reservoir and seal development. Water depths in the region could reach more than 2,000 meters.

On the other hand, in 2010 the US Geological Survey estimated that the whole of the Levant Basin contains around 1.7bn barrels of recoverable oil and 122tn cubic feet of recoverable gas. Subsequent 2D/3D surveys have consistently confirmed that there are significant oil and gas resources offshore Lebanon.

The Lebanese government in 2010 approved the Offshore Petroleum Resources Law 2010/32 to administer the country's oil and gas wealth, but exploration is still waiting for political consensus. To date, there are no wells drilled in the area offshore Lebanon.

However, seven wells were drilled onshore in the 1950s and 60s. These exploration attempts didn't penetrate the required depth, however. The seismic survey was not formed then, but experts note that even the old method of drilling utilised at that time was not used correctly and probably not in the right places.

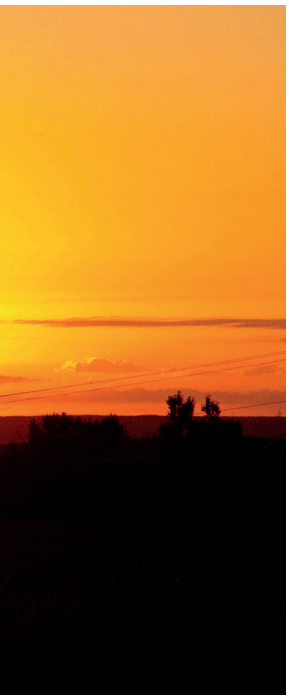
According to figures provided by the Ministry of Energy and Water (MoEW) and based on the Spectrum and PGS estimates, 10% of surveyed Lebanese waters show 30tn cubic feet of gas and 660mn barrels of liquid oil.

"However, optimism should be balanced with a degree of caution. Lebanese citizens and politicians need to be aware that the exact amount of oil and gas in our waters will not be known for sure until exploration and drilling start," says George Sassine, an energy and public policy expert from Harvard University. "Israel started drilling and did find large deposits, but contrary to expectations they drilled dry holes in two offshore sites where they were expecting to find natural gas," he adds.

The Offshore Petroleum Resources Law 2010/32 was ratified by the Lebanese Parliament in January 2011. "In terms of legal framework this law is applicable for offshore discoveries and explorations. Moreover, this law is supplemented by 28 governmental decrees for the detailed implementation of the law," says lawyer Malek Takieddine, an oil and gas consultant.

On April 18, 2013, the MoEW announced that Lebanon had selected 46 international oil companies to bid to explore for gas in its Mediterranean waters. The Ministry said 12 of the companies had been selected to bid as operators and the other 34 could bid as non-operators in the licensing round.

The dozen companies that were pre-qualified to bid as operators were: Anadarko Petroleum Corp, Chevron Corp, ENI, ExxonMobil, INPEX, Maersk, Petrobras, Petronas, Repsol, Shell, Statoil and Total. The licensing and bidding phase was expected to take a year to complete. Contracts were expected to be signed with



Offshore seismic surveys indicate that Lebanon may have large petroleum reserves.

winning international oil companies in February 2014, but everything was put on hold due to political skirmishes.

The development phase was expected to take its course this year and the first commercially extracted oil and gas was expected between 2018 and 2020. All these have stalled now, although discussions about the bidding phase have resurfaced.

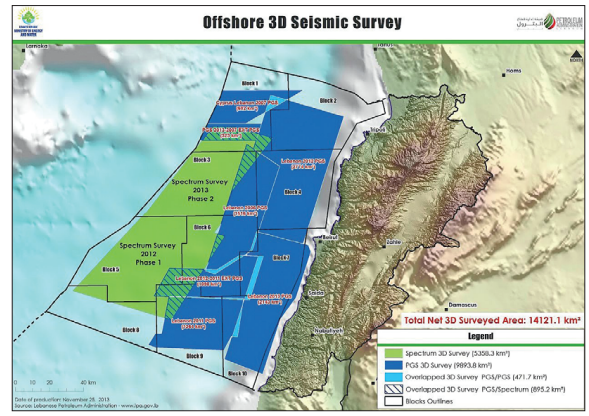
The exploration and the extraction contract, which would decide the shares of revenues for each party, has not been disclosed as yet. "According to experts, exploration is very costly, so the winning companies have to form consortiums, a condition that is mentioned in the law, and they expect a good share of the return from the revenues in the future," says Nassib Ghobril, head of economic research and analysis at Byblos Bank. The estimated cost of exploration is $100mn per well.

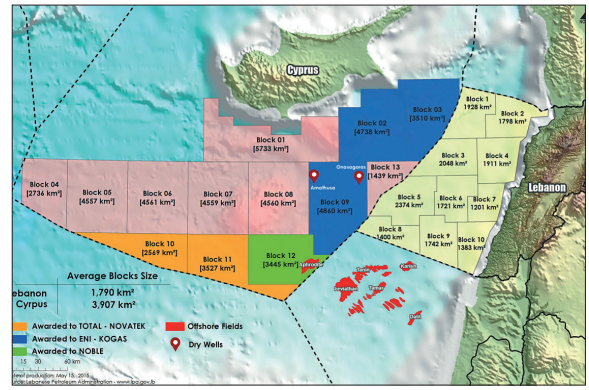
There are 10 blocks and each block will be given to a consortium of companies, says a reliable source at the MoEW, who preferred to remain anonymous.

Scientists say that no-one can give accurate estimates before exploration takes place. Even during the initial stages of exploration, figures might not be reliable. Surveys give an idea but not true figures, but sources at the MoEW believe that they are so promising that multinationals wanted to get involved in the explorations. Estimates show 600tn cubic metres of gas but, before exploration, no-one can tell how much would be extracted. But as scientists expressed cautious optimism, economists seemed to be even less confident.

"When it comes to the oil and gas, we should keep our expectations low," says Ghobril. "The geological surveys talk about technically recoverable estimates and they don't talk about economically recoverable reserves," he explains. "We are at the beginning of a long process," he continues. "The question is how much time we need to start the exploration. There's a process to take its course. I believe it will take at least seven years to start extracting for commercial use in the best case scenario. Ten years is more realistic."

> "LEBANON'S ABILITY TO MONETISE THE OIL AND GAS IT PRODUCES [...] WILL REQUIRE PROPER PLANNING AND EFFICIENT BUILDING AND OPERATION OF LNG FACILITIES, AS WELL AS A COHERENT EXPORT STRATEGY."
>
> GEORGE SASSINE, ENERGY & PUBLIC POLICY EXPERT, HARVARD UNIVERSITY.





Sassine says: "Lebanon will get a share of oil and gas revenues per the commercial agreement it reaches with international oil companies. These revenues will depend on four key factors."

He elaborates: "The first one is the volume of oil and gas that can be economically extracted and produced. While seismic studies indicate that Lebanon could potentially have large petroleum reserves, the only way to confirm is to restart exploration. The second factor is Lebanon's ability to monetise the oil and gas it produces. This will require proper planning and efficient building and operation of LNG facilities, as well as a coherent oil and gas export strategy. The third factor is global and regional oil and gas prices. The changes in commodity prices will impact Lebanon's oil export strategy. Then the fourth factor is ensuring that these revenues are not siphoned away. This is a serious issue in Nigeria and Iraq, for example, where 40 to 50% of the total oil produced is illegally smuggled and traded on the black market. This is easy to do when extraction figures are not monitored and disclosed, and citizens are not aware of fraud. Strong transparency measures will be required to guarantee that our future oil and gas revenues are fully accounted for."

The onshore scene

Between the 1940s and the mid-1950s, a total of seven wells were dug in the regions of Qa'a (east Lebanon), Tal-Zanoub (Mount Lebanon), Sohmor, Yohmor, Adloun (South Lebanon), Abreen and Terbel (North Lebanon). The attempts hinted at oil evidence, although it failed to fully materialise.

In October 2011, Lebanon's Council of Ministers approved the start of onshore oil exploration in the country, as it authorised the launch of a tender process to survey the Lebanese territory and locate areas with potential oil deposits. It also recommended the preparation of a draft law that regulates oil exploration on Lebanese soil.

According to the MoEW, seismic surveys of Lebanese territories have already started and are being conducted by Spectrum. The British company, in co-operation with the Ministry, has drawn lines to be surveyed in the north, the Chouf area and the south, covering areas from the shore towards deep into the Bekaa Valley, passing through mountainous areas.

"This is not an easy task," says the Ministry source. "We have so many obstacles to overcome apart from the natural complications. We have to obtain municipality permits, permission from private landlords, some residents could refuse, and so on," he adds.

$10MN

THE COST OF EXPLORATION FOR GAS IN LEBANON'S MEDITERRANEAN WATERS WAS ESTIMATED AT $10MN PER WELL.

Two types of seismic surveys are applied. A seismic vibrator mounted on a truck injects low-frequency vibrations into the earth. It is one of a number of seismic sources used in reflection seismology. Dynamite can also be used as seismic energy to perform both reflection and refraction seismic surveys, especially in the mountainous areas.

Small dynamite explosions in two- to three-metre deep holes can provide single pulses or continuous sweeps of energy. Both types of seismic sources generate seismic waves, which travel through a medium such as water or layers of rocks. Some of the waves then reflect and refract and are recorded by receivers, such as geophones or hydrophones.

Onshore seismic surveys tend to be large entities, requiring heavy equipment and employing many people, deployed over vast areas for many months. A land seismic survey requires substantial logistical support.

Explorations could transform Lebanon into an exporter of natural gas, fetching significant benefits for a country with one of the highest debt rates in the world. Lebanon could access more reliable electricity supplies, improve its public finances, trade balance, and its GDP. The production of gas would eventually lead Lebanon to energy independence, which would transform the country's fiscal and economic dynamics.

"If the estimates are real, in the scenario where we can extract gas and get the revenues, the benefits will be enormous. The outlook of the economy will be completely changed," says Ghobril. "We will stop importing our energy needs, which will reduce the balance of payment benefits, reduce the public debt, increase foreign currency reserves. We will have money for public expenditure and construct infrastructure for household gas usage, but unfortunately the oil and gas business is not a very labour-intensive sector. It is more of a capital-intensive sector."

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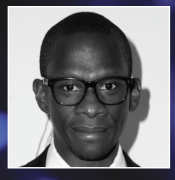

Tony Carter, Co-Founder, **Atom Factory,** Global Head - Creator Services, **Spotify**

Greg Cannon, VP of Marketing & All Things Digital, **Caesars Entertainment**

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Rafael Grossman, Healthcare Futurist, **1st Google VR Surgeon**

Dr. Timothy Low, CEO, **Farrer Park, Singapore**

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James Barrese, Ex-CTO, **PayPal USA**

Nicolas Cary, Co-founder, **Blockchain**

INTELLIGENT CITY TUESDAY

Phyllis Schneck, CCSO, **US Department-Homeland Security**

Dr. Aisha Bin Bishr, Director General, **Smart Dubai**

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MOVING TOWARDS THE CONNECTED ENTERPRISE

The next industrial revolution is happening right now and the Connected Enterprise is the reason for a tectonic shift in operations and planning, especially in the energy sector, according to US technology services provider Rockwell Automation

WORDS: SLAVKA ATANASOVA

↑ The convergence of IT and OT is improving global production and overall business.

As global pressures for goods and natural resources continue to grow, companies need to find new, innovative ways to use advancing Internet-ready technologies to meet demand.

The convergence of information technologies (IT) and operational technologies (OT) is improving global production, sustainability efforts and overall business. If companies aren't on-board with this industrial shift, they will fall behind.

Rockwell Automation understands the evolving industry challenges confronting global manufacturers – because it is one. As an evolution of its decades-long commitment to capturing enterprise data to make better decisions, the company implemented an enterprise-wide strategy several years ago to better connect its global manufacturing facilities and accelerate the business value of its Connected Enterprise.

The Connected Enterprise – converging opera-

tions, automation control and IT to access and capitalise on operational, business and transactional data – connects people and processes for better collaboration, faster problem solving, and improved innovation within an organisation and its supply chain.

Rockwell Automation has implemented a new approach to manufacturing that includes a standardised, global information system occurring at nine sites from Asia to North America and Europe. It will expand the system and, by 2016, Rockwell Automation will have rolled it out across 95% of its manufacturing facilities.

By integrating information across IT and OT, and from the plant floor across the enterprise, Rockwell Automation has optimised its enterprise, plant and supply network performance and business agility. And now it's helping customers do the same.

Having a connected enterprise system allows operators to respond to issues anywhere around the globe. ↓

Speaking from experience, truly connecting an enterprise is far more complex than simply linking disparate systems.

"Enhancements will be made, and improvements will be needed – that's the point," said Bob Murphy, vice president of operations, Rockwell Automation.

"We're constantly looking for opportunities to improve operations at individual plants and throughout the enterprise."

"THE IMPACT ON VISIBILITY INTO PRODUCTION WITH THE FACTORYTALK PRODUCTIONCENTRE SYSTEM WAS DRAMATIC."
DIONICIO HERNANDEZ, MANUFACTURING ENGINEERING MANAGER, ROCKWELL AUTOMATION, MEXICO.

30%
ROCKWELL REALISED 30% SAVINGS ANNUALLY IN CAPITAL AVOIDANCE.

Motivators for change

Like many industrial and manufacturing companies, Rockwell Automation has a diverse product portfolio. Its plants are spread across the globe and across a variety of manufacturing processes, averaging 200 different part numbers per order and a product life of 20 years.

Rockwell Automation's plants – and those of its customers – need agility and flexibility to cater to the variety of manufacturing processes and supply chains at a faster rate. They also need to meet quality standards and control cost.

"When we talk about variety, we're also talking about complexity," said Ivan Ramirez, manager at one of Rockwell Automation's facilities in Monterrey, Mexico.

"By having a connected system that provides the right data at the right time regardless of what manufacturing process is occurring, we can make faster, smarter decisions to help control quality and productivity. But figuring out how to achieve this isn't a simple task," Ramirez added.

Standardisation, a main driver in successfully connecting an enterprise, becomes a concern when a company has a wide variation in processes. To be efficient and competitive, the company needed a standard point of reference to gain consistent processes for quality control, purchasing and manufacturing engineering, and measure performance from one plant to the next.

Rockwell Automation says that having a connected system across the globe would allow you to respond quickly to issues anywhere. For example, if there is a surge in demand in China, its facility in Ohio would have visibility into its Singapore plant to respond and address production needs, and vice versa. The company would have an adequate contingency plan in place – a vital component for a global manufacturer.

The company also identified other areas for improvement. Each factory was running on its own enterprise resource planning (ERP) system and had its own custom applications that captured and analysed data in different ways. A large number of functional experts was needed to ensure the systems worked, and no single system could be easily adopted by other facilities – both cost-prohibitive concerns.

Knowing this, Rockwell Automation took the opportunity to re-evaluate its approach to manufacturing as it journeyed toward a truly Connected Enterprise.

The Connected Enterprise opportunities

Nearly a decade ago, Rockwell Automation committed to a global rollout of an ERP system to more easily manage its multiple systems that span the globe. As it was implemented in new plants and regions, the company wanted to make additional improvements within its operations.

The organisation developed a five-year plan that would restructure its facilities and supplier network entirely. The plan took into account individual locations and products produced at each facility; new technologies needed to tighten control of the supply chain; and new suppliers that would be needed to support the new layout.

Rockwell's wide product portfolio has helped it understand the challenges its customers face. ↓

2,500

THE NUMBER OF PRODUCTS PRODUCED ANNUALLY BY ROCKWELL'S OHIO PLANT.

To address and improve the technology component in the five-year plan, the company focused on updating the different manufacturing execution system (MES) technologies throughout its plants and facilities – each customised with little to no integration across the enterprise.

The Enterprise-wide solution

In the process Rockwell Automation realised it needed a cultural and technological change in order to improve its global manufacturing footprint while operating with speed, quality and consistency. The company's strategy focused on three main components to achieve this goal: people, processes and technology. In order to create a unified culture that converges IT and OT.

Rockwell Automation needed to develop a centralised process that utilises a common technology. Each component is interdependent with the others, and each is crucial to success.

Through leadership support, the company was able to focus on creating a culture that encourages sustainable change by leveraging Integrated Control and Information (ICI) and the Industrial Internet of Things (IoT).

Creating the Connected Enterprise

In 2007, Rockwell Automation began construction on two greenfield plants in Monterrey, Mexico. This provided the company with an opportunity to design its manufacturing process in a way that could take advantage of the company-wide roll-out of the new ERP system and serve as a benchmark for new and existing plants.

To begin the implementation, the Monterrey teams underwent a business requirements analysis to identify all the layers of interactivity that would exist between plant equipment and the ERP. With nearly 3,000 unique products manufactured at the two facilities combined – including printed circuit board assemblies, motors, drives, power supplies and light curtains – connection between each layer was vital for success.

Since the plants were new, the team had the opportunity to implement the MES simultaneously

> "THE CONTEXT-DRIVEN SYSTEM PRESENTS WORK INSTRUCTIONS AND OPERATOR INFORMATION IN ENGLISH OR SPANISH, ALLOWING NEW EMPLOYEES TO BE EASILY TRAINED WITHIN 30 MINUTES."
> DIONICIO HERNANDEZ, ENGINEERING MANAGER, ROCKWELL.

↑ FactoryTalk ProductionCentre software collects and sorts millions of data points in a systematic, more usable way.

with the new ERP roll-out. Rockwell Automation had its internal delivery team configure and extend a comprehensive MES application that would integrate communication between the plant floor and the enterprise. The application then went through three months of testing and was deployed for the first time in August 2008.

"The context-driven system presents work instructions and operator information in English or Spanish, allowing new employees to be easily trained within 30 minutes," said Dionicio Hernandez, manufacturing engineering manager, Rockwell Automation, Monterrey, Mexico.

"And because there is only one system to learn, our operators can be easily cross-trained in other functional areas of the plant," he added.

The new system provides data collection capabilities that significantly improve product quality. For example, information on each step of the process must be gathered, managed, tracked and made visible to plant operators so that they can identify areas of inefficiency, downtime or diminished quality within the process. Rather than relying on each station on the line to create its own documentation, FactoryTalk ProductionCentre software collects and sorts millions of data points in a systematic, more usable way. If a particular printed circuit board assembly, for example, consistently fails a quality check, plant engineers can now use that data to drive improvements in the process or product design.

"The impact on visibility into production with the FactoryTalk ProductionCentre system was dramatic," Hernandez said.

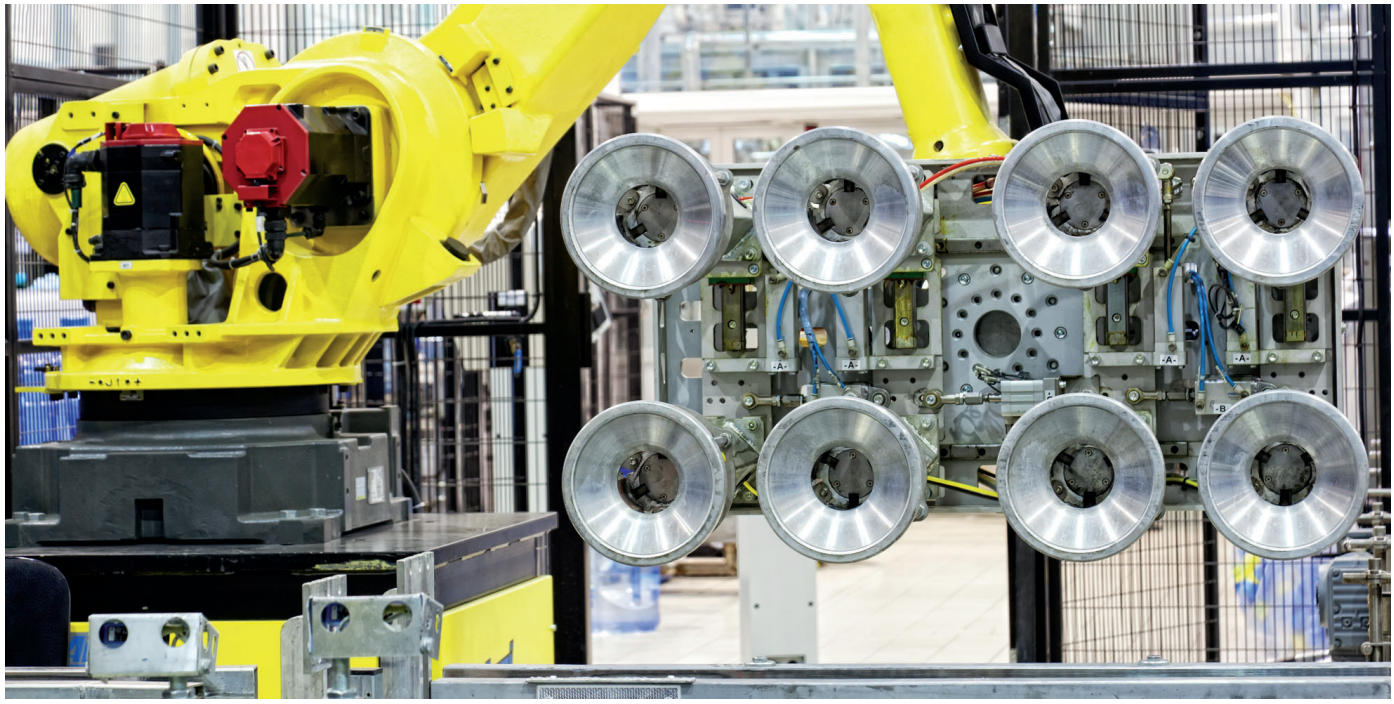
"The software platform excels at feeding data in and out of the ERP system with the result of consistently reducing issue-resolution times and supporting leaner operations. And, like our customers, our output efficiencies are the key to our profitability in building products," he added.

Expanding connectivity

After implementing a new MES at two plants in Monterrey, Rockwell Automation expanded the rollout of the new solution to an existing plant in Twinsburg, Ohio. The plant produces a wide variety of complex products – approximately 2,500 different products each year – and needed better information from the plant floor to enable operators to make more informed decisions to maximise efficiency. The company used the Monterrey plants' successes and lessons learned, but ultimately used this rollout as a pilot for implementing the system in an existing plant.

The real-time display of metrics and performance in relation to expected output provided managers a more efficient way to measure success. From a quality standpoint, the system detects issues and provides feedback immediately, allowing managers and operators to address issues quickly and deliver feedback upstream.

Operators would often see periodic delays due to data collisions that would appear as efficiency declines, but they couldn't see the cause. Now, with the new infrastructure and systems in place, operators don't need to dig for the 'why'.



> "BY HAVING A CONNECTED SYSTEM THAT PROVIDES THE RIGHT DATA AT THE RIGHT TIME, WE CAN MAKE FASTER, SMARTER DECISIONS TO HELP CONTROL QUALITY."
> IVAN RAMIREZ, PLANT MANAGER, ROCKWELL AUTOMATION, MEXICO.

→ Thanks to its five-year plan, Rockwell saw an increase in on-time delivery from the mid-80s to 96%, while lead times were reduced by a half.

"Previously, workers would estimate efficiency based on past experiences," said Tom Blackburn, engineering and quality assurance manager, Rockwell Automation.

"We've eliminated the 'guess' factor. Our tools provide validation and allow us to be predictive rather than preventive."

Mission accomplished

Five years after executing its plan, Rockwell lowered plant inventory from 120 to 82 days, and realised 30% savings annually in capital avoidance. Meanwhile, supply chain saw an increase in on-time delivery from the mid-80s to 96%, while lead times were reduced by 50%. In addition, better and faster decision-making, enabled by better information, helped deliver 4 to 5% annual productivity.

Rockwell says collaboration was one of the key ingredients for its success. Ensuring that the company's people understand the systems and equipment at each site enables them to understand the same process at a different Rockwell Automation plant, it said.

"The Connected Enterprise is not just about implementing the right system," said Ivan Ramirez, Monterrey plant manager, Rockwell Automation.

"A main component in this journey is our talent. Great automation engineers and operators understand how the equipment works with the systems, which is how we're able to make the real connections."

It is also important to connect as many people as possible to the project so various roles can understand and become familiar with the processes.

"The more people we connect to this, the better the results," said Bob Murphy, vice president of operations at Rockwell Automation. He added: "Sometimes we can get trapped in thinking it should only go to manufacturing engineers.

"That's not always the case. A project with this much impact should loop in as many people as possible."

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INDUSTRY INNOVATIONS

Machinery health monitor

NEW APP Emerson's new ATG View application allows access to critical asset health information with data from the CSI 6500 ATG machinery protection and prediction monitoring system. With a mobile device, users can scan a quick response code (QRC) located on the CSI 6500 ATG cabinet and view the status and health of all cards, and measurements from the associated rack. This enables quicker maintenance and reduces unnecessary trips to the control room. The app is available via the Apple Store and Google Play.

NEW LAUNCHES

A round-up of some of the best releases this month

PACKER TECHNOLOGY

Well technology and service provider Welltec has introduced a new product for the oil and gas industry in the form of metal expandable packers that protect against annular pressure – Welltec Annular Barriers (WABs). A number of WABs have recently been installed in the Middle East and, where the WAB was deployed in conjunction with cement, the WABs prevented crossflow between two zones that previously led to cement channeling and failure. With the WAB in place, the pressure migration from the high pressure fracs being implemented was effectively isolated, preventing pressure from communicating to the surface and allowing the cement above it to cure and bond without channeling.

PRESSURE MONITORING + VALVE CONTROL

Designed for use in the oil and gas industry, the Rotork ELB is a robust, self-contained instrument that combines pipeline pressure monitoring with intelligent valve control. The ELB can also collect detailed operational data for optimising performance and enhancing pipeline safety. The ELB continuously monitors upstream and downstream pipeline pressure dynamics to provide early detection of pipeline breaks and initiate automatic valve actuator movement to an emergency position, based on user-defined parameters. Valve actuator control – selectable as fail close, fail open or stay put – is based on rate-of-drop (RoD) and rate-of-rise (RoR), as well as high and low pressure limits.

DEEP-SET SAFETY VALVE

Weatherford International has announced that its new model of WUDP-10 deep-set safety valve has been certified to V1 standards under the American Petroleum Institute (API) Specification 14A. The valve is designed for deepwater applications and is effective at depths in excess of 12,000 ft. Additionally, because it operates independent of tubing pressure, the valve can be set in shallow applications. The tubing-retrievable valve uses conventional hydraulic functionality to provide long-term, reliable operation that is not dependent on nitrogen storage. The simple design minimises leak paths and incorporates a heavy power spring for fail-safe closure.

Marsol supports OOCEP exports

Marsol managed marine and offshore activities at OOCEP's new terminal

OFFSHORE Marsol International, a UAE-based global marine solutions provider focussed on the offshore oil terminal market and related infrastructure, has successfully supported Oman Oil Company Exploration & Production's (OOCEP) first shipment of crude oil from the Musandam gas plant (MGP).

Marsol's involvement included the provision and management of all marine and offshore activities related to the tanker loading via the single point mooring (SPM) offshore marine terminal, including marine works, vessels, equipment and manpower. OOCEP, a subsidiary of Oman Oil Company, exported 300,000 barrels of crude oil as part of the operation, which were fully processed at the MGP.

The Musandam gas plant, located on the west coast of the Musandam peninsula, has a processing capacity of up to 20,000 barrels of crude, 45mn cubic feet of gas, and 75 tonnes of LPG per day.

THREE REASONS TO BUY

Archer launches Point System for better well integrity

1 INTEGRITY MANAGEMENT

Proactive and systematic integrity management mitigates the risk of costly surprises with minimal interruptions to production. The Point System starts with a client consultation, followed by an initial surface investigation and then, if required, downhole deployment.

2 VITAL MEASUREMENTS

The complete integration of surface and downhole measurements, generating vital information on the well and providing operators with the ability to meet the simplest or most complex integrity challenges routinely and cost-effectively.

3 BARRIER EVALUATION

Archer's new Point System's evaluation of barrier sealing performance rather than barrier condition, and the ability to locate leaks and flowpaths beyond the tubing, provide a more secure and fully comprehensive approach to well integrity management.

SELLING POWER

Faisal Al Bannai, founder and CEO of UAE's Four, on how the K-500 is ideal for workplaces

HOW CAN YOU GUARANTEE PRIVACY?

There is a very real concern that your mobile phone could be hijacked by malware, photographing you, friends and family, spying inside the home or workplace. The Four K500 helps prevent this by omitting features that malware depends upon – the camera and GPS – while otherwise being a full-featured smartphone.

WHAT ARE ITS APPLICATIONS?

The K500 is tailored towards organisations that wish to absolutely eliminate the risk of being spied upon. There is no camera, and there is no GPS, which are the two key features that allow spyware to record a physical environment. Some workplaces are requiring such devices for reasons of site security.

WHAT ARE ITS KEY FEATURES?

With the exception of the camera and GPS, it is a fully connected smartphone, with features including a quad-core processor, 3G connectivity, the latest Android 5.1 Lollipop operating system, 1GB RAM, 8GB memory, and 1900 mAh battery. It comes with two screen protectors and a free flip cover, as well as a one-year warranty.

Allspeeds wins major gas project

UK firm will supply emergency disconnection tools to the Shah Deniz 2 field

SUBSEA Allspeeds is to supply its Webtool emergency disconnection tools for well intervention and workover in the Shah Deniz 2 field in the Caspian Sea. Webtool enables rapid cutting of umbilical multiple fluid transfer jumpers, electrical lines and tension wire, in the event of an emergency disconnect subsea. Field development of Shah Deniz Stage 2, located 70km south-east of Baku, at water depths of 50m to 550m, includes drilling 26 gas production wells and laying 500km of subsea pipelines, which will connect 10 subsea manifolds and the production wells. The two Webtools are an integral part of an IWOCS-deployed well commissioning tool. Designed for deployment for extended periods subsea, the Webtool offers an effective way of managing emergency disconnections, cuts tension wire together with cables and hoses, and meets technology readiness requirements for this subsea application.

SPECIALITIES OF THE WEBTOOL:

- Within the tool, an umbilical is connected to sacrificial hoses and a cable bundle securely positioned in the mouth of the Webtool emergency cutter. Once activated, the sacrificial bundle is cut in a single operation.
- Designed for deployment for extended periods subsea, the Webtool emergency cutter can be function-tested in situ, ensuring the tool is ready for use in the event of an emergency.
- The Webtool offers a highly effective way of managing emergency disconnections using a sacrificial bundle that can be readily replaced if needed.
- It is also one of the few tools to cut tension wire together with cables and hoses and meet technology readiness requirements for this important subsea application.

PRODUCT FOCUS

Honeywell launches FSL100 flame detection range featuring fast response and wide area coverage

Available with different sensing technologies for different fire types, the FSL100 group of flame detectors are Zone 2 certified and EN 54-10 compliant.

The FSL100 use sophisticated sensing technology with a high speed of response to ensure that a fire is detected as quickly as possible.

Robust design and electronic algorithms make the FSL100 range highly immune to other light or heat sources, helping to avoid nuisance alarms. With a good distance range and wide field of view, FSL100 Flame Detectors provide optimum detection coverage.

Offers easy installation, robust construction and multiple detection methods.

WHERE CAN I BUY IT?

For more information call +971 4 4505800 or email HIS_ME@honeywell.com.

ALSO IN STOCK

EMERSON FISHER FIELDVUE DIGITAL VALVE CONTROLLER

New valve controller offers better control and enhanced safety

Emerson's Fisher FIELDVUE DVC6200 digital valve controllers are HART-communicating, microprocessor-based, current-to-pneumatic instruments with linkageless, non-contact travel feedback. This instrument provides a single platform for any pneumatic actuator application. The DVC6200 can be installed on sliding-stem, rotary, single- or double-acting actuators.

MWCC CAPPING STACK

The 10,000-pound psi capping stack was first used in the US

US-based Marine Well Containment Company's (MWCC) capping stack can handle up to 10,000psi. With a footprint of 9ft by 9ft, the capping stack is easier to manoeuvre in areas where wellheads and riser systems are closely spaced, such as tension leg platform applications where wells are beneath a floating production facility. The new dual ram capping stack can cap a well in depths up to 10,000ft.

Microsoft opens oil and gas unit

Tech company launches new Dubai centre of excellence for the sector

HOW WILL THE CENTRE HELP?

The centre will help companies take advantage of trends like the IoT, advanced analytics and cloud computing.

WHAT ABOUT CYBER DEFENCE?

Microsoft's experience in cyber security brings experts and technology together to help protect against modern threats.

WHO ARE THE OTHER PLAYERS?

Industry leaders like Accenture, Aveva, Baker Hughes, Honeywell, OSIsoft, Schneider Electric and Schlumberger.

TECHNOLOGY Microsoft has launched a new Middle East and Africa centre of excellence for oil and gas in Dubai, built specifically to assist customers to drive digital transformation, cut costs and optimise their operations across the region. It is the largest such centre for Microsoft globally. The centre will help companies in the sector take advantage of the latest trends, such as the Internet of Things (IoT), advanced analytics, modern productivity and cloud computing, using technologies like Microsoft Azure and Office 365. The centre will also bring together leading industry players such as Accenture, Aveva, Baker Hughes, Honeywell, OSIsoft, Schneider Electric and Schlumberger. Partner solutions will play the leading role in making sure the centre of excellence hosts the most progressive discussions on technology in the oil and gas industry, with the issue of security being placed front and centre. "The relationship between Schlumberger and Microsoft delivers industry-leading technologies to the oil and gas market," said Trygve Randen, vice president for Middle East and Asia, Schlumberger Integrated Solutions.

KARCHER'S ULTRA-HIGH PRESSURE CLEANERS

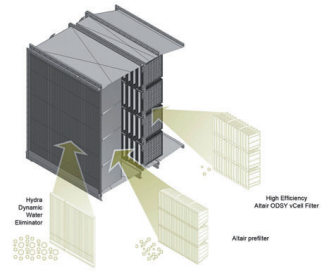
Effective cleaning solutions for the oil and gas industry

To meet tough cleaning requirements, from the cleaning of machines used in oil and gas production, to the sanitising of work areas, Woma Karcher's ultra-high pressure (UHP) water jet systems are effective tools that can get the job done quickly. The application areas of the UHP products are as diverse as those of pumps, systems and water tools currently available on the market, which have operating pressures between 250 and 4000 bar. For instance, UHPs are used to clean all types of heat exchangers that, when dirty or blocked, result in high energy losses and increased costs. Maintaining the perfect functioning of heat exchanges ensures efficiency and a constant process temperature. Another application of UHP is pipe cleaning: over time, sulphite, salt or limestone deposits build up, layer upon layer, until total blockage occurs, if remedial action is not taken. In order to prevent this, regular interior cleaning is essential.

Clarcor's glass fibre filtration solution

An effective solution for gas turbine protection

FILTRATION Within its Altair range of filtration solutions, Clarcor offers an E12-rated filter that protects gas turbines from salt and water. Specifically developed for offshore conditions, the Static Offshore vCell filter is designed for extended periods of operation, offering protection against corrosion and fouling for reliable turbine operation without the risk of sudden pressure spikes. One of the biggest challenges with offshore filtration is handling the amount of salt, moisture and hydrocarbons in the environment. As well as salt being carried through to the turbine in its liquid phase, moisture left in the inlet air stream will combine with dust to form mud that can block a filter. The filter media selection is therefore a critical choice for reliable operation. The Altair Static Offshore Filter EPA System uses glass fibre media, which has a deep filtration layer that handles moisture and hydrocarbons much better than filters that use technology such as ePTFE membranes. Glass fibre media is around 10 times thicker and its greater pore volume makes it less prone to sudden blockages. This means that high efficiency filtration can be achieved with longer running periods between maintenance intervals.



e-Vision signs digital deal with Statoil

Norway's Statoil will deploy eVision's software

SOFTWARE eVision Industry Software and Statoil have entered into a partnership to deploy eVision's digital Control of Work system to Statoil's sites worldwide. With the introduction of one standardised digital system, Statoil hopes to enhance control and efficiency of its frontline operational processes. Permit Vision, which includes permit to work, risk and isolation management, will be implemented globally, providing Statoil an integrated approach to manage operational risk.

PRODUCT FOCUS

Tyco's SIMPLEX TrueAlert ES fire alarm technology has addressable speakers with individual device control

Addressable TrueAlert ES speakers have the capability to deliver audio messages to specifically targeted areas.

The new speakers provide revolutionary appliance self-testing capability as well as advanced programming and reporting features.

This targeted audio paging capability enables the delivery of critical, event-specific information where it's needed.

The wiring architecture of SIMPLEX TrueAlert ES speakers is extremely flexible, which can mean more efficient design and faster, more cost-effective installation.

WHERE CAN I BUY IT?

Email bernard.chan@tycofp.com or call +65 6577 4363.

SELL IT TO ME

Emerson adds native Ethernet connectivity to transmitter

UPGRADED PRODUCT: Emerson Process Management has upgraded the Micro Motion Model 5700 transmitter with a native Ethernet connection to improve connectivity and functionality, allowing for easier access to measurement information. The native Ethernet upgrade includes dual redundant Ethernet ports, directly integrated in the device with no need for extra converters or adapters. The dual port architecture means multiple devices can be installed in a variety of configurations, minimising wiring and switch needs for space and cost savings.

POWERFUL APPLICATION OPTIONS: The transmitter incorporates a configurable I/O channel that can be used as a discrete input or set to a mA, frequency, or discrete output. This enables powerful application options with minimal equipment. For example, the discrete input can be used as a totaliser reset; the discrete output can control a valve in conjunction with the integrated batch control software; the frequency output enables a quick connection for proving applications; and the mA output can be used to tie into existing or legacy control systems. The Ethernet upgrade is available with multiple protocol choices including EtherNet/IP, Modbus TCP, and PROFINET.

PROVIDES VITAL INFORMATION: To speed integration and connection with Ethernet/IP systems, the transmitter contains an EDS (electronic data sheet) file for fast access to instrument information with little to no manual setup. This also enables automatic AOP (add-on profile) generation for quick and powerful system integration. Pre-configured input assemblies allow users to select exactly what is needed from a wealth of information in a Coriolis meter, without burdening the network with unwanted traffic.

TRIED AND TESTED: "The Micro Motion Model 5700 Coriolis transmitter has delivered proven value and unique differentiation to users. The rugged housing is certified for tough field environments, including extensive hazardous area certifications and approvals. The housing was engineered to provide easy access for installation, mounting, and maintenance," said Jason Leapley, product manager. "Now, with the option for native Ethernet, users can easily access process information without going out to the instrument."

Permasense ties up with STARC

STARC will operate as Permasense's exclusive representative in Saudi

PARTNERSHIP UK-based Permasense, a provider of corrosion and erosion monitoring solutions to the global energy industry, has appointed the oil and gas, petrochemical, energy and water desalination services provider, Saudi Trading and Research Company (STARC), to support its expansion plans in the Middle East.
The company will operate as Permasense's exclusive representative in Saudi Arabia. STARC has delivered pipeline and corrosion services in Saudi Arabia for over a decade. "This move is the first step on our mission to break into the biggest oil and gas market in the world – the Middle East," Kevin Clarke, chief revenue officer at Permasense, said. Nadim Borini, Middle East and North Africa regional sales manager at Permasense, added: "The partnership with STARC will put us on the doorstep of key customers, give clients access to an in time-zone team, and provide us with crucial local insight." Permasense's future growth strategy is focused on the Russian market, where it hopes to announce its first contract later this year.

WHAT DOES PERMASENSE'S GROWTH STRATEGY INVOLVE?

- STARC will operate as Permasense's exclusive representative in Saudi Arabia.
- This move will support Permasense's mission to break into the Middle East oil and gas market.
- Permasense's growth strategy has seen the company open three offices since the start of 2015.
- It currently has four offices worldwide, which are located in Aberdeen, Scotland; Houston, US; Horsham, England; and Kuala Lumpur, Malaysia.
- The company also engages a local agent to support its activity in Australia, New Zealand and Papua New Guinea.
- Later this year, Permasense hopes that it will be able announce its first contract in Russia.

TWMA SECURES $1.9MN NORTH SEA CONTRACT

TWMA provides TCC RotoMill to Apache for offshore processing

Global integrated drilling waste management and environmental services firm, TWMA, has recently secured a £1.5mn ($1.9mn) contract with Apache on the WilPhoenix platform in the North Sea Beryl field. As part of TWMA's fully integrated waste management solution, the one-year contract, with a one-year option, will utilise the company's award-winning TCC RotoMill for offshore processing and EfficientC for cuttings transfer and distribution. Chief operating officer, Neil Potter, said, "We have built a strong relationship with Apache over the last five years, and are delighted to have been selected to support on the WilPhoenix project. We also supported a previous drilling campaign on this platform last year and have ongoing contracts with Apache, including the provision of EfficientC bulk transfer services on the Beryl Bravo and Alpha platforms, and onshore processing services for those and other Apache installation platforms." The provision of bulk transportation involves directly pumping drill cuttings from storage tanks onboard the rig to a supply vessel, then transporting the drilling waste to an onshore processing facility.

Bibby Offshore bags BP contract

British energy giant awards diving campaign to Bibby Offshore

Bibby Offshore, a subsea services provider to the oil and gas industry, has secured a contract with BP for a 15-day project, due to commence in August. The project will see diving support vessel Bibby Topaz working on four BP operations across three of its North Sea assets. The platforms involved include Central North Sea-based asset Bruce, east of Shetland-based Magnus, and the Mirren field, which is part of the Eastern Trough Area Project (ETAP), one of the largest and most complex North Sea oil and gas developments. The project, managed by the Bibby Offshore team, involves the supply of air and saturation diving support to perform operations including spool and flowline disconnection, evaluation and installation of conductor clamp guides, alignment clamp installation and modifications to a gas lift system. Fraser Moonie, chief operating officer at Bibby Offshore, said: "Through our innovative engineering solution we managed to reduce offshore operations, which in turn provided efficiencies and cost savings. We are pleased to continue our strong relationship with BP, built up internationally over the last 10 years and more recently in the UK North Sea. Client satisfaction and confidence is imperative to Bibby Offshore and we are pleased that BP has trusted us with this important piece of repeat business."

ON THE MOVE

Asa Gamble
Managing director – Middle East
N-Sea

Dutch subsea IMR provider N-Sea has announced the opening of a new office in Dubai, with operations due to commence as early as August 2016. The company has appointed Asa Gamble as managing director for the Middle East region, who will be responsible for the establishment and growth of all N-Sea services and products in the region.

Haleem Mohammed
Partner – Muscat office
Dentons

Dentons has promoted Haleem Mohammed as a new partner. He specialises in dispute resolution and is based in the Dentons Muscat office. Mohammed has over 15 years of experience in both commercial and civil litigation, encompassing all areas of dispute resolution, including arbitration and mediation. He advises many high net worth client groups within Oman and across the GCC region.

Gavin Sherwood
Business development manager
Simmons Edeco

UK-based Simmons Edeco has appointed Gavin Sherwood to the newly created position of business development manager for Simmons Edeco Europe Limited. In this role, Sherwood oversees all global sales and marketing initiatives for the company's valve, wellhead and asset integrity maintenance services. Sherwood has around 26 years of experience in well services.

Amir Kordvani
Middle East and Iran
projects leader
CMS

CMS has announced the appointment of partner Amir Kordvani to head up the Middle East projects team. He will also lead the launch of the firm's Iran desk in Dubai, splitting his time between Tehran and Dubai. Kordvani joins CMS from Clyde & Co in Abu Dhabi, having spent over three years at the firm. He has considerable experience in the energy and resources sector, with a particular focus on the development of infrastructure projects. His experience includes advising on PPPs, including procurement regime, contractual documentation, construction and financing.

Joseph J. Anis

Appointment of the Month

President & CEO – Power Services, GE

GE has appointed Joseph J Anis as president and chief executive officer of its Power Services business in the Middle East and Africa (MEA) region. His appointment follows the move of Azeez Mohammed, who takes on a new role as CEO for GE Energy Connection's Power Conversion unit, based in Paris. Anis will be responsible for growing the business, with a focus on leveraging GE's industrial internet services. He will also play a key role in strengthening business partnerships, building local capacity, and promoting innovation in the power services sector. He will also oversee all operational functions in the region, covering parts, field services, upgrades and project management, on-site repairs and training, as well as being responsible for developing and delivering a regional services strategy. Anis joined GE in 1997 as general manager for the Power Controls business and has served in various leadership roles, both in the region and globally, including as general manager for power generation sales in MEA.

JOBS

NOTICE BOARD

The latest jobs available in the oil and gas industry

TOTAL, QATAR
Vie junior engineer – geochemistry
The successful candidate will carry out R&D activity in geochemistry and conduct valuation of horizontal and lateral homogeneity of fluid composition using whole oil GC in various reservoirs/assets in Qatar.

HALLIBURTON, AL KHOBAR, KSA
Entry-level engineer - cementing
The candidate will provide technical and operational expertise to customers and will perform assignments requiring knowledge and application of basic engineering principles. They will also assist in the delivery of cementing services.

SAUDI ARAMCO, KSA
Facilities engineering specialist
The facilities engineering specialist will lead upstream oil and gas facilities project life cycle for offshore and onshore facilities such as offshore wellhead platform, pipeline network and hydrocarbon gathering station.

ENOC CEO becomes chairman of Gulf Energy Maritime PJSC

CAREER NEWS

RESHUFFLE Saif Humaid Al Falasi, CEO of the Dubai Government's Emirates National Oil Company (ENOC), has been named as the new chairman of Gulf Energy Maritime PJSC (GEM). In accordance with the shareholders' agreement, the chairmanship rotates every three years between Abu Dhabi's IPIC and ENOC – two of GEM's major shareholders. Al Falasi, (pictured fourth from right), has taken over GEM's top post in its board of directors from Khalifa Abdulla Al Romaithi, IPIC's director of downstream and diversified investment, who will remain a board member. As the new chairman, Al Falasi will oversee strategies required for GEM to strengthen its services to customers as the company steps into its 12th year. GEM's fleet has grown from six vessels at its inception in 2004 to its current fleet of 19, comprised of two Aframaxes, eight modern Panamax tankers and nine MR tankers. Al Falasi will spearhead both ENOC Group and GEM's strategies.

ENOC'S SAIF HUMAID AL FALASI HAS TAKEN OVER THE TOP SPOT IN GEM'S BOARD OF DIRECTORS FROM IPIC'S KHALIFA ABDULLA AL ROMAITHI.

Honeywell expands in Egypt and appoints new country president

APPOINTMENT Honeywell has named Khaled Hashem as its new country president for Egypt. Hashem, an Egyptian national, will lead Honeywell's local operations and will focus on driving growth strategies including localisation, technology innovation and Honeywell Operating System Gold (HOS Gold). Hashem brings more than a decade of regional experience and knowledge to the post, having held a number of senior leadership roles with global technology, energy and oil and gas companies. He most recently held the position of country manager at GE Egypt, where he worked closely with the Egyptian Electricity Holding Company on major projects.

Siemens names Al Rifai its new chief financial officer for the Middle East

PROMOTION Siemens has appointed Alia Al Rifai as chief financial officer (CFO) of the company's Middle East region. Al Rifai will assume her new role following two years as senior executive vice president of finance for the firm's energy management division in the region. With close to two decades at Siemens, Al Rifai will be tasked with strengthening key growth areas, driving profitability and promoting diversity, as well as local value creation. Her remit includes the markets of the UAE, Egypt, Qatar, Oman and Kuwait, where, she said, "energy efficiency and digitalisation [are] taking centre stage in the drive for productivity".

OPINION

Employment law: know the facts

Successfully managing an internationally mobile oil and gas sector workforce can be challenging, particularly as home nation and host country laws can be vastly different

"POLICIES SHOULD BE LOOKED AT FROM A HOST JURISDICTION PERSPECTIVE IN ORDER TO ENSURE LOCAL LAW COMPLIANCE."

About the author
Rebecca Ford is a partner in the MENA employment team of Clyde & Co based in Dubai and has worked in the Middle East since 2008. She advises on all aspects of employment law and immigration issues arising from employment in the Middle East, in a variety of sectors, with a focus on financial services, oil and gas, projects and construction, and education.

Due to the nature of the work, HR and employment practitioners in the oil and gas sector often find themselves dealing with tricky contractual arrangements to reflect a globally mobile workforce.

While a multinational employer may wish to centralise its employment policies and administration as far as possible, legal compliance with local laws in the host country may mean that it is not possible to impose global policies on the workforce. Taking the UAE as an example of a host country, the following are just some of the issues that HR and legal departments have to consider.

What contractual documents do you need?

Many organisations prefer to maintain home country contracts for their mobile staff, in order to provide some comfort to the employees that their accrued service will continue to be recognised, benefits supplied to an employee will be maintained, and rights and obligations will be familiar to the employee. Ideally, internationally mobile staff will not be inundated with paperwork and a simple letter confirming the international status of the employee is preferred.

However, the immigration requirements of the host country can often drive the employment documentation process. Expatriates working in the UAE, for example, must have a residence visa and work permit that enables them to live and work in the country. As part of the application process, an employee will be required to enter into a standard form local contract (supplied by the Ministry of Labour or relevant free zone authority).

What specific law applies to the international assignment?

Where there is a requirement for a local contract, such as in the UAE, the local laws will apply to the employment – in the UAE, in most cases, this will be Federal Law No. 8 of 1980, as amended (the Labour Law).

This means that a company must consider how the host country laws will dovetail with the home country, in cases where a home country contract is maintained.

For example, in the UAE, the Labour Law sets out certain minimum standards, covering issues such as annual leave, sick leave, and end of service gratuity, which cannot be contracted out of. This means that a company will have to look at its usual policies and consider whether these need to be enhanced to ensure host country law compliance. Equally, a company will want to ensure that an employee does not receive two sets of entitlements and that any leave, for example, runs concurrently in both jurisdictions. In addition, local statutory rights may increase the value of benefits offered to an employee in the host country. In order to ensure parity with employees across the globe, it may be necessary to offset statutory benefits in the host country against contractual benefits in the home country.

Who is the employer?

The host country employer may be a branch or other group company of the home country entity; it could also be a joint venture partner or local sponsor, however.

An employee may therefore acquire an ability to bring a claim both against the host country entity and the home country entity in the event of a dispute. It is important, then, that the home and host entities are aligned in their management of employee relations and, in particular, who is the disciplining and dismissing party. While the host company would usually deal with the day-to-day management of the employee, the home company will want to maintain some control over this, or at least be consulted prior to any disciplinary or dismissal action. This can be dealt with by way of an agreement between the two employing entities.

Rebecca Ford.

Taxation

When moving employees from one jurisdiction to another, the multinational employer must consider both the tax implications for the employee (for example, in what circumstances is income tax payable in the home or host country, or both), as well as the tax implications for the employer – for example, is a permanent establishment created when one or more employees are sent to a particular location?

In the UAE, for example, there is no income or corporation tax; however, certain employees (for example, American nationals), may still be obliged to account for tax in their home jurisdiction.

Medical requirements

Immigration requirements can pose specific problems to multinational companies seeking to transition employees. For example, in some jurisdictions, it is illegal to require an employee to take an HIV test. However, in others, such as the UAE, the immigration process includes a medical test that checks for communicable diseases, such as HIV.

The employer will need to explain to the employee that the medical examination is imposed by the authorities and obtain the employee's co-operation. The employer may also want to consider how it will deal with the employee if things go wrong – for example, what happens if the employee fails the medical test? Will the company continue to employ the individual in the home jurisdiction?

Policies – can one size fit all?

Although a multinational can maintain similar employment policies globally, it is unlikely that they will all be the same. For example, a policy providing accommodation and other benefits to an unmarried couple would not be appropriate in jurisdictions such as the UAE, where to live together would be illegal; a drug rehabilitation policy would equally be inappropriate in the UAE. In other cases, a policy may be able to be maintained but some parts of it amended. Policies should therefore be looked at from a host jurisdiction perspective, in order to ensure local law compliance.

Banagas – Central Gas plant 3

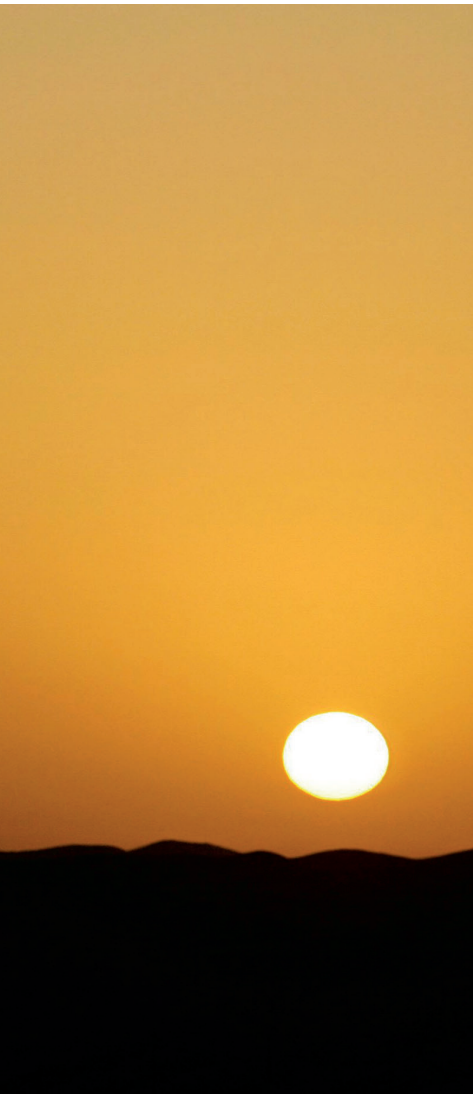
Bahrain National Gas Company

Bahrain National Gas Company (Banagas) plans for the expansion of its Sitra gas processing facilities with the addition of a third train. The expansion project aims to utilise the excess associated gas resulting from increased crude production by Tatweer Petroleum. The expansion will increase Banagas processing capability by 350mn cubic feet of associated gas.

Bahrain's oil and gas sector recently received a financila boost when nogaholding, the investment and business development arm of Bahrain's National Oil and Gas Authority (NOGA) in April announced it has signed a five-year $570mn multi-bank Murabaha facility to support investment into a number of large scale energy projects within the Kingdom.

CONTRACTORS

Contract Type	Pre-Qualified	Bidders	Awarded
PMC	• CB&I – Chicago Bridge & Iron Company • AMEC • JGC Corporation	• CB&I – Chicago Bridge & Iron Company • JGC Corporation • Technip	• JGC Corporation
EPC	• JGC Corporation • CB&I – Chicago Bridge & Iron Company • AMEC	• JGC Corporation • CB&I – Chicago Bridge & Iron Company • Technip	• JGC Corporation
FEED	• CB&I – Chicago Bridge & Iron Company • AMEC • JGC Corporation	• CB&I – Chicago Bridge & Iron Company • JGC Corporation • Technip	• JGC Corporation



FAST FACTS

Name of Client
BANAGAS – Bahrain National Gas Company
Estimated Budget ($ US)
600 million
Facility Type
Gas Treatment Plant
Sector
Gas
Status
Engineering & Procurement
Location
Sitra
Project Start
Q1 2014
End Date
Q3 2018
Last Updated
08-05-2016
FEED CONTRACT
JGC Corporation
PMC
JGC Corporation
Main Contractor
JGC Corporation
Contract Value (US$)
355 million
Award Date
Q1 2016

PROJECT SCHEDULES

Feasibility Study	Q1 2014
FEED	Q4 2014
EPC ITB	Q4 2015
Engineering & Procurement	Q1 2016
Construction	Q2 2016
Completed	Q3 2018

PROJECT SCOPE

The scope of work includes the construction of Central Gas Plant and associated facilities.

PROJECT FINANCE

- Bahrain National Gas Company (Banagas) is the client.
- Local Gulf International Bank (GIB) is the financial advisor.

PROJECT SCHEDULES

Date	Status
03 May 2016	The project is scheduled to be completed and commissioned in September 2018.
31 Mar 2016	Banagas has been approaching banks for $400mn to finance the expansion of its gas processing facilities. Local Gulf International Bank (GIB) is the financial advisor. Banagas is seeking a 20:80 debt to equity ratio and a ten-year tenure.
09 Mar 2016	The project is expected to take 32 months to be ready for a trial run.
27 Jan 2016	Japan's JGC Corp has signed engineering, procurement and construction (EPC) deal of $355mn with Bahrain's Banagas to build the Central Gas plant 3.
08 Dec 2015	The award of the EPC contract is anticipated within in a few weeks.
03 Dec 2015	CB&I, Technip, and JGC Corporation submit bids for the EPC contract.
02 Jul 2015	Banagas receives the FEED studies from the following companies: -CB&I (Netherlands) -Technip (Italy) -JGC Corporation (Japan) Technip has joined the bidding competition after AMEC has dropped its plans to bid. Banagas plans to award the contract in November.
16 Feb 2015	Three contracts have been pre-qualified for the FEED contract. Contractors have until Q4 2015 to submit their FEED studies. Banagas will select the winning contractor in late 2015.
11 Nov 2014	Three contractors have responded the request of pre-qualification for the FEED contract. The contractors are: - AMEC - CB&I inc - JGC Corporation
26 Oct 2014	Banagas invited contractors to prequalify for competitive FEED contract. The prequalified contractors will conduct the Gas plant FEED in parallel under a design competition. The winner of this competitive FEED will be given the EPC and the PMC contracts.

Ongoing and upcoming projects

Information is supplied by DMS Projects

GCC GAS - JULY 2016

Project	Country	City/Region	Facility	Budget	Status	Completion Date
ADCO- Bab TH-F Peripheral Development	UAE	Abu Dhabi	Nitrogen	400,000,000	FEED ITB	Q4 2017
ADCO- Bu Hasa Shuaiba South- Gas Lift Network	UAE	Abu Dhabi	Gas Network	800,000,000	Construction	Q1 2018
ADGAS - Das Island Flaring & Emission Reduction	UAE	Abu Dhabi	Gas Production	100,000,000	Construction	Q1 2018
ADGAS- Integrated Facilities Project (IGD-S) Expansion (Phase 4)	UAE	Abu Dhabi	Gas Field Development	1,057,000,000	EPC ITB	Q3 2019
ADGAS- Integrated Gas Development (IGD) - Expansion (Overview)	UAE	Abu Dhabi	Gas Field Development	1,057,000,000	EPC ITB	Q1 2019
ADGAS- Integrated Gas Development (IGD) - Expansion (Phase 1)	UAE	Abu Dhabi	Gas Field Development	1,057,000,000	Engineering & Procurement	Q3 2017
ADGAS- Integrated Gas Development (IGD) - Expansion (Phase 2)	UAE	Abu Dhabi	Gas Field Development	1,057,000,000	Construction	Q1 2019
ADMA OPCO - Umm Shaif Super Complex- Additional Gas Supply & Flexibility Assurance	UAE	Abu Dhabi	Gas Production	494,000,000	Construction	Q2 2016
ADMA OPCO- Nitrogen Plant Upgrade	UAE	Abu Dhabi	Nitrogen	55,000,000	Design	Q1 2017
ADMA-OPCO - Nasr Full Field Development - (Overview)	UAE	Abu Dhabi	Oil Field Development	1,700,000,000	Construction	Q4 2018
ADMA-OPCO - SARB Offshore Oil Field Development - Package 2	UAE	Abu Dhabi	Oil & Gas Field	500,000,000	Construction	Q4 2016
ADMA-OPCO - SARB Offshore Oil Field Development - Package 3	UAE	Abu Dhabi	Gas Pipeline	600,000,000	Construction	Q1 2016
ADMA-OPCO - SARB Offshore Oil Field Development - Package 4	UAE	Abu Dhabi	Gas Processing	500,000,000	Construction	Q3 2017
ADMA-OPCO - Zakum Facilities for 4 Gas Injectors	UAE	Abu Dhabi	Gas Production	100,000,000	Construction	Q1 2016
Al Hosn Gas- Shah Field- Expansion	UAE	Abu Dhabi	Gas Network	NA	Feasibility Study	Q4 2021
Bahrain LNG WLL - Liquefied Natural Gas Receiving and Regasification Terminal	Bahrain	Hidd	Liquefied Natural Gas (LNG)	660,000,000	Engineering & Procurement	Q3 2018
Banagas - Central Gas plant 3	Bahrain	Sitra	Gas Treatment Plant	600,000,000	Engineering & Procurement	Q3 2018
Banagas - Fuel Pipelines And Storage Facilities Expansion	Bahrain	Sitra	Gas Storage Tanks	80,000,000	Engineering & Procurement	Q2 2018
BP - Block 61 - Khazzan and Makarem Gas Fields Development	Oman	Oman	Gas Field Development	24,000,000,000	Construction	Q1 2022
BP - Block 61 - Khazzan Gas Fields Development - Phase 1 - Central Processing Facility	Oman	Al Dahirah	Gas Processing	1,200,000,000	Construction	Q2 2017
BP - Block 61 - Khazzan Gas Fields Development - Phase 1 - Overview	Oman	Al Dahirah	Gas Field Development	15,000,000,000	Construction	Q4 2017
BP - Block 61 - Khazzan Gas Fields Development - Phase 1 - Package 1	Oman	Al Dahirah	Gas Field Development	1,500,000,000	Construction	Q4 2018
BP - Block 61 - Khazzan Gas Fields Development - Phase 1 - Package 2	Oman	Al Dahirah	Gas Field Development	130,000,000	Construction	Q3 2017
BP - Block 61 - Khazzan Gas Fields Development - Phase 2	Oman	Al Dahirah	Gas Field Development	5,000,000,000	Design	Q4 2020
Dana Gas - Zora Gas Field	UAE	Sharjah	Gas Exploration	100,000,000	Construction	Q4 2016
DNO - Block 8 Oil & Gas Field Development	Oman	West Bukha	Gas Field	45,000,000	Construction	Q4 2018
Emirates LNG - Fujairah LNG	UAE	Fujairah	Liquefied Natural Gas (LNG)	3,000,000,000	EPC ITB	Q3 2016
GASCO - Abu Dhabi Sales Gas Network- Compression Station	UAE	Abu Dhabi	Gas Pipeline	900,000,000	Feasibility Study	Q2 2018
GASCO - Black Powder Management	UAE	Abu Dhabi	Gas Pipeline	44,000,000	Construction	Q4 2017
GASCO - Habshan to Ruwais - 16 inch Condensate Replacement Pipeline	UAE	Abu Dhabi	Gas Pipeline	90,000,000	Construction	Q4 2016
GASCO - Integrated Gas Development (IGD) - Expansion (Onshore Pipeline)	UAE	Abu Dhabi	Gas Production	12,000,000,000	Construction	Q4 2016
GASCO - Yas - Mina Zayed Gas Pipeline	UAE	Abu Dhabi	Gas Processing	45,000,000	Construction	Q1 2015
GASCO- Gas Turbine Replacement (Phase 1 - Asab & Buhasa)	UAE	Abu Dhabi	Gas Processing	130,000,000	FEED	Q4 2017
GASCO- Habshan 5 - New Compression Train	UAE	Abu Dhabi	Gas Processing	800,000,000	EPC ITB	Q1 2018
GASCO- Taweelah Compression Station	UAE	Abu Dhabi	Gas Processing	700,000,000	FEED	Q4 2018

Project	Country	City	Facility	Budget	Status	Completion Date
KGOC – Wafra Central Gas Utilization Project	Kuwait	Wafra	Gas Processing	1,000,000,000	FEED	Q1 2018
KNPC – Mina Abdulla Refinery Sulphur Recovery Units	Kuwait	Mina Abdullah	Sulphur Recovery	1,000,000,000	EPC ITB	Q2 2018
KNPC – Al Zour LNG Import and Regasification Terminal	Kuwait	Al Zour	Liquefied Natural Gas (LNG)	3,330,000,000	Engineering & Procurement	Q3 2020
KNPC – Mina Al Ahmadi Refinery Fifth Gas Train	Kuwait	Mina Al Ahmadi	Gas Production	2,000,000,000	Construction	Q4 2017
KNPC – Mina Al Ahmadi Refinery LNG Storage & Re-gasification Services	Kuwait	Mina Al Ahmadi	Liquefied Natural Gas (LNG)	250,000,000	Construction	Q3 2016
KNPC – Mina Al Ahmadi Refinery Sulphur Recovery Units	Kuwait	Mina Al Ahmadi	Sulphur Recovery	50,000,000	EPC ITB	Q2 2018
KNPC – Mutla Ridge Project	Kuwait	Mutla Ridge	Oil Storage Tanks	1,000,000,000	Feasibility Study	Q4 2019
KOC – North Kuwait Manifold Gathering System for Gathering Centers (GC) 29, 30, 31	Kuwait	Northern Kuwait	Gas Gathering Centre	2,500,000,000	Construction	Q4 2017
MASDAR – Carbon Dioxide Capture and Storage – Phase I (Mussafah Steel Rolling Mill)	UAE	Abu Dhabi	Carbon Dioxide	280,000,000	Construction	Q2 2016
MASDAR – Carbon Dioxide Capture and Storage – Phase I (Overview)	UAE	Abu Dhabi	Carbon Dioxide	2,500,000,000	Construction	Q2 2016
NOGA – Gazprom – Liquefied Natural Gas (LNG) Distribution Centre	Bahrain	Various	Liquefied Natural Gas (LNG)	600,000,000	Feasibility Study	Q2 2018
NOGA – Onshore Deep Gas Exploration	Bahrain	Various	Gas Exploration	200,000,000	Engineering & Procurement	Q4 2015
Oman Gas Company – Murayrat PLS Upgrade	Oman	Adam Ad Dakhliya	Gas Processing	100,000,000	Construction	Q4 2017
Oman Gas Company – Muscat Gas Network	Oman	Muscat	Gas Network	100,000,000	FEED ITB	Q1 2020
Oman Gas Company – Salalah Loopline	Oman	Salalah	Gas Pipeline	70,000,000	Construction	Q4 2016
Oman Gas Company – Salalah LPG Extraction	Oman	Salalah	Liquefied Petroleum Gas (LPG)	100,000,000	FEED	Q2 2019
Orpic – Liwa Plastics Industries Complex – NGL Extraction Units	Oman	Sohar	Natural Gas Liquefaction (NGL)	400,000,000	Engineering & Procurement	Q1 2019
ORPIC – Nitrogen Gas Plant	Oman	Sohar	Nitrogen	50,000,000	EPC ITB	Q3 2018
Oryx GTL – Expansion of Gas To Liquids Plant	Qatar	Ras Laffan	Gas to Liquids (GTL)	1,500,000,000	Feasibility Study	Q4 2019
PDO – Ghaba North Gas Field Re-Development	Oman	Northern Oman	Gas Field Development	60,000,000	Construction	Q1 2016
PDO – Kauther Depletion Compression Phase 2 (KDC2)	Oman	Al Dakhiliya	Gas Compression	190,000,000	Engineering & Procurement	Q2 2019
PDO – Khulud Tight Gas Development Project (KLD)	Oman	Kauther Field	Gas Field Development	100,000,000	Feasibility Study	Q4 2021
PDO – Rabab-Harweel Integrated Plant (RHIP) – Overview	Oman	Harweel	Gas Processing	3,000,000,000	Construction	Q1 2019
PDO – Saih Nahaydah Depletion Compression Phase-2 (SNDC2)	Oman	Saih Nihayda	Gas Compression	180,000,000	Engineering & Procurement	Q2 2019
PDO – Saih Nihayda Condensate Stabilization Plant	Oman	Saih Nihayda	Gas Treatment Plant	115,000,000	Construction	Q3 2016
PDO – SRCPP & SNGP Condensate Recovery Maximisation	Oman	Saih Nihayda	Gas Processing	300,000,000	Construction	Q1 2017
PDO – Yibal Depletion Compression – Phase 3 (Y3DC)	Oman	Yibal	Gas Processing	300,000,000	Construction	Q4 2016
PDO – Zauliah Gas Plant Project	Oman	Al Wusta	Gas Processing	110,000,000	Construction	Q4 2016
Qatar Petroleum (QP) – Air Compressor Replacement at Mesaieed Refinery	Qatar	Mesaieed	Gas Processing	50,000,000	Construction	Q4 2016
Qatar Petroleum (QP) – Bi-directional Pipeline Between KM and KS	Qatar	Doha	Gas Pipeline	80,000,000	Construction	Q3 2015
Qatar Petroleum (QP) – Vapour Recovery System at Multi Product Berth	Qatar	Mesaieed	Gas Processing	50,000,000	EPC ITB	Q2 2017
RasGas – Qatar Barzan Gas Field Development Project (Overview)	Qatar	North Field	Gas Field Development	10,300,000,000	Construction	Q4 2021
RasGas – Qatar Barzan Gas Field Development Project – Offshore – Phase 2	Qatar	North Field	Gas Field Development	700,000,000	Engineering & Procurement	Q4 2019
RasGas – Qatar Barzan Gas Field Development Project – Offshore – Phase 3	Qatar	North Field	Gas Field Development	300,000,000	Engineering & Procurement	Q4 2023
RasGas – Qatar Barzan Gas Field Development Project – Onshore – Phase 1	Qatar	North Field	Gas Field Development	1,700,000,000	Construction	Q1 2016
RasGas – Qatar Barzan Gas Field Development Project – Onshore – Phase 2	Qatar	North Field	Gas Field Development	2,000,000,000	Feasibility Study	Q4 2019
Saudi Aramco – Arabiyah and Hasbah Gas Field Development	Saudi Arabia	Arabiyah	Gas Field	3,000,000,000	Construction	Q1 2019
Saudi Aramco – Dow – Ras Tanura Gas Plant (Overview)	Saudi Arabia	Ras Tanura	Gas Field	4,000,000,000	EPC ITB	Q4 2019

Project	Country	City	Facility	Budget	Status	Completion Date
Saudi Aramco – Duba-1 Gas field	Saudi Arabia	Red Sea	Gas Field	25,000,000,000	Feasibility Study	Q3 2016
Saudi Aramco – Fadhili Gas Plant – Main Processing Facilities (Package 1)	Saudi Arabia	Eastern Region	Gas Treatment Plant	2,500,000,000	Engineering & Procurement	Q1 2021
Saudi Aramco – Fadhili Gas Plant – Offsites & Utilities (Package 3)	Saudi Arabia	Eastern Region	Gas Field	2,000,000,000	Engineering & Procurement	Q1 2021
Saudi Aramco – Fadhili Gas Plant – Sulphur Recovery Unit SRU (Package 2)	Saudi Arabia	Eastern Region	Gas Treatment Plant	2,500,000,000	Engineering & Procurement	Q2 2021
Saudi Aramco – Fadhili Plant (Overview)	Saudi Arabia	Eastern Region	Gas Field	5,000,000,000	Construction	Q1 2021
Saudi Aramco – Hasbah Offshore Gas Field Expansion	Saudi Arabia	Hasbah	Gas Field	1,500,000,000	Engineering & Procurement	Q2 2019
Saudi Aramco – Liquefied Gas Station For Shadqam & Al Uthmaniah Gas Plants	Saudi Arabia	Abqaiq	Natural Gas Liquefaction (NGL)	74,000,000	Construction	Q3 2018
Saudi Aramco – Liquefied Natural Gas (LNG) Receiving Terminal	Saudi Arabia	Jeddah	Liquefied Natural Gas (LNG)	1,000,000,000	Feasibility Study	Q3 2017
Saudi Aramco – Master Gas System Expansion (MGSE) (Overview)	Saudi Arabia	Various	Natural Gas Liquefaction (NGL)	4,050,000,000	Construction	Q1 2020
Saudi Aramco – Master Gas System Expansion (MGSE) – Phase I	Saudi Arabia	Various	Gas Pipeline	1,650,000,000	Construction	Q1 2020
Saudi Aramco – Midyan Gas Processing Plant	Saudi Arabia	Tabuk	Gas Processing	800,000,000	Construction	Q4 2016
Saudi Aramco – Unconventional Gas Program – Tight Gas Production Systems A	Saudi Arabia	Turaif	Gas Field Development	200,000,000	Construction	Q4 2020
Saudi Aramco – Unconventional Gas Program – Tight Gas Production Systems A and B (Overview)	Saudi Arabia	Turaif	Gas Field Development	3,500,000,000	Construction	Q4 2020
Saudi Aramco – Unconventional Gas Program – Tight Gas Production Systems B	Saudi Arabia	Turaif	Gas Field Development	800,000,000	Engineering & Procurement	Q4 2020
Saudi Aramco – Uthmaniya Gas Treatment Units	Saudi Arabia	Uthmaniyah	Gas Network	500,000,000	EPC ITB	Q2 2019
Shell – Pearl GTL Scheme – Onshore & Offshore Facilities	Qatar	Qatar	Natural Gas Liquefaction (NGL)	20,000,000,000	Construction	Q3 2019
Takreer– Hamriya Jetty and Pipeline Network Project – Marine Works 2	UAE	Sharjah	Oil Storage Tanks	250,000,000	Construction	Q4 2014
Tatweer Petroleum – Central Gas Dehydration Facilities	Bahrain	Awali	Gas Processing	100,000,000	Construction	Q3 2018
VOPAK HORIZON – Fujairah Oil Terminal Expansion (Phase 7)	UAE	Fujairah	Gas Storage Tanks	200,000,000	Engineering & Procurement	Q2 2015
ZADCO – Upper Zakum Full Field Development – 750 Project – Surface Facilities – EPC 1	UAE	Abu Dhabi	Oil Field Development	1,300,000,000	Construction	Q4 2017
ZADCO – Upper Zakum Full Field Development – 750 Project – Surface Facilities – EPC 2	UAE	Abu Dhabi	Oil Production	4,200,000,000	Construction	Q4 2017
ZADCO– 750 West Region– Capacity Expansion & Sulphate Reduction Plant– EPC 3	UAE	Abu Dhabi	Oil & Gas Field	300,000,000	EPC ITB	Q1 2019

GCC OIL – JULY 2016

Project	Country	City/Region	Facility	Budget	Status	Completion Date
ADCO – Bab Far North CO2 Injection Pilot Project	UAE	Abu Dhabi	Oil Field Development	305,000,000	Construction	Q4 2016
ADCO – Mender Field Development	UAE	Abu Dhabi	Oil Field Development	350,000,000	Construction	Q3 2018
ADCO – North East Bab (NEB) – (Al Dabbiya) ASR	UAE	Abu Dhabi	Oil Production	2,500,000,000	EPC ITB	Q1 2020
ADCO – North East Bab (NEB) – Phase 3 (Al Dabbiya)	UAE	Abu Dhabi	Oil Production	2,500,000,000	Construction	Q4 2017
ADCO – North East Bab (NEB) – Phase 3 (Rumaitha-Shanayel)	UAE	Abu Dhabi	Oil Production	2,500,000,000	Construction	Q4 2017
ADCO – Rumaitha North CO2 Injection Project	UAE	Abu Dhabi	Oil Field Development	500,000,000	Construction	Q4 2016
ADCO – South East Asset– Sahil Field Development – Phase 2	UAE	Abu Dhabi	Oil Field Development	800,000,000	Construction	Q3 2016
ADCO– Bab Integrated Facilities Project– Expansion	UAE	Abu Dhabi	Oil Field Development	3,000,000,000	Feasibility Study	Q1 2020
ADCO– Bab TH–F Peripheral Development	UAE	Abu Dhabi	Nitrogen	400,000,000	FEED ITB	Q4 2017
ADCO– Buhasa– Wellhead Automation	UAE	Abu Dhabi	Oil Field Development	100,000,000	FEED	Q3 2019
ADCO– Fujairah MOT – Hydraulic Pressure Recovery System Turbine	UAE	Fujairah	Oil Field Development	800,000,000	FEED	Q1 2017
ADCO– Qusahwira Field Development – Phase 2	UAE	Abu Dhabi	Oil Field Development	900,000,000	EPC ITB	Q3 2018
ADCO– South East Asset– Tie–in Project	UAE	Abu Dhabi	Oil Field Development	650,000,000	Engineering & Procurement	Q1 2018
ADMA OPCO – Nasr Full Field Development – Phase 2 (Package 2 – Platforms)	UAE	Abu Dhabi	Oil Field Development	200,000,000	Engineering & Procurement	Q4 2018

Project	Country	City	Facility	Budget	Status	Completion Date
ADMA OPCO – Nasr Full Field Development – Phase 2 (Package 3)	UAE	Abu Dhabi	Oil Field Development	200,000,000	Construction	Q4 2018
ADMA OPCO – Umm Shaif Super Complex– Additional Gas Supply & Flexibility Assurance	UAE	Abu Dhabi	Gas Production	494,000,000	Construction	Q2 2016
ADMA OPCO– Nasr Full Field Development – Phase 2 (Package 1 – Wellheads and Pipeline)	UAE	Abu Dhabi	Oil Field Development	900,000,000	Construction	Q4 2018
ADMA–OPCO – 100 MBD DAS Facilities Upgrade Project	UAE	Abu Dhabi	Oil Field Development	48,000,000	Construction	Q1 2017
ADMA–OPCO – Nasr Full Field Development – (Overview)	UAE	Abu Dhabi	Oil Field Development	1,700,000,000	Construction	Q4 2018
ADMA–OPCO – SARB Offshore Oil Field Development – Package 2	UAE	Abu Dhabi	Oil & Gas Field	500,000,000	Construction	Q4 2016
ADMA–OPCO – SARB Offshore Oil Field Development – Package 3	UAE	Abu Dhabi	Gas Pipeline	600,000,000	Construction	Q1 2016
ADMA–OPCO – SARB Offshore Oil Field Development – Package 4	UAE	Abu Dhabi	Gas Processing	500,000,000	Construction	Q3 2017
ADMA–OPCO – Umm Al Lulu Field Development – (Overview)	UAE	Abu Dhabi	Oil Field Development	2,500,000,000	Construction	Q1 2018
ADMA–OPCO – Umm Al Lulu Field Development – Package 1	UAE	Abu Dhabi	Oil Field Development	2,500,000,000	Construction	Q1 2018
ADMA–OPCO – Umm Al Lulu Field Development – Package 2	UAE	Abu Dhabi	Oil Field Development	2,500,000,000	Construction	Q4 2015
ADMA–OPCO – Umm Shaif Infield Pipelines Replacement	UAE	Abu Dhabi	Oil Field Development	500,000,000	EPC ITB	Q4 2015
ADMA–OPCO – Zakum Facilities for 4 Gas Injectors	UAE	Abu Dhabi	Gas Production	100,000,000	Construction	Q1 2016
ADMA–OPCO– Bu Haseer Field	UAE	Abu Dhabi	Pipeline	200,000,000	Engineering & Procurement	Q3 2018
ADMA–OPCO– Lower Zakum – Oil Lines Replacement (Phase 1)	UAE	Abu Dhabi	Pipeline	950,000,000	Construction	Q4 2016
ADNOC & EMARAT – Fujairah Terminal Expansion Phase 3	UAE	Fujairah	Oil Storage Tanks	40,000,000	Feasibility Study	Q4 2018
ADNOC– Ghasha Field	UAE	Abu Dhabi	Oil & Gas Field	1,000,000,000	FEED ITB	Q1 2025
ADOC – Hail Offshore Oilfield	UAE	Abu Dhabi	Oil Field Development	500,000,000	Engineering & Procurement	Q3 2018
ADOC – Mubaraz Field Expansion	UAE	Abu Dhabi	Oil Field Development	500,000,000	FEED ITB	Q4 2017
Al Hosn Gas – Dalma Field	UAE	Abu Dhabi	Oil Field Development	800,000,000	FEED ITB	Q4 2020
BAC – Bahrain International Airport Modernization Program – New Aviation Fuel Farm & Fuel Hydrant	Bahrain	Muharraq	Oil Storage Tanks	200,000,000	EPC ITB	Q4 2017
Bapco – Offshore Blocks	Bahrain	Various	Exploration	80,000,000	EPC ITB	Q2 2020
BPGIC – Fujairah Oil Terminal (Phase 1 & 2)	UAE	Fujairah	Oil Storage Tanks	200,000,000	Construction	Q1 2017
Duqm Petroleum Terminal Company – Duqm Liquid Jetty	Oman	Duqm	Oil Storage Terminal	1,000,000,000	EPC ITB	Q4 2018
Duqm Petroleum Terminal Company – Duqm Liquid Jetty – Topside Facilities	Oman	Duqm	Oil Storage Terminal	250,000,000	EPC ITB	Q4 2018
Fujairah Port – Port Facilities Expansion	UAE	Fujairah	Oil Storage Tanks	100,000,000	Construction	Q4 2015
GASCO – Integrated Gas Development (IGD) – Expansion (Onshore Pipeline)	UAE	Abu Dhabi	Gas Production	12,000,000,000	Construction	Q4 2016
GASCO – Yas – Mina Zayed Gas Pipeline	UAE	Abu Dhabi	Gas Processing	45,000,000	Construction	Q1 2015
GASCO– Integrated Gas Development – Expansion (42 Inch Pipeline)	UAE	Abu Dhabi	Oil Field Development	450,000,000	Construction	Q4 2018
Gulf Petrochem – Oil Storage Terminal Facility at Fujairah – Phase 2	UAE	Fujairah	Oil Storage Tanks	300,000,000	EPC ITB	Q4 2016
Hydrocarbon Finder – Block 7 Onshore Exploration and Production	Oman	Al Wusta	Exploration	50,000,000	Engineering & Procurement	Q1 2019
IPIC & Mubadala– Fujairah Refinery (EPC 1 & 2)	UAE	Fujairah	Refinery	3,500,000,000	EPC ITB	Q4 2018
KNPC – Discharge of Treated Effluent	Kuwait	Various	Pipeline	100,000,000	Feasibility Study	Q4 2018
KNPC – Matlaa New Depot	Kuwait	Northern Kuwait	Oil Storage Tanks	500,000,000	EPC ITB	Q4 2019
KNPC – Mutla Ridge Project	Kuwait	Mutla Ridge	Oil Storage Tanks	1,000,000,000	Feasibility Study	Q4 2019
KOC – Exxon Mobil Corporation – Ratqa Lower Fars Heavy Oil Handling Facilities – Drilling Package	Kuwait	Jahra	Oil Field Development	500,000,000	Construction	Q2 2018
KOC – Kuwait Environmental Remediation Program (KERP) – North Package	Kuwait	Northern Kuwait	Oil & Gas Field	100,000,000	Construction	Q4 2021
KOC – Kuwait Environmental Remediation Program (KERP) – Overview	Kuwait	Kuwait	Oil & Gas Field	3,000,000,000	Construction	Q4 2021
KOC – North Kuwait Jurassic Early Production Facility (EPF) – Phase 2	Kuwait	Northern Kuwait	Oil Production	100,000,000	EPC ITB	Q3 2017
KOC – North Kuwait Jurassic Oil and Gas Field Development	Kuwait	Northern Kuwait	Oil & Gas Field	1,300,000,000	EPC ITB	Q2 2018
KOC – Ratqa Lower Fars Heavy Oil Development – Phase 1	Kuwait	Northern Kuwait	Steam Injection	4,500,000,000	Construction	Q2 2019
KOC – Soil Remediation Services – Lot A	Kuwait	Kuwait	Oil & Gas Field	100,000,000	Construction	Q3 2017
KOC – Southern Kuwait Maintenance of Oil Production Facilities	Kuwait	Kuwait South	Oil Production	150,000,000	EPC ITB	Q3 2017

PROJECTS

Project	Country	City	Facility	Budget	Status	Completion Date
KPC – Northern Oil Field Development	Kuwait	Northern Kuwait	Oil Field Development	900,000,000	EPC ITB	Q1 2017
Masirah Oil Ltd – Block 50 (Masirah Bay Offshore) – Exploration	Oman	Masirah Basin	Exploration	25,000,000	Construction	Q1 2020
Medco Arabia – Block 56 Onshore Exploration and Production	Oman	Adam Ad Dakhliya	Exploration	20,000,000	Engineering & Procurement	Q4 2020
MOG – Block 54 Onshore Exploration and Production	Oman	Al Wusta	Exploration	50,000,000	Engineering & Procurement	Q3 2020
MOG – Block 55 Onshore Exploration and Production	Oman	Al Wusta	Exploration	45,000,000	Engineering & Procurement	Q1 2019
National Shipping Company of Saudi Arabia (Bahri) – VLCC Construction	Saudi Arabia	Various	Very Large Crude Carriers (VLCCs)	1,000,000,000	Construction	Q4 2017
OOCEP – Block 60 Concession – Onshore	Oman	Oman	Oil & Gas Field	1,100,000,000	Engineering & Procurement	Q4 2020
OTTCO – Ras Markaz Crude Oil Park	Oman	Duqm	Oil Storage Terminal	400,000,000	EPC ITB	Q4 2019
PDO – Amal Steam Phase 1C Surface Facilities	Oman	Amal Oilfield	Enhanced Oil Recovery (EOR)	80,000,000	Construction	Q1 2018
PDO – Amal Steam Phase 1C-2	Oman	Amal Oilfield	Oil Field Development	300,000,000	EPC ITB	Q1 2019
PDO – Yibal Khuff Sudair Field Development	Oman	Northern Oman	Oil Field Development	3,000,000,000	Construction	Q1 2019
Primestar Energy – Prime Tank Terminal & Jetty Pipeline	UAE	Fujairah	Oil Storage Tanks	165,000,000	Construction	Q3 2014
Qatar Petroleum (QP) – Bul Hanine Redevelopment (Offshore)	Qatar	Bul Hanine	Oil Field Development	11,000,000,000	EPC ITB	Q1 2028
Qatar Petroleum (QP) – Wellhead Scada & Cathodic Protection (Dukhan Field)	Qatar	Dukhan	Oil Production	200,000,000	Construction	Q4 2016
Qatar Petroleum – Al Shaheen Offshore Field Development Plan	Qatar	Qatar	Oil & Gas Field	500,000,000	Construction	Q4 2016
Sabic – Oil-To-Chemicals Plant	Saudi Arabia	Yanbu	Oil Production	30,000,000,000	Feasibility Study	Q4 2020
Sadara Chemical Company – Jubail Petrochemicals Complex – Refinery Tank Farm Package	Saudi Arabia	Jubail	Oil Storage Tanks	500,000,000	Construction	Q4 2016
Saudi Aramco – Al Muajjiz Crude Oil Terminal Rehabilitation (Tank Farm)	Saudi Arabia	Yanbu	Oil Storage Terminal	200,000,000	Construction	Q4 2016
Saudi Aramco – Annual Onshore Maintain Potential Program (MPP)	Saudi Arabia	Red Sea	Maintenance	5,000,000,000	Construction	Q2 2021
Saudi Aramco – Expansion of Khurais Oilfield	Saudi Arabia	Eastern Region	Oil & Gas Field	3,000,000,000	Construction	Q4 2018
Saudi Aramco – Safaniyah Oil Field (Phase 2)	Saudi Arabia	Safaniyah	Oil & Gas Field	500,000,000	Feasibility Study	Q3 2016
Saudi Aramco – Shaybah Arabian Light Crude Increment Program	Saudi Arabia	Shaybah	Oil Field Development	50,000,000,000	Construction	Q3 2016
Saudi Aramco – Southern Area Oil Operations (SAOO)	Saudi Arabia	Southern Region	Oil Field Development	55,000,000	Engineering & Procurement	Q1 2017
Sharafco – Hamriyah Free Zone – Storage Terminal	UAE	Sharjah	Oil Storage Tanks	100,000,000	EPC ITB	Q1 2016
Takreer – Abu Dhabi International Airport Expansion – Aviation Fuel Depot	UAE	Abu Dhabi	Oil Storage Tanks	200,000,000	Construction	Q3 2016
Takreer – Ruwais Refinery Expansion (Overview)	UAE	Ruwais	Refinery	10,000,000,000	Construction	Q3 2015
Takreer– Hamriya Jetty and Pipeline Network Project – Marine Works 2	UAE	Sharjah	Oil Storage Tanks	250,000,000	Construction	Q4 2014
Takreer– Ruwais– LPG Recovery	UAE	Abu Dhabi	Refinery	40,000,000	FEED	Q3 2019
VOPAK HORIZON – Fujairah Oil Terminal Expansion (Phase 7)	UAE	Fujairah	Gas Storage Tanks	200,000,000	Engineering & Procurement	Q2 2015
VTTI – Fujairah Terminal	UAE	Fujairah	Oil Storage Tanks	120,000,000	Construction	Q2 2016
ZADCO – Umm Al Dalkh ESP Installation – Package 2 (Phases 3, 4 and 5)	UAE	Abu Dhabi	Sub Sea Cable	650,000,000	Construction	Q4 2016
ZADCO – Umm Al Dalkh Full Field Development (Overview)	UAE	Abu Dhabi	Oil Field Development	650,000,000	Construction	Q2 2017
ZADCO – Upper Zakum Full Field Development – 750 Project (Overview)	UAE	Abu Dhabi	Oil Field Development	15,600,000,000	Construction	Q4 2017
ZADCO – Upper Zakum Full Field Development – 750 Project – Surface Facilities – EPC 1	UAE	Abu Dhabi	Oil Field Development	1,300,000,000	Construction	Q4 2017
ZADCO – Upper Zakum Full Field Development – 750 Project – Surface Facilities – EPC 2	UAE	Abu Dhabi	Oil Production	4,200,000,000	Construction	Q4 2017
ZADCO – Zirku 7th Crude Oil Storage Tanks	UAE	Abu Dhabi	Oil Storage Tanks	30,000,000	Construction	Q1 2016
ZADCO – Zirku Facilities Capacity Enhancement	UAE	Abu Dhabi	Oil Field Development	400,000,000	EPC ITB	Q3 2017
ZADCO– 750 West Region– Capacity Expansion & Sulphate Reduction Plant– EPC 3	UAE	Abu Dhabi	Oil & Gas Field	300,000,000	EPC ITB	Q1 2019

Note : The above information is the sole property of DMS Projects. Budget figures are shown as $ US values. Source: dmsprojects.net

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ABOUT THE INTERVIEWEE:
Proserv's Garry Kidd has over a decade's experience of working in the oil and gas industry.

Garry Kidd, senior vice president – Dubai, Proserv

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0.00

Could you tell us about some of the contracts and projects that Proserv is working on in the GCC?
Proserv continues to secure opportunities in what is a highly competitive and demanding marketplace in Abu Dhabi, Oman, Saudi Arabia, Algeria and Africa. We are very proud of our facilities in the GCC, and our proximity to the customers. We recently opened a new facility in Khobar, Saudi Arabia, and we plan to expand further in the region. Our commitment to our partners and customers in the GCC has always been our key differentiator.

1.05

What is your opinion of the oilfield services rental market in the region?
The oilfield services rental market is still buoyant. Due to the reluctance of CAPEX related to the current uncertainty of oil prices, national oil companies and drilling contractors are looking towards the service market for more cost-efficient solutions. Due to the significant downturn in drilling activities, the service industry in now in a transition where equipment and personnel is still required, but there is an abundance of service companies, so NOCs and drilling contractors can control negotiations.

2.55

Proserv is a prominent service provider to four major segments of the oil and gas industry – drilling, production, subsea and marine. Which segment would you say is the most profitable?

Our ability at Proserv to adapt to the market, and our flexibility towards our clients while understanding their needs, allow us to integrate certain aspects from all our offering segments to provide the end-user with a fit-for-purpose solution. Bespoke, custom-fit solutions are our strength.

What is your take on the stiff competition in the regional oilfield services sector?
Stiff competition exists in all the areas associated with the oil and gas industry, not solely oilfield services. At Proserv, we are based locally and have manufacturing facilities and offices across the GCC, which makes us more attractive – and brings us closer – to the customers. We are committed, more than ever, to expand in the region, hence our new facility in Saudi.

3.35

"WE ARE BASED LOCALLY AND HAVE MANUFACTURING FACILITIES AND OFFICES ACROSS THE GCC, WHICH BRINGS US CLOSER TO THE CUSTOMERS. WE ARE COMMITTED TO EXPAND IN THE REGION."

4.10

Are there any local projects or contracts that Proserv is expecting to bag this year?
Proserv continues to develop and enhance its manufacturing, aftermarket and service capabilities, to provide technically sound and competitive solutions. In doing so, we look to secure opportunities in the GCC and through our global network that will allow us to demonstrate, maintain and continue to develop our global market footprint.

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