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Oil Review Middle East

Oil · Gas · Petrochemicals

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PDO - boosting opportunities for Omanis

- Rich pickings for EPC contractors
- Reshaping the Gulf's energy export infrastructure
- Trends in oil spill response
- Fuelling business value with data and analytics
- Tackling corrosion under insulation (CUI)
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Editor: Louise Waters - louise.waters@alaincharles.com

Editorial and Design team: Prashanth AP, Hiriyti Bairu, Miriam Brtkova, Praveen CP, Ebin GheeVarghese, Pranav Kiran, Samantha Payne, Rahul Puthenveedu, Rhonita Patnaik, Deblina Roy and Nicky Valsamakis

Managing Editor: Georgia Lewis

Publisher: Nick Fordham

Sales Director: Michael Ferridge

Group Magazine Manager: Graham Brown
+971 4 448 9260
graham.brown@alaincharles.com

Magazine Sales Manager: Tanmay Mishra
+91 80 65684483
tanmay.mishra@alaincharles.com

International Representatives

Nigeria **Bola Olowo**
+234 8034349299
bola.olowo@alaincharles.com

USA **Michael Tomashefsky**
+1 203 226 2882 +1 203 226 7447
michael.tomashefsky@alaincharles.com

Head Office:
Alain Charles Publishing Ltd
University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, United Kingdom
+44 (0) 20 7834 7676 +44 (0) 20 7973 0076

Middle East Regional Office:
Alain Charles Middle East FZ-LLC
Office L2-112, Loft Office 2, Entrance B,
P.O. Box 502207, Dubai Media City, UAE
+971 4 448 9260, +971 4 448 9261

Production: Srinidhi Chikkars, Eugenia Nelly Mendes, Infant Prakash and Rakshith Shivakumar
production@alaincharles.com

Subscriptions: circulation@alaincharles.com

Chairman: Derek Fordham

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www.oilreview.me
email: orme@alaincharles.com

Editor's note

With oil prices rising steadily since last year and hitting a three-and-a-half-year high in early May, the outlook for the oil and gas industry is looking more positive. Major projects going ahead in the region are providing plenty of opportunities for EPC contractors (p16) and the exploration picture is looking encouraging (p9).

In this issue we look at Petroleum Development Oman (PDO) and its exploration and production successes, as well as how it contributes to Oman's economic and social development through its In-Country Value (ICV) strategy (p11-15). We also discuss major trends in oil spill management (p32) and, with the digital transformation now top of the agenda, how data and analytics can help to improve operations upstream and downstream (p28).

As always, we bring you news of the latest products and technological developments (p36).

Ramadan Mubarak to all our readers.

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Cover image courtesy of Petroleum Development Oman (PDO)

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JUNE			
3-5	**Global Petroleum Show**	CALGARY	www.globalpetroleumshow.com
AUGUST			
27-30	**ONS 2018**	STAVANGER	www.ons.no
SEPTEMBER			
3-5	**World Heavy Oil Congress**	MUSCAT	www.worldheavyoilcongress.com
5-8	**Iraq Oil & Gas - Baghdad**	BAGHDAD	www.baghdadoilgas.com
6	**Kuwait HSE Forum 2018**	KUWAIT	www.hse-forum.com/kuwait
17-20	**Gastech**	BARCELONA	www.gastechevent.com
26-28	**5th Annual EPC Summit**	LONDON	www.opex-project-management.com
OCTOBER			
9-10	**RESCO Envirospill 2018**	ABU DHABI	www.rescoenvirospill.com
9-11	**Oil & Money**	LONDON	www.oilandmoney.com
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23-25	**GDA Int'l Downstream Conference & Exhibition**	MANAMA	www.gdaconference.org
NOVEMBER			
12-15	**ADIPEC 2018**	ABU DHABI	www.adipec.com

Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Iraq shows to promote Iraq oil and gas opportunities

IRAQ HAS IMMENSE oil and gas reserves and production potential. It is the third largest OPEC crude oil producer after Saudi Arabia and Iran, and holds the world's fifth largest proved crude oil reserves after Venezuela, Saudi Arabia, Canada, and Iran (nine per cent of total global reserves.) The largest fields in the south have relatively low extraction costs owing to uncomplicated geology, multiple supergiant fields, fields located in relatively unpopulated areas with flat terrain, and the close proximity of fields to coastal ports.

Event Organisers Expotim, following the success of the previous seven editions of Iraq Oil & Gas – Basra International Conference and Exhibition between 2010 and 2017, have started preparations for the eighth edition of the show, to be held from 5-7 December 2018 at the Basrah International Fairground.

In common with the past seven editions, the event will cover the entire spectrum of the industry, and is set to contribute positively to the development of Iraq oil and gas sector.

The 7th Iraq Oil & Gas Basra Show (5-7 December 2017) saw the participation of His Excellency Jabbar Ali Hussain Allibi, Minister of Oil of the Republic of Iraq and His Excellency Khalid bin Abdulaziz Al-Falih, Minister of Energy, Industry and Mineral Resources of the Kingdom of Saudi Arabia.

Image Credit : Expotim

Ministers and VIPs at the 2017 show

Iraq Oil & Gas - Basra Show has presented a wide variety of opportunities for international investors over its seven consecutive years of operation, with more than 1,500 companies exhibiting, 60 companies sponsoring, 120 papers being presented at the conference and more than 90,000 professionals visiting the show since 2010.

Building on the organiser's sustainable success in holding the Iraq Oil & Gas – Basra Show, a new event "Iraq Oil & Gas – Baghdad Show – International Conference and Exhibition" is scheduled to be held at Baghdad International Fairground from 5-8 September 2018, which will be another meeting point for all actors of Iraq's oil and gas industry.

For further details, please visit event websites www.basraoilgas.com and www.baghdadoilgas.com.

OGWA provides platform for developing business partnerships

THE 2018 EDITION of the Oil and Gas West Asia (OGWA) Exhibition took place from 26-27 March 2018 at the Oman Convention and Exhibition Centre in Muscat. The exhibition proved to be an important platform for building business partnerships, and exchanging information on various facets of the oil and gas sector as well as global developments.

OGWA first launched in 1998 and is held under the patronage of the Ministry of Oil and Gas. Oman Society of Petroleum Services (OPAL) and Petroleum Development Oman (PDO), along with BP Oman, Shell, Gulf Energy, Occidental of Oman, Baker Hughes, Total, GlassPoint, Schlumberger, CCE, Halliburton and many other leading oil and gas companies in Oman, have supported the exhibition and conference throughout the years.

PDO signed 10-year deals with five Omani companies during the event. Visitors got a chance to explore the Omani business market through exclusive one-on-one meetings and project presentations.

"The OGWA Exhibition and Conference provided us with a platform to network with many local and international companies. Several other exhibitors visited our booth, acquiring knowledge about what we do," said Ted Park, senior sales manager of Gloazure Co. LTD from South Korea. "We have landed a very big project from one of the ports in Oman and are looking forward to working with them. This is a huge opportunity for us," he added.


Image Credit: OmanExpo

The busy exhibition floor at OGWA 2018

Acknowledged as one of the largest and most important energy events in the Middle East region, OGWA will once again bring together local and international oil and gas companies, technology and service providers, and equipment suppliers at its next edition from 22-25 March 2020.

The latest developments in sour hydrocarbon management

The Sour Oil and Gas Advanced Technology (SOGAT) 2018 Conference held in Abu Dhabi from 29 April-3 May provided a platform to bring together expert international opinion for in-depth discussions on sour hydrocarbon management and related global concerns under the theme 'Enhancing cost-effective sour hydrocarbon treatment'. Fyna Ashwath reports.

SOGAT 2018 COMPRISED a conference, exhibition and practical workshops, and was supported by Abu Dhabi National Oil Company (ADNOC). The event provided an excellent opportunity for the exchange of technical knowledge and the sharing of the latest research ideas, with a good mix of presentations and insightful panel discussions.

Speaking to *Oil Review Middle East*, the official media partner of SOGAT 2018, Dr Nick Coles, director - Conferences of Dome Exhibitions, the conference organisers, said, "We received an excellent evaluation of the event from attendees this year."

As in previous years, a series of workshops on topical issues were presented covering Practical Amine Treating, Sulphur Recovery Fundamentals and Sour Oil and Gas Process Optimisation.

At the SOGAT conference, a presentation by the American University of Sharjah, UAE on the research for producing hydrogen using H_2S methane reforming process in sulphur recovery units sparked great interest, highlighting the need for thorough evaluation of the economic feasibility of the process.

> "Affordability of CO_2 capture is a journey in progress"

A session led by representatives of ADNOC Processing on 'Guideline For Development Of CO_2 Capture, Transport and EOR Integrated System For The UAE' explored the initiatives aligned with the ADNOC 2030 vision and the progressive efforts of the UAE to reduce carbon emissions, and to introduce suitable options for CO_2 capture and its utilisation. The work has proposed a roadmap for carbon capture and utilisation (CCU) projects in the UAE.

On the subject of CO_2 capture, Pavan Chilukuri of Shell Netherlands said, "Affordability of CO_2 capture is a journey in progress". He presented the CO_2 capture technologies developed by Shell – ADIP Ultra, Shell Turbo Trays and CANSOLV CO_2. The Shell Turbo Trays were exhibited in the Shell Technologies stand of the conference and are expected to make CO_2 capture in the Middle East more affordable.

Potential uses of the captured CO_2 were deliberated upon during the panel discussions, and the experts pointed towards its use in greenhouses and in cement curing.

ADNOC Gas Processing is also taking steps to counter the phenomenon of increased sulphur dust generation, which causes fatalities and damage.

The Compact Mass Transfer and Inline Separation Technology (cMIST) gas treating system developed by Exxon Mobil Upstream Research company presents a novel, compact and low weight processing technology to achieve process intensification in processing facilities. The technology presented by the company's Shwetha Ramkumar generated much interest and prompted many questions during the conference.

Amongst the SOGAT 2018 exhibitors were Garlock Pipeline Technologies (GPT), Technip FMC, Shell Global Solutions International BV, among others, who showcased their latest innovations. ■

Guideline for development of CO_2 capture, transport and EOR integrated system for the UAE

THE UAE HAS been very progressive in its initiatives on CO_2 emissions and has very clear plans to face this global concern, delegates at SOGAT heard.

ADNOC has taken proactive steps for environmental protection, and has a clear vision about CO_2 emissions.

In alignment with ADNOC 2030 vision and several initiatives taken by the UAE to reduce carbon emissions, it is essential to look into suitable options for CO_2 capture and its utilisation with a focus on EOR (Enhanced Oil Recovery) applications in the UAE. A presentation on the subject given by ADNOC Gas Processing during SOGAT 2018 provided valuable insights.

The major sources of CO_2 emissions in the UAE have been identified as power generation, gas processing, oil refining, the aluminium industry and the cement industry. The current CO_2 emissions volumes show power generation as the major contributor, followed by the cement industry.

The current challenges with regards to CO_2 emissions include high cost of CO_2 capture technology, infrastructure development for projects based on optimal CO_2 and capture readiness of potential CO_2 sites. The risks and challenges for cluster projects include both technical ones such as process optimisations and failure due to pipeline accidents, as well as business-related challenges such as delays in getting permits.

The various guidelines and research done by ADNOC to develop successful future carbon capture and utilisation (CCU) projects in the UAE provide a crucial first step to evaluate potential CO_2 emission sources suitable for CO_2 capture technology. The study also indicates that further investments in research and development are required to develop low cost CO_2 capture technologies suitable for low CO_2 concentration emission sources.

SDX achieves significant natural gas discovery in Egypt

SDX ENERGY INC, North Africa-focused oil and gas company, has announced to achieve positive results of the well test conducted on the Ibn Yunus 1X well following the recent conventional natural gas discovery at South Disouq, Egypt, where the company has 55 per cent working interest.

The Ibn Yunus 1X well was drilled to a total depth of 9,608 ft and encountered 100.8 ft of net conventional natural gas pay in the Abu Madi horizon, which had an average porosity in the pay section of 28.5 per cent.

SDX aims to expand its oil and gas portfolio in the region

Image credit: Philippa McKinlay/Flickr

Well test operations have now commenced and the well has successfully flowed natural gas at a stabilised rate of 39.3mn scf per day on a 32/64 inch choke. This flow rate exceeded initial expectations and was limited by the surface facilities put in place to test the well. The well has now been shut in for an initial build-up after which a series of additional flowing periods will be conducted and fluid samples were taken.

Working with its partners, SDX will now aim to bring the discovery into commercial production prior to year end 2018.

A.T. Kearney expects state firms to drive chemicals M&A in the Middle East

CONSULTING FIRM A.T. KEARNEY expects merger activity among chemical companies in the Middle East and Africa to pickup in 2018 as national oil companies in the Gulf beef up and diversify their downstream portfolio.

The firm said that such deals will support the downstream strategy for state-owned companies in the Gulf, which have so far relied on joint venture partnerships with international companies.

For instance, Saudi Basic Industries Corp (SABIC), in January, bought a 25 per cent stake in speciality chemicals maker Clariant.

"International chemicals M&A activity puts pressure on Middle East chemicals players and NOCs to step up M&A activities to secure the right international assets to support downstream strategies and secure future competitiveness," said Thomas Rings, partner, A.T. Kearney.

The move into the downstream sector gives state-owned energy companies an additional revenue stream, reducing their dependence on oil revenues.

Dow Innovation Centre to transform KSA into knowledge-based economy

THE MULTINATIONAL CHEMICAL corporation Dow Chemical Company has opened a new innovation centre at King Abdullah University of Science and Technology (KAUST) in Saudi Arabia, aiming to address critical needs in the Kingdom such as increasing energy efficiency and minimising the environmental footprint.

The inauguration ceremony

Image credit: Dow

Located in KAUST's Research and Technology Park, the centre will house Dow's research and development facilities and the newly established Dow Digital Marketplace Centre for the region. State-of-the-art labs, research areas and offices are set to provide application development and technical service focused on oil and gas technology solutions, sustainable coating and construction solutions and industrial chemicals for a variety of applications.

The centre's completion marks a significant stage in the growth of the KAUST Research and Technology Park, which is home to leading companies from Saudi Arabia and around the world. Nesma and Partners Contracting Co. Ltd. has been the official contractor for the Dow building and architectural firms HOK and Kirksey Architects designed exterior and interior of the centre respectively with Vanderweil Engineers delivering the MEP engineering.

Chuck Swartz, president of Dow for Saudi Arabia, stated, "This facility is perfectly aligned to Dow's strategy and our commitment to this region, employing a highly skilled workforce, a number already are graduates from KAUST with diverse backgrounds in science and engineering."

Digital technologies to shave costs for energy companies

CONSULTING FIRM MCKINSEY said that digital technologies are set to help energy companies cut costs.

Technologies such as artificial intelligence (AI), blockchain, robotics, sensor technology, machine learning, deep learning and edge computing are expected to be leveraged to lower costs, according to McKinsey's research.

The technologies are expected to cut capital expenditure by 20 per cent and operating costs in upstream by three to five per cent and by one to three per cent in downstream.

Technology is set to help oil companies cut costs

Image credit: Adobe Stock

The related, resulting savings will be US$1.6 trillion over the next seven years, according to data presented at the 2017 World Economic Forum Annual Meeting. Environmental benefits include reducing CO2-equivalent emissions by approximately 1,300mn tonnes, saving about 800mn gallons of water and avoiding oil spills equivalent to about 230,000 barrels of oil.

Energy companies, which have had to sell assets and cut operating costs to weather low prices, are now looking at newer projects.

However, they are looking at low-risk projects with low costs for their expansion after years of cutting back.

"Digitalisation is an urgent priority for industry CEOs and business leaders, offering cost savings, operational improvements, and safety and environmental gains that will reach into every corner of the business, but the opportunities come with risks that must be understood and navigated," said Jean-Philippe Cossé, vice-president, energy at dmg events.

"What we are seeing is a profound disruption to business-as-usual, which will have long-lasting effects. ADIPEC is responding to this with a new 'Digitalisation in Energy zone, supporting innovation, and helping drive smart investments that will be the foundations of business success in the years ahead," Cossé added.

The State of Exploration in 2018 – a renewed optimism

WESTWOOD GLOBAL ENERGY Group has released its 2018 *State of Exploration Report*, the ninth edition of the definitive report covering global conventional oil and gas exploration.

The report analyses global conventional exploration performance over the past five years, together with exploration drilling plans for 2018.

'Renewed optimism' is the theme for exploration in 2018, driven by higher oil prices and improving exploration performance.

"With higher oil prices, improving exploration performance, and the cost of exploration falling more than 50 per cent since 2013/14 plus fewer companies competing for acreage, it could be argued that there has not been a better time to be exploring in the last decade," commented Dr Keith Myers, president of Research at Westwood Global Energy Group. He added, "But there are challenges too with frontier success rates remaining stubbornly low and new oil plays continuing to be elusive. The focus continues to be on deep and ultra-deep water for high impact discoveries."

Exploration drilling activity in 2017 was little changed compared to 2016, but performance was strong with discovered volumes more than double that of 2016, overall commercial success rates rising to a record high of 47 per cent and record low finding costs of <US$0.5/boe.

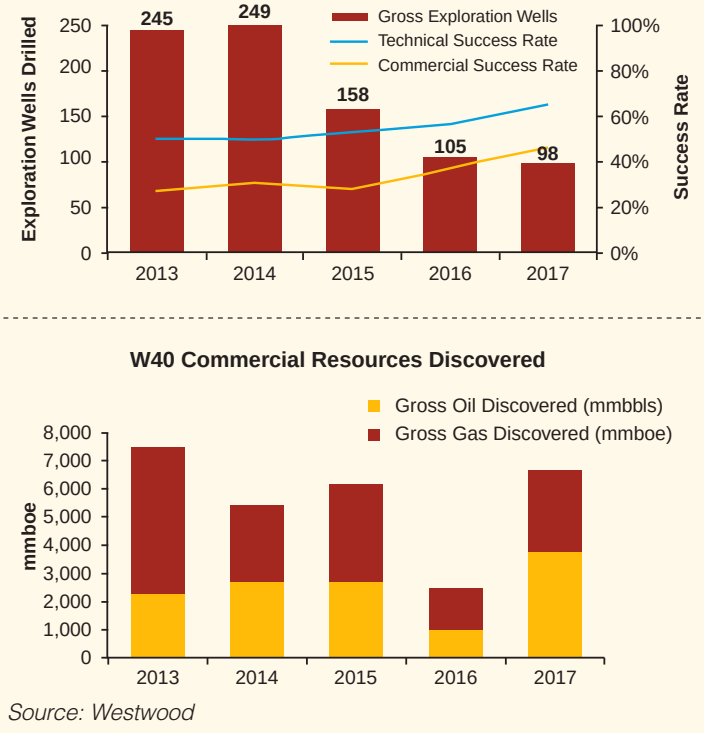
Success rates were driven by near-field drilling in lower risk mature plays onshore Colombia and Australia, while volumes were influenced by a few large discoveries, primarily in emerging deep water plays such as Guyana and Senegal.

True frontier plays are thin on the ground and effective high grading of frontier opportunities has not been evident in drilling results. There was no significant frontier discovery in 39 attempts since Zohr offshore Egypt in mid-2015, with Guyana emerging as the biggest new oil province since the Brazil pre-salt.

For 2018, exploration drilling is expected to increase by 12 per cent and budgets by seven per cent, with around 60 high impact wells planned globally for the remainder of 2018. However, the risk profile of the wells being drilled in 2018 has increased and the improved performance seen in 2017 may not be sustained in 2018.

For further information see http://www.westwoodenergy.com/research/wildcat/

Gross exploration wells drilled, success rates and discovered commercial resources for the W40 group of companies, 2013-2017



Source: Westwood

Exploration "not over yet"

EXPLORATION IS "NOT over yet," delegates at the AIPN International Petroleum Summit heard.

"Exploration's not over, by any means. What's more prevalent now is the amazing amount of data analytics you can do on seismic, to explore and raise the probability of a find," said Bob Dudley, chief executive of BP in a keynote address to the conference, which took place from 23-25 April in London.

"We do a lot of exploration virtually before drilling and creating wells. There's still a lot of exploration going on," he said, mentioning the east coast of Brazil and West Africa. "Seismic technology is so good, we'll probably be making new finds in the North Sea," he added. "Deepwater is very attractive."

"The theme for this year is renewed optimism," said Dr Keith Myers, president, Research at Westwood Global Energy Group, speaking in an Exploration Leaders Panel at the conference. He noted that the oil price, averaging US$67 in the first quarter of 2018, is up 24 per cent over a year ago. However this optimism is not yet translating into activity. Costs have dropped significantly, with well costs down from 30-50 per cent – but the supply chain is hurting, raising the question of how sustainable lower costs are.

New emerging oil plays have been elusive in the last decade and average success rates for frontier wells are below 10 per cent, despite all the technology advances, he said. Deep water dominates conventional oil discoveries, he added.

Luca Bertelli, chief exploration officer, Eni, explained how by adopting a radical change in company organisation and business processes, employing a "distinctive" model exploration strategy focusing on conventional exploration and investing in leading edge technology in seismic imaging and reservoir simulation, it had managed to discover more than 13bn boe over the last 10 years and to discover a giant or supergiant oilfield every three years. This despite the slashing of its exploration budget and the drilling of a reduced number of wells.

Operational efficiencies during the exploration stage have enabled early monetarisation; he noted that in the case of the offshore Zohr field in Egypt, the time from discovery to production was less than 28 months.

"Exploration is not over yet, there are a wide range of opportunities still available. Industry can open up new basins and superbasins in the future….deep water can be very profitable," he concluded.

Kevin Mclachlan, senior vice president of Exploration, Total, said, "Now, at a time of low prices, is the best time to execute a conventional exploration programme.....exploration will continue to be part of our long-term growth plan, and we're focused on all aspects to turn around exploration performance."

The company aims to drill 50 exploration and appraisal wells in 2018-19, including giant fields, he said.

ADNOC accelerates downstream expansion plans

AT ADNOC'S DOWNSTREAM Investment Forum in May, the NOC unveiled plans to significantly enhance and expand its downstream operations in support of its ambition to become a leading global downstream player. At the heart of this strategy is a US$45bn investment programme that will see the creation of the world's largest and most advanced integrated refining and petrochemicals complex at Ruwais.

Through a combined programme of strategic partnerships and investment, ADNOC will develop and upgrade the Ruwais complex to increase its range and volume of high-value downstream products, secure better access to growth markets around the world and create a large-scale integrated manufacturing ecosystem through the creation of new petrochemical derivatives and conversion parks. It includes a plan to build one of the world's largest mixed feed crackers, trebling production capacity from 4.5 mtpa in 2016 to 14.4 mtpa by 2025. The initiative will see crude oil refining capacity doubled, and petrochemicals production tripled by 2025. The strategy is expected to add more than 15,000 highly skilled and specialised jobs by 2025 and contribute an additional one per cent to GDP per year.

New investments include:

- A new 600,000 bpd greenfield crude refinery;
- A Crude Flexibility Project (CFP), a new refinery upgrade to allow ADNOC to process heavier crudes, which will allow ADNOC to export more of its high-value Murban, as well as further support its new asset-backed trading activities;
- A Gasoline Aromatics Project (GAP) – the development of new processing units to upgrade the company's light and heavy naphtha streams, which would allow ADNOC to increase its gasoline production and promote the development of aromatics;
- A new Linear Alkyl Benzene (LAB) manufacturing facility which will take feedstocks of kerosene and benzene to produce the most common raw material in the manufacture of biodegradable household and industrial detergents and other products;
- A worldscale mixed feed cracker – as part of the Borouge 4 complex being constructed by ADNOC and Borealis;
- An additional polypropylene plant based on Borealis' proprietary Borstar® technology, which will be integrated with the existing Borouge 3 complex;
- Carbon Black and Delayed Coker – an upgrade to improve product recoverability and maximise value from the bottom of the barrel.

H.E. Dr Sultan Ahmed Al Jaber, UAE Minister of State and ADNOC Group CEO, said, "Given the projected increase in demand for petrochemicals and higher value refined products, we are repositioning ADNOC to become a leading global downstream player. We will invest significantly in Ruwais and open up attractive partnership and co-investment opportunities along our extended value chain to create a powerful new downstream engine and springboard for growth that will benefit our country, our company and our partners. Importantly, the expansion plans for Ruwais will also support Abu Dhabi and the UAE's economic development and diversification, create high-skilled jobs and enhance the country's status as a globally attractive destination for energy investments."

ADNOC will invite partner companies to produce new products from the feedstocks at the proposed Ruwais derivatives park, enabling the company to tap markets for construction chemicals, oil and gas chemicals, surfactants and detergents among others.

The proposed Ruwais conversion park will focus on making petrochemical products including packaging materials, coatings, high voltage insulation and automotive composites.

A number of co-operation agreements with international companies were announced at the Forum. These include an agreement with OCP Group of Morocco to explore the phased creation of a new global fertilisers joint venture with production hubs in Morocco and the UAE. A Memorandum of Understanding (MOU) was signed with Ravago Group, a leading service solutions provider in the global polymers and chemicals market, to explore opportunities for cooperation at the Ruwais Industrial Complex. Under the agreement Ravago will build and operate state-of-the-art polyolefins compounding facility in Ruwais Industrial Complex. And a project development agreement with Cepsa of Spain will move the above mentioned, new world-scale Linear Alkylbenzene (LAB) facility, also in Ruwais, to the FEED stage.

In parallel to the developments at its domestic refining operations at Ruwais, ADNOC is actively pursuing international expansion by targeting select growth market opportunities to establish new refining and petrochemical footprints across the value chain and improve its market access and product placement capabilities.

The downstream strategy will build on the ADNOC transformation programme of the last two years, which focuses on maximising value by driving operational efficiency, enhancing performance, realigning the management of its portfolio of assets, and introducing a new and expanded partnership and investment model. It is aligned with ADNOC's 2030 strategy of a more profitable upstream, more valuable downstream, more sustainable and economic gas supply, and more proactive, adaptive marketing and trading.

Petroleum Development Oman (PDO)- bright future ahead

A significant gas find was among the highlights of 2017 for Petroleum Development Oman (PDO), Oman's leading oil and gas company.

AT ITS ANNUAL Ministry of Oil and Gas media briefing in March, Petroleum Development Oman (PDO) confirmed a "significant" gas find with estimated recoverable reserves of more than four trillion cubic feet (TcF) and 112mn bbl of condensate in the northern part of its concession area, at Mabrouk North East.

In total, five wells have been drilled in the field and all have encountered gas, the company reported. One is already producing and another will be hooked up shortly. Work is also progressing on two further appraisal wells, with plans for the expansion of production infrastructure. Additionally, exploration is continuing in nearby prospects. The discovery follows PDO's acquisition of high resolution 3D Wide Azimuth seismic data in the area in 2015, and builds on the discovery made in March 2013, when PDO announced another significant find at Mabrouk Deep, some 40km west of Saih Rawl.

Image Credit: PDO

Raoul Restucci, managing director, Petroleum Development Oman (PDO)

PDO managing director Raoul Restucci said, "This is an exciting find which will provide a boost for economic growth in Oman and help meet rising gas demand from residential, commercial and industrial customers."

The company operates gas fields and processing plants exclusively on behalf of the Omani government. The average government daily gas supply during 2017 was 76.64mn m^3/d, lower than the initially targeted level of 83mn m^3/d due to the start of BP's Khazzan field. PDO effectively met the gas demand for all its customers, despite increased requirement quantities for Oman LNG.

Mr Restucci said: "Contingent on OPEC constraints, we are maintaining momentum to be ready to deliver in excess of 650,000 bpd. The company is more efficient than ever and we have raised performance across the key parts of our value chain." Average oil production was 582,196 bpd in 2017, the company reported.

PDO reported that the Rabab Harweel integrated project – the largest projects in its history with a reserve add of more than 500 mn bbl of oil equivalent – is well ahead of plan and budget, and good progress is being made at its second mega project at Yibal Khuff, the most complex venture it has ever undertaken. A total of almost US$800mn in capital expenditure savings have been secured on both.

PDO made the most significant change in seismic data acquisition and processing in 10 years with the introduction of Ultra High Productivity technology, Restucci reported. This has already resulted in an improvement of up to 100 per cent over existing acquisition delivery rates.

"For 2018, the main focus for the Exploration Directorate will be to utilise the new 3D WAz seismic data to strengthen the portfolio of opportunities, appraise the gas discoveries made in 2017 and increase efforts in oil exploration to sustain PDO's growth agenda. Early monetisation will continue to be pursued where possible along with any value creation opportunities," PDO said.

PDO will continue to place a greater focus on renewables and energy and water management. The giant Miraah solar energy installation at Amal, which it is developing with partner GlassPoint Solar, is meeting its targets for steam output for use in thermal enhanced oil recovery. PDO is also expanding the Nimr Water Treatment Plant which currently treats 115,000 m^3/d of produced oilfield water using reed beds.

PDO made more than US$400mn in cumulative operational and capital expenditure savings in 2017 through project re-phasing, closer collaboration with contractors and a further comprehensive review and challenge of costs across the organisation. It plans to continue to drive cost reduction through its Lean business efficiency programme.

Looking forward, Mr Restucci said, "Irrespective of production agreements to stabilise oil prices, 2018 will require us to continue to focus on becoming more efficient, agile and productive in all our key business activities. This will mean identifying savings and cost reductions while delivering growth, excellence and sustainable value creation for Oman and our shareholders. We will also continue our gradual transition to becoming a fully fledged energy company, with a greater focus on renewables, and securing greater alignment between academia and industry on research and development.

"These are rapidly changing times for our industry with climate change realities, automation, digitilisation and artificial intelligence transforming the way we do things. However, I am confident that these changes also offer us a great opportunity to work more safely, productively and responsibly." ■

Contributing to Oman's sustainable development

Abdul-Amir Abdul-Hussein Al Ajmi, External Affairs and Value Creation director at Petroleum Development Oman (PDO) discusses how the company is contributing to Oman's economic and social development through its In-Country Value (ICV) strategy.

What is the main thrust of the In-Country Value (ICV) strategy, and can you comment on the programme's progress?

Our In-Country Value (ICV) strategy is aimed at rapidly and meaningfully growing the share of benefits that Oman's economy and community gain from our activities in the oil and gas industry. We define ICV as our commitment to maximise the total spend retained in the country to benefit business development, contribute to human capability development, and stimulate productivity in the Omani economy. Our strategy has four main pillars:

- Goods and services – achieved by developing a domestic, competitive and value-adding Omani supply chain so that we can procure made-in-Oman products and services from locally registered firms
- Omanisation and training – involving the maximisation of the employment of skilled Omanis across the oil and gas sector and beyond, by sharing our experience and expertise with other industries and sectors
- Local contractor development – ensuring the sustainable growth of Omani-owned Local Community Contractors (LCCs) and Super Local Community Contractors (SLCCs) so they are able to compete locally and internationally
- Social investment – with a focus on delivering social and economic benefits through wide-ranging corporate social responsibility (CSR) investments in collaboration with Government and non-Government agencies.

Abdul-Amir Abdul-Hussain Al Ajmi

> "We awarded contracts worth more than US$5.19bn to nationally registered firms"

In a nutshell, there are two key objectives. Firstly, the Omanisation of skilled contractor personnel within our industry, and now, increasingly, the generation of training and opportunities beyond our boundaries in other sectors of the economy.

Secondly, we are aiming to achieve an increase in the in-country spend on goods and services by building up sustainable and reliable local supply chains, thereby shortening delivery times and costs by reducing our reliance on external vendors.

Above all, it's about contributing to the sustainable development of Oman and supporting the growth of Omani society and the development of local communities.

I'm pleased to say we are making some tremendous progress across the board. Last year alone, we created 14,146 employment opportunities for Omani jobseekers (with more than 45,000 created since 2011), including in non-oil sectors such as real estate, hospitality and digital media.

We also supported the opening of a string of new Omani factories and workshops to supply our industry, and awarded contracts worth more than US$5.19bn to nationally registered firms – a record for PDO. More than 4,000 Omanis are now working with our SLCCs and LCCs, which work in areas such as well, hoist, electrical, pipeline and maintenance, mechanical, civil engineering, logistics and manpower and equipment supply services, and the total value of their turnover was US$395mn, a 17.4 per cent increase on 2016.

PDO is leading on 43 of the 53 opportunities identified in the oil and gas industry strategic blueprint unveiled by the Ministry of Oil and Gas in 2013, and we have already delivered on 19 of them through contracts valued at US$842mn, generating investments worth US$90mn.

We are strong supporters of the Tanfeedh programme on enhancing economic diversification and have made big contributions in areas such as energy, logistics, tourism, manpower and manufacturing – which are all key sectors if the Sultanate is to successfully move away from its reliance on fossil fuels.

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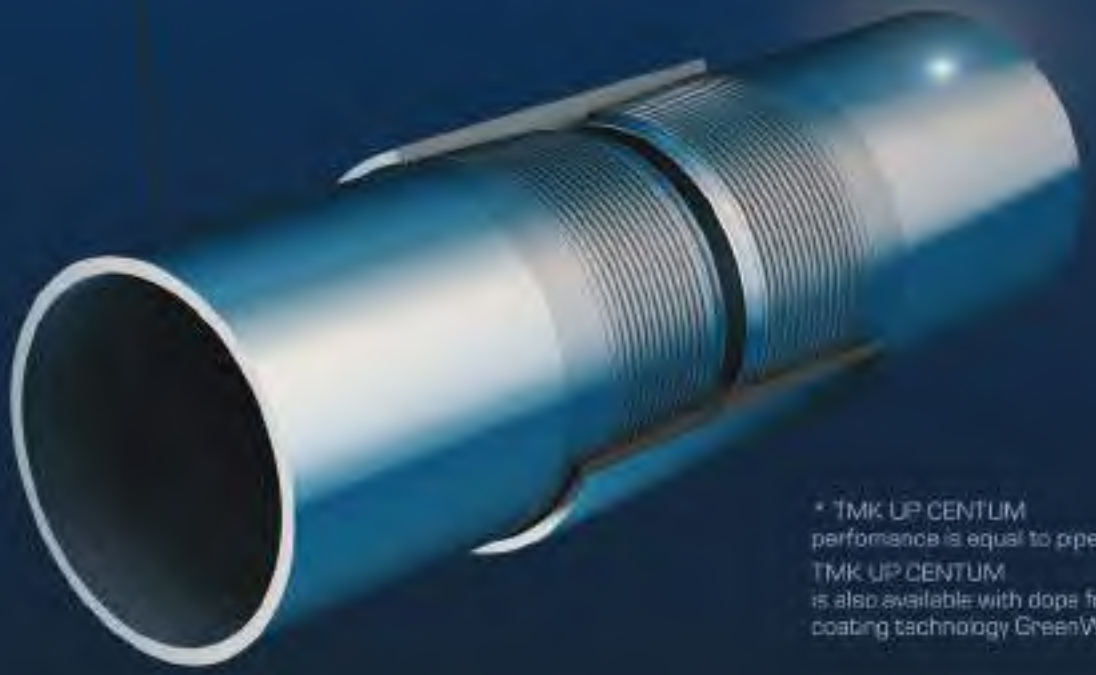

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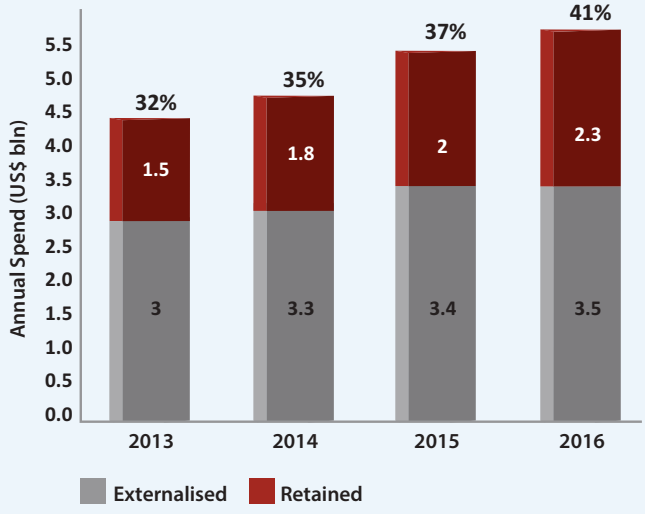
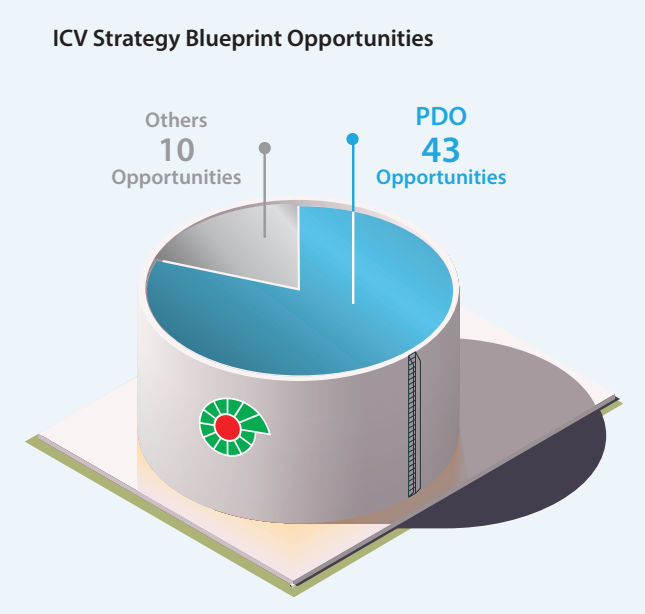


ICV is now embedded in our contracting and procurement procedures, terms and conditions, is intergrated in our pre- and post-contract award processes and now has the same prominence and focus as critical areas such as HSE and production.

Another increasingly important focus is on building up Omani research and development excellence. One of our signature projects, in collaboration with the Ministry of Oil and Gas and The Research Council, is Ejaad, an online platform aimed at bridging the gap between industry and academia, where we share our challenges and offer opportunities to Omani researchers, experts and students to devise solutions.

What are the main challenges in implementing its objectives?

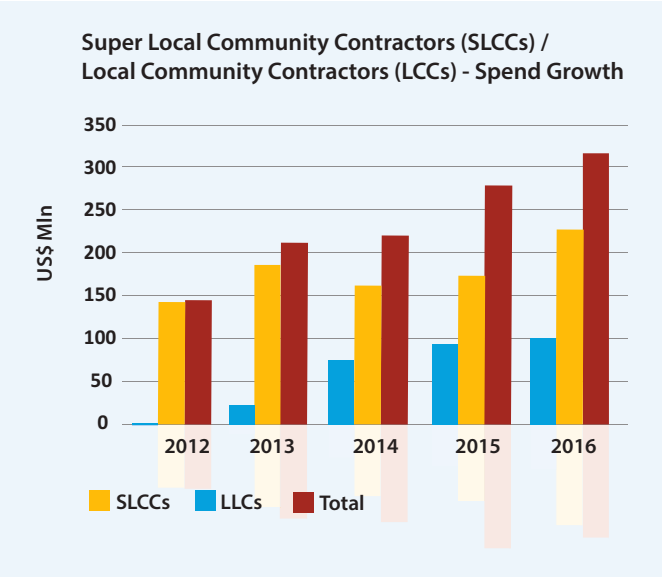
Firstly, it is vital to have proper alignment and collaboration between a diverse set of supportive stakeholders, including the government, operators, suppliers, contractors and other partners, both in our own industry and beyond. And secondly, there is the need to attract investors who are serious about manufacturing and service operations in Oman and developing local talent and entrepreneurs.



Crucial to both of these is the need to accomplish a mindset change, namely that ICV is good business, that it can shorten supply lines and reduce costs, without compromising on safety, quality and reliability. To ensure this, you need robust and transparent implementation and follow-up plans and monitoring to measure success.

ICV should be seen as an investment in the country, which may add extra costs to begin with, but has long-term benefits for all involved. To us, success means a competitive and sustainable Omani oil and gas supply chain; an Omani supply market which can meet local demand as well as export, and a world-class Omani workforce capable of competing at the international level.

While we celebrate our success in ICV to date, at the end of the day we need to acknowledge that ICV is a marathon, not a sprint – and probably one without a finish line!



What is the main focus of PDO's CSR/social investment programme?

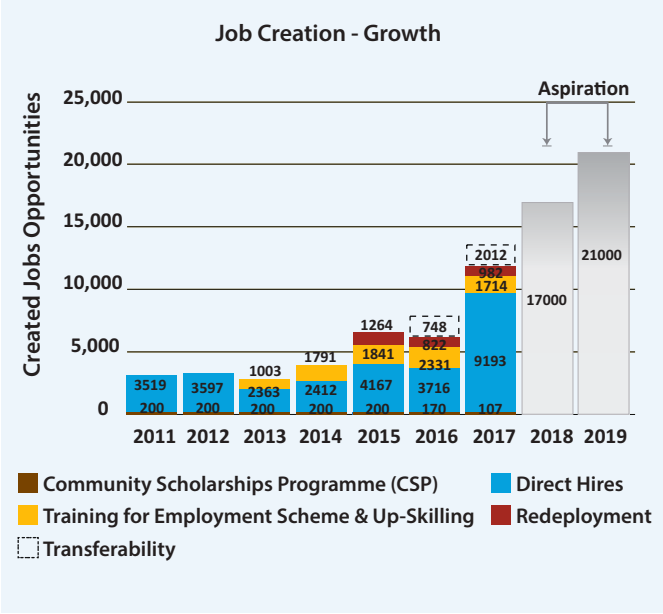
We aim to design and deliver projects that meet immediate social needs (to ensure these are impactful and can make a difference), are sustainable and offer the opportunity for our communities to help themselves.

It is essential that our projects align with government strategies and plans since Ministries, along with grassroots organisations and municipal authorities, are our main partners in their delivery and help to ensure their sustainability and social impact.

Our three areas of focus last year were learning and research, where we sponsor school facilities and equipment, for example; community infrastructure development, such as the provision of clean water supplies and safe spaces; and health, safety and environment, such as the provision of healthcare facilities and equipment.

We are also committed to energy management, and the empowerment of Omani youngsters and women. In this latter respect, our Banat Oman social enterprise has so far provided vocational training for hundreds of women from low-income backgrounds in skills such as tailoring, embroidery, dairy product manufacture and jewellery design. At least four sustainable SMEs have been born out of this programme and are thriving, with one even recently signing a major deal to supply cheese to Qatar.

On the education side, we also run schemes, such as our annual community scholarship programme where we provide university education to scholars from our concession area so that they can acquire professional qualifications in local universities and colleges and become a productive resource for the nation. Currently, there are around 600 scholars in different local universities and colleges.



Another thing we are actively supporting is a sustainable education programme called Tawteen to encourage scholars to be trained as teachers so they return to work in schools in their communities in the concession area. We believe this will improve educational standards, as it will provide a more a stable learning environment and reduce the churn of staff. This could cover all 58 schools in our Block 6 concession area.

> “It is vital to have proper alignment and collaboration between a diverse set of stakeholders”

How else does PDO help external stakeholders?

Our belief is that we only succeed if the community in which we operate succeeds. To ensure we are responsive to the needs and hopes of our external stakeholders and are fully transparent in our interactions with them, we hold multiple meetings, events, presentations and workshops every year to discuss challenges and opportunities across the full spectrum of our business.

One important step in this is the recent launch of our new public stakeholder engagement event to debate, and offer solutions to important issues facing the Sultanate. The PDO Majlis will provide thought leadership on some of the major issues facing the oil and gas industry, as well as the entire country. It will provide a platform for our key partners and stakeholders to come together with us and discuss challenges and opportunities. This open dialogue will hopefully result in some game-changing solutions which will help Oman address its priority areas and continue its progress towards sustainable development under the wise leadership of His Majesty. The first Majlis covered the topic of energy management, and other sessions will cover areas such as In-Country Value, social investment and research and development. These are all topics of importance to the country, where PDO can share its expertise, experiences and lessons learned from the challenges it has faced.

There are so many ways we extend help to our external stakeholders, and another example is our sharing of our Lean business efficiency expertise with a range of organisations such as the Ministry of Environment and Climate Affairs, Ministry of Finance and Royal Hospital.

We have also launched the Khebra project that will help transfer PDO’s top-notch knowledge and drive the change in respective stakeholder organisations.

Khebra consists of two sub-projects: on-the-job training and knowledge sharing. For the former, we will receive around 200 government employees, who will be physically on seat with us for a period of up to one month to be trained in different focus areas relevant to their jobs. The knowledge sharing sessions will also create a platform for knowledge transfer. ■


Image Credit: PDO

Raoul Restucci, managing director of PDO (second from left) visits a new PDO-backed factory which will produce well equipment

Upstream and downstream expansion is providing rich opportunities for EPC contractors

Image Credit: chalermchai k/Adobe Stock

All systems go for EPC contractors

The Middle East has long been fertile ground for the world's big EPC contractors. Martin Clark explores some of the latest projects, contracts and trends.

A MASSIVE EXPANSION OF the Middle East's oil and gas infrastructure over the coming years will see more work coming through for the world's major engineering, procurement and construction (EPC) contractors.

The likes of Petrofac, SNC-Lavalin, McDermott, Worley Parsons, Saipem, Technip FMC and Samsung Engineering have long been active across the GCC – and that looks set to continue. Huge spending is planned across the region to upgrade upstream and downstream facilities, from oil fields and pipelines through to advanced petrochemicals sites and state-of-the-art refineries.

UK-listed Petrofac has been especially busy in recent months. Its most recent award was a US$265mn deal for the development of the Marmul Polymer Phase 3 (MPP3) Project in southern Oman. It is the first award to be secured under a 10-year framework agreement with Petroleum Development Oman, which enables Petrofac to provide EPC management (EPCm) support services for PDO's major oil and gas projects. It builds on Petrofac's existing track record in Oman with the Rabab Harweel Integrated Project and Yibal Khuff Project on behalf of PDO. The scope of the MPP3 project involves EPC support for the extension of production facilities associated with around 500 producing and 75 injector wells. It forms part of PDO's enhanced oil recovery programme for heavy crude.

Petrofac also disclosed in March that it had signed a binding letter of intent for a contract worth around US$580mn with an undisclosed GCC national oil company for EPC services on "a major project". The company has yet to release further details. "This latest contract award further cements our footprint in our core markets," commented ES Sathyanarayanan, Petrofac's group managing director, engineering & construction.

> "Huge spending is planned across the region to upgrade both upstream and downstream facilities"

Saudi market

Saudi Arabia, the Gulf region's biggest oil economy, continues to drive forward project spending.

SNC-Lavalin has enjoyed plenty of success here, helping the kingdom grow its gas infrastructure. That includes a "multi-million dollar contract" signed in April with Saudi Aramco to construct the Arabiah condensate handling facility and sour water disposal unit at the Wasit gas plant in Eastern Province.

Wasit gas plant is one of the largest gas plants to come on stream in Saudi Arabia, and is a major part of the national master gas network to meet domestic energy demand. Work, due for completion in late 2019, also includes the installation of process equipment as well as related civil and structural, piping, electrical and instrumentation and control systems.

Christian Brown, SNC-Lavalin president, oil & gas, said the project "also emphasises our commitment to supporting Saudi Aramco's IKTVA localisation programme to increase the employment and skills development of local Saudi talent." The company signed an MoU with Saudi Aramco in December 2017 signalling SNC-Lavalin's continued commitment to creating and accelerating opportunities for local workforces in the Kingdom of Saudi Arabia and supporting the IKTVA programme. Boosting skills, jobs and employment prospects for locals has become a key theme for EPC contractors across the Gulf in recent times.

In February, SNC-Lavalin's subsidiary in Saudi Arabia landed a five-year framework agreement to provide in-kingdom general engineering services to Al Khafji Joint Operations (KJO), which groups Aramco Gulf Operations Co. Ltd and Kuwait Gulf Oil Company. KJO is responsible for oil and gas exploration, development and production in the offshore area close to the Saudi-Kuwait border, including the Khafji and Hout oil fields which have been in production since the 1960s.

Saipem is another that has enjoyed recent success with the KJO consortium. It was awarded a project in April for the engineering, construction, installation and commissioning of a new offshore crude transmission line.

Another major player, McDermott, though busy lately with its merger with CB&I, has also enjoyed local success, signing an EPC deal for the installation of 13 jackets in the Zuluf, Marjan, Berri and Abu Safah fields, offshore Saudi Arabia.

Technology

As well as the requirement to include localisation elements in each project as Gulf states seek to boost the role of nationals in the energy sector, there are other trends shaping new oil and gas related development.

Technology has always been an integral part of large-scale energy projects, but this is taking an increasingly prominent place as environmental, efficiency and economic challenges exert pressure on the industry.

US-based KBR Inc announced recently that it would work with Aramco and SABIC as a project management contractor to provide engineering services on what will be the world's largest fully integrated crude oil to chemicals (COTC) complex. The project, due for start up in 2025, will be based on advanced refining technologies, innovative process configurations and proven conversion technologies to create a fully integrated petrochemical complex that maximises chemicals, further diversifying the petrochemical feedstock mix in the kingdom.

> “Technology is taking an increasingly prominent place”

Image Credit : SNC-Lavalin

SNC-Lavalin signed an MoU with Saudi Aramco underlining its commitment to Saudi Aramco's localisation programme

Jay Ibrahim, KBR's Middle East president, said the scheme also ticks Saudi localisation boxes. "Given the rapidly changing economic environment we are faced with today, it has never been more important to create meaningful jobs for the growing Saudi population."

Likewise, the modernisation and expansion of Bahrain's Sitra refinery to produce cleaner fuels for local use and export, and drawing on Saudi crude, will benefit from a host of new innovations. The project, on Bahrain's eastern coast, will boost capacity from 267,000

up to 360,000 barrels per day (bpd), as well as improve energy efficiency, valorisation of the heavy part of the crude oil barrel (bottom of the barrel), enhancing products slate and meeting environmental compliance.

A US$4.2bn engineering, procurement, construction and commissioning (EPCC) contract was awarded to an international consortium of Technip FMC, Samsung Engineering and Tecnicas Reunidas at the end of last year. The project is slated for completion in 2022.

> “Samsung was also appointed recently to steer a new refining waste heat recovery project in the UAE”

Regional activity

Samsung was also appointed recently to steer a new refining waste heat recovery project in the UAE, highlighting the broad regional scope of new EPC work in the Middle East, as well as the drive towards fresh, eco-friendly technologies. The Korean giant will deliver the new power and water generation plant at the Ruwais Industrial Complex to state-owned ADNOC under a US$473m contract.

In a larger, US$3.1bn UAE deal, it also announced a project to build a crude flexibility project for ADNOC Refining, alongside CB&I Nederland BV as joint venture partner. Also located at the Ruwais Industrial Complex, this entails the construction of a new Atmospheric Residue De-Sulfurisation facility, with an annual capacity of 177,000 bpd and project delivery by the end of 2022.

Bahrain’s Sitra refinery is being upgraded

Image Credit: BAPCO

Samsung likewise snared a US$2bn deal in Oman this year, alongside Petrofac, for part of the new 230,000 bpd Duqm refinery project. It marks the company’s first foray into the Omani market.

Samsung is also working alongside partner Petrofac on KNPC's Clean Fuel Project in Kuwait, another territory with new opportunities for the big EPC players. ■

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Reshaping the Gulf's energy export infrastructure

The rapid expansion of Oman and Fujairah's logistics and energy infrastructure is already starting to reshape transport in and out of the Gulf, says Martin Clark.

OMAN'S AMBITIOUS PLAN to become a leading Gulf transport and logistics hub continues apace. The country is rolling out a series of new infrastructure projects that could potentially alter the shape of oil and gas traffic in and out of the region. These include the development of the new Duqm port complex on Oman's south-central coast, and the expansion of facilities at Sohar in the north-east. It also means the continued expansion of container shipping and other services at Salalah, in the south-west, close to the Yemeni border. Oman is, essentially, looking to leverage its favourable geographical position.

A quick look at any map shows that most of the region's oil and gas production – from Abu Dhabi, Qatar, Kuwait and Saudi Arabia's Eastern Province – currently passes through the Strait of Hormuz. This narrow chokepoint has long been threatened with closure when Iran tensions run high. Some other grand GCC plans to bypass the strait in times gone by – including a US$200bn canal proposed by Dubai a decade ago – have come to nothing. The idea to diversify export options and supply routes out of the Gulf is therefore common sense – and one that the industry has warmed to.

French oil giant Total in May announced that it would use its equity gas entitlement in Oman as feedstock to develop a regional hub for liquefied natural gas (LNG) bunkering services at Sohar. These would supply LNG as a fuel to marine vessels passing through. Total said this meant building a new small-scale modular liquefaction plant in Sohar port, with a train of around one million tonnes per year. This could be expanded later on as required by the development of the LNG bunkering market.

> "Fujairah has seen rapid expansion across a range of logistics services"

Oman is expanding its port infrastructure

Image Credit: Lotharingia/Adobe Stock

"Developing an LNG bunkering service will generate in-country value and job opportunities, and will support industry diversification through fostering the shipping activity in Oman," said Arnaud Breuillac, Total's exploration and production president.

A measure of Oman's ambition is that the government hopes to create 80,000 jobs in the logistics sector by 2020, across all modes of transport and related services. The country opened its longest highway to traffic in May – the 270km Al Batinah Expressway – linking Halban to Khatmat Milaha in the Wilayat of Shinas, with the aim of boosting internal trade and better serving the Sohar port and free zone area.

Fujairah export hub

Oman is not alone in helping to redraw the Gulf's transport and logistics map. The emirate of Fujairah – located on the UAE's eastern flank – has already become a conduit for crude oil exports.

A few years ago, Abu Dhabi and Saudi Arabia both opened new pipelines to divert oil away from the congested strait toward Fujairah.

The pipelines effectively doubled the capacity bypassing the strait to around 6.5mn bpd, roughly 40 per cent of the estimated 17mn bpd or so that passes through Hormuz each day.

Like Oman, Fujairah – already the world's second largest bunkering port – has seen rapid expansion and development in recent times across a range of logistics services. It is the only multi-purpose port on the UAE's eastern seaboard, loaded around 70 nautical miles from Hormuz.

This growth looks set to continue as it seeks to provide additional logistics solutions for the region's energy and shipping industries.

UAE-based Brooge Petroleum and Gas Investment Company said in April that it plans to massively boost storage capacity for both crude and oil products at the Fujairah oil hub. The company will start building the second phase of its storage terminal this year adding 600,000 cubic metres of capacity for crude oil across eight tanks, with completion set for late 2019. The first phase of 400,000 cubic metres of storage across 14 tanks for middle distillates and fuel oil was completed last year. A new jetty for Very Large Crude Carriers (VLCC) was commissioned at Fujairah in 2016, enhancing its viability as a oil storage hub. ■

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How Iran, OPEC and the USA are shaping the field

Mihir Kapadia, CEO and founder of Sun Global Investments, assesses prospects for Iran and the oil markets following the USA's withdrawal from the JCPOA.

ECONOMIC SANCTIONS ARE always driven by political concerns, and this is especially likely to be the case where President Trump is concerned. Any decision by him to impose sanctions is bound to be a big political statement, intended to carefully meet the approval of his electoral base on an international stage. His recent announcement to withdraw from the Joint Comprehensive Plan of Action (JCPOA) was a major act of political showmanship and its impact is certainly going to be an economic clampdown on Iran.

The energy sector has been Iran's engine for economic growth for decades, contributing the biggest chunk to the government's purse due to the exports of around 1.5mn bpd of crude oil until the first half 2012. When the West imposed sanctions midway in 2012, aimed at curbing Iran's nuclear programme, the oil industry was directly affected, with an exponential fall in exports due to the uncertain trading environment. Iran's oil industry decline came at a time when Iran was in fact the second largest crude exporter from the OPEC cartel, and when oil prices were at a rapid upward trajectory.

Image Credit: Sun Global Investments

Mihir Kapadia, CEO and founder of Sun Global Investments

> "International businesses will continue to remain hesitant to engage with Iran"

The missteps of 2014

As one of the largest producers within the OPEC, the sudden demise of Iranian exports provided a perfect opportunity for OPEC to re-balance the markets through consolidation. However, as oil prices then were inching towards the US$100 mark in 2013, OPEC and its leading producers (led by Saudi Arabia) were keen to monetise the rising prices and generate profits through further production. This contributed to the over-production and subsequent oil glut which brought the formerly high flying oil markets crashing down to US$28 in 2016.

The significant overproduction of oil during a period of weak demand led OPEC back to the drawing board to re-think production strategies, ultimately resulting in the historic production cutback deal in 2017, which is widely credited for the current high oil prices.

European show of support

The impending US sanctions have once again created a cautious undertone for foreign businesses operating in Iran. The prospect of renewed sanctions from the USA has caused not only concerns for organisations, but further uncertainty as the USA's allies in the EU and abroad remain committed to the JCPOA deal.

The united front presented by the original JCPOA signatories – UK, Russia, France, China, Germany and the EU, has complicated international diplomacy as it now creates a complex web for businesses that seek engagement with Iran. The lack of clarity on what the US sanctions mean for Iran and its position in the international trade market means the country is a difficult environment for international businesses and organisations to operate in. As US financial institutions dominate the re-insurance and banking payments – reflecting the global role of the US dollar – international businesses will continue to remain hesitant to engage with Iran due to fears of US retribution.

Some of Europe's biggest firms who rushed to do business with Iran after the nuclear deal now find themselves forced to choose between investing there or trading with the USA. This includes Iranian oil and gas customers, who would prefer to engage with a safer alternative from within the OPEC cartel or newer exporters such as the USA. With President Trump's administration having also targeted the National Iranian Oil company, Naftiran Intertrade Company, and the National Iranian Tanker Company, existing Iranian oil importers also face a tough scenario to circumvent the US sanctions, effectively ceasing Iran's trading capacities.

The US threat

Commodity markets often perform better during turbulent global geo-political times, and for oil, the past few months have been significant in terms of the support for prices due to the uncertainty in the Middle East – including on Trump's hostility towards Iran. As President Trump carried the anti-Iran rhetoric, it created the expectation amongst some analysts of a market consolidation that would provide support for

prices. While there is a great degree of uncertainty on the future of JCPOA, the biggest deterrent to the oil markets currently has been the aggressive increase in oil production in the USA, which is expected to be the single largest producer by the end of the year. With prices strengthening toward the US$80 mark, US shale producers are expected to ramp up production to counter a higher Brent oil price.

OPEC: the balance ahead

While the recovery of oil prices can only be credited to OPEC's historic accord (along with occasional market support provided by geo-political events), the commodity's future will continue to be primarily dependent on OPEC's internal stability. For OPEC, Iran had always been a difficult member nation, as it was quite vocal against extending the production cutback accord. However, with one of the world's largest exporters of crude under sanctions (targeting especially the oil industry), OPEC finds itself in a peculiar place. While in the near term, the tighter markets (boosted by the loss of Iranian exports) will help support oil prices, the loss in Iran's contribution is expected to be filled by OPEC. Though Saudi Arabia and other key OPEC members have been vocally committed to the production cutback, other members of the cartel may seek to restore output to the pre-cuts level. ■

US measures will have 'chilling' effect

DR. JULIA PFEIL and the Germany trade compliance team at Dentons Europe comment in a client note:

"These new unilateral US measures will severely impact doing business with Iran. In addition to the prohibitions and other restrictions that apply to certain business activities directly, the US measures will have a severe 'chilling' effect. Companies will refrain from business activities involving Iran, and banks will refuse to provide financing for business activities in Iran.

"As a result of the secondary sanctions threatened for sending SWIFT messages to Iranian banks, there is a risk that it will become impossible (again) to make electronic transfers of funds to and from Iranian banks. In addition, banks will now be even more reluctant with processing payments to and from Iran. EU companies will face the problem again that they may have perfectly legal business activities in Iran, but will not be able to find a bank where they can receive payments.

The US withdrawal from the Iran deal will severely constrain business with Iran

Image Credit : Borna Mirahmadian/Shutterstock

"It remains to be seen if European leaders manage to find a unified response to the new measures adopted unilaterally by the US"

France's Total announced that it will withdraw from the South Pars 11 project in Iran unless it can obtain a waiver to protect it from US secondary sanctions, while Austria's OMV Group, which signed an MoU with Iran in 2016 for projects in Iran, says it has not halted its planned projects, although it has not yet made any investments and is monitoring political developments in the USA and the EU very closely. London-based Pergas is reported to have recently signed a preliminary deal with Iran for the development of the Keranj oilfield in Khuzestan province.

China and Russia look set to benefit from the US withdrawal from the Iran deal, with a Chinese firm reported to be investing US$2bn on building an oil refinery in the northern province of Mazandaran.

Expert answers to thermal mass flow questions

Thermal mass flow meters are a high quality measurement solution for many flow applications. Tom Kemme, product manager at level and flow experts MAGNETROL, answers some questions.

Will thermal mass flow meters be affected by changes in the composition of gas (i.e. will they require recalibration every time the composition changes)?

Thermal mass flow meters measure a flow rate based on convective heat transfer. Fluid properties are some of the many factors that influence convection. Each gas has unique properties, which is why these flow meters are calibrated for a specific application. You would not want a meter calibrated for an air application placed into a natural gas application without recalibration, or some type of field adjustment if applicable.

All gas mixes are not created equal. If you had a gas mix with high hydrogen content, a variation in hydrogen would have a much greater effect than typical variation in natural gas content. Hydrogen has a tendency to create more heat transfer than most gases. For natural gas, it is common to have some slight variation in composition between the calibration of the device and the application itself. However, the effect is minimal for slight changes in methane or ethane at different times of the year. Natural gas fuel flow is one of the most prevalent applications for thermal mass.

> “Natural gas fuel flow is one of the most prevalent applications for thermal mass”

Based on our experience, the biggest cause of malfunction in flow meters is improper installation. If you do not install a flow meter per the manufacturer’s recommendation this will greatly influence the performance of the meter. For thermal mass, this includes proper straight run, depth into the pipe (insertion probes) and flow arrow alignment.

Each application presents unique difficulties for every flow meter technology, and each end user has unique needs. There is no exact answer as to when a recalibration would be needed for thermal mass flow, as it is application dependent. You do not always need recalibrations for variation in gas composition.

What role do thermal flow meters play in emissions monitoring applications?

Thermal flow meters are at the forefront in flow measurement for emissions reporting and energy management projects. The energy management arena spans many markets, including some of the largest in the oil and gas and power industries. Some popular applications include monitoring gas fuel flow to a combustion source to report SO_2 (sulfur dioxide) emissions, stack (flue) gas flow in power plants as part of a continuous emissions monitoring (CEM) system of NOX (nitrous oxide) and SO_2, and flares in a gas field that need to be reported to environmental authorities. These applications prove difficult for many flow meter technologies.

For example, in a flare application most of the time gas is not being flared off, but it needs to be measured in case of an event. The user will want to monitor the low flow of pilot gas keeping the flare lit. This requires a flow meter with a very high turndown with good low flow sensitivity, which is a limitation of some technologies, such as differential pressure flow meters.

Many operators are most concerned with measuring CO_2 (carbon dioxide) emissions. However, with thermal flow meters we are increasingly finding applications with the need for methane measurement. Methane is a greenhouse gas that has more than 20 times the global warming potential as CO_2. No longer can coalmines or landfills emit this directly to the atmosphere. If not flaring the gas off, the owners are beginning to capture it, treat it, and produce usable natural gas from it. Some facilities that emit landfill gas, or facilities that produce biogas, are involved in carbon credit programmess or clean development mechanisms. Similar applications can be found in wastewater treatment plants where customers are reporting digester gas emissions and even capturing this gas to produce electricity and reduce energy costs. Thermal dispersion flow meter technology, such as the MAGNETROL Thermatel® TA2, has become well accepted in all of these markets. ■

Image Credit : MAGNETROL

MAGNETROL’s THERMATEL® TA2 thermal mass flow transmitter

For more information, or to ask Tom Kemme a question about thermal mass flow technology, visit the Magnetrol flow portal at flow.magnetrol.com.

New software for on-site management of FGM 160 flare gas monitor

FLUENTA, A GLOBAL leader in ultrasonic measurement and management technology for the oil and gas industry, has launched its UFM Manager software. Providing customers with an accessible software programme that manages meters on-site, the new Fluenta UFM Manager software delivers a predefined list of features at two customer access levels – enabling installation, configuration and maintenance of the Fluenta FGM 160.

Sigurd Aase, CEO of Fluenta, comments, "Traditional industries such as oil and gas, chemicals and petrochemicals are now realising the benefit of automating measurement and management processes. We have invested heavily in technology to provide our customers with an accessible and user-friendly software programme to manage our meters on-site.

"Fluenta's new UFM Manager Software will improve the configuration, maintenance and installation of the Fluenta FGM 160 for current and future customers. By separating tasks into access levels, our customers can quickly set up and manage meters on site and gain access to granular flow and installation information, enabling more effective management and reporting of gas flaring."

The Fluenta UFM Manager Software has two customer access levels. The programme's intuitive user interface is designed to only show features when the user logs in with suitable verification or credentials.

New explosion-proof Blancett B3100 flow monitor

Image Credit: Bell Flow Systems

The B3100 flow monitor

THE B3100 FLOW monitor from US manufacturer Blancett is now available from Bell Flow Systems Ltd. It features advanced application options with user-friendly "thru-glass" operation, utilising finger proximity detecting buttons.

Data logging, remote data access and programming are available, without the need to open the enclosure, ensuring application integrity in demanding installations. The B3100 is explosion-proof in accordance with ATEX, IECEx, FM and CSA c-us.

The programming software allows for easy remote configuration of the B3100 flow monitor. The unit can process the frequency output from a flow meter to calculate flow rate and accumulated total. The B3100 can also store an optional 16-point linearisation table of the flow curve (with interpolation) for improved accuracy.

Intelligent pipeline monitoring and repair solution

A NEW DATA-DRIVEN, sensor-based 'Smart Sleeve' product for use in pipeline maintenance and repairs is under development. The initiative, led by Lloyd's Register (LR) and Western Specialties (WS), will develop and commercialise a novel integrated pipeline repair method, which will be one of the world's first intelligent pipeline monitoring and repair sensing solutions.

"We are taking two existing technologies that are currently being used today and merging them into something that can provide insight to operators and regulators on their ageing infrastructure," said Ryan LaVergne, director of Technology from WS. "Taking this proactive approach on monitoring anomalies can help predict what's going on without having to perform future digs as well as give a multitude of data points used in future calculations."

Alan Turner, senior concept developer at LR, said, "Our technology contains sensors enabling a variety of features, including pressure, temperature and the possibility to monitor infrastructure for overburden, re-rate, corrosion or crack monitoring as well as movement in geologically active areas. We have created an approach that can detect when repairs that are made to a pipeline are in need of inspection reducing the need for unnecessary digs – onshore or offshore. It is a 24/7 monitoring system that offers pipeline operators and regulatory authorities an overview of how safe a pipeline actually is every minute of every day."

Unlike current market offerings on "typical" repair solutions, this method provides a repair solution and monitoring system built into one.

'Smart Sleeve' technology solution provides pipeline operators with advanced analytics to give a clear picture of what's going on with a pipeline at any time.

"We can set our 'Smart Sleeve' and sensor product to record and timestamp all movement, including the actual direction of movement, pressure, temperature and strain," said Turner. "This data can be stored in the LR Cloud which then allows regulators, operators and technical engineers to access information from any location and publish updates to the operator's SCADA system. This provides added support for our customers because we can supply more information for better reporting, helping each pipeline operator to further improve how they manage and reduce risk."

And if something doesn't look quite right, 'Smart Sleeve' can trigger a response for inspection or provide operators with a choice of options so that the pipeline facility remains intact and safe.

The new 'Smart Sleeve' product is seen to be a viable solution to enable pipelines to operate at full pressure, giving more production and maximising income for their businesses. It critically reduces the risk of gaining penalties that could arise from damage, corrosion, material failure, leaks or ruptures, says the company.

"Putting sensors on pipelines has been going on for years to monitor for leaks, intrusion and movement. Repairing defects, dents, gauges, corrosion, and leaks in pipelines can be a costly and resource-intensive task. The costs borne out by the operators over the years total US$ millions. But to make that task less costly and more efficient, I believe what we are doing is novel by integrating the sensors into the pipeline repairs," highlighted Turner. "This enables operators and regulators to precisely monitor the health of the pipeline repair and the anomaly under the repair, in addition to assessing the operational conditions and entire pipeline movement."

Developing artificial lift systems for Oman

Geoffroy Guise, Oman country manager at PCM Muscat LLC, a leading provider of artificial lift and transfer pumping systems for oil and gas, discusses the market for artificial lift systems in Oman.

Can you comment on the demand for artificial lift systems in Oman?
Oman is one of the main "heavy oil" countries in the Middle East. Such oil is not easy to lift; it often requires special EOR techniques, such as steam injection, polymer injection etc. and dedicated pump technologies. PCM is the original inventor of the Progressing Cavity Pumps, which is a perfect fit for pumping viscous and multiphase fluids (including solids and/or gas). PCPs are already widely used in Oman, as a cost-effective solution for lifting heavy oil. PCM entered Oman in 2010 through the supply of an innovative product called PCM Vulcain, which is able to pump very hot fluids and as such dedicated to steam injection applications. Thanks to the quality of its services to its customers, PCM gradually managed to diversify its market in Oman to standard elastomer PCPs. Today around 50 per cent or so of the PCPs installed in Oman have been originally manufactured by PCM. In order to better serve our customers in a low oil price context, PCM has developed some advanced requalification workshop services in order to reutilise equipment in good condition and save huge CAPEX for our customers.

> "Operating companies are looking for such partnerships to help them tackle their technical challenges"

Why did you decide to set up a manufacturing facility in Oman, and what is its current scope of activity?
PCM's objective is to bring PCP technology closer to our customers. We first built a strong workshop services approach and then we thought: "What can we do next to get closer to our local customers?" The idea of assembling stators is something which came naturally. Stators are usually nine metres long, thus the supply chain from France is not so easy. As soon as we are able to make pump assembly, we can source three-metre-long elements, which are easier to transport, and enable us to reduce the number of references, as well as reducing stock and lead times. We invested in machines in 2017 in order to be able to assemble, test, paint and pack stators in our Nizwa workshop located on the main road near the oilfields. With this manufacturing facility, we are even able to repair some stators by replacing a damaged element with a new one, which has never been done before in Oman.

Another important benefit is that we are bringing local content to our offer, helping the development of the industrial resources of Oman. We receive trainees throughout the year through a partnership with Nizwa College of Technology, and our employees include a number of former trainees.

PCM Muscat's workshop in Nizwa

Image Credit: PCM Group

How important is R&D to your company?
Innovation has been in the DNA of PCM since its foundation by Mr René Moineau in 1932. PCM today spends a large portion of its turnover in innovation. In parallel with the supply of conventional pumps to the Oman market, we are also developing new ideas in collaboration with our customers in Oman. Operating companies are looking for such partnerships with medium size versatile innovative industrial contractors in order to help them tackle their technical challenges. Our size and focus on PCP technology alone allows us to develop new ideas initiated by our customers from A to Z in record time. Currently we are working on pushing limits on the side of very viscous applications (> 5000cp at pump intake), medium temperature (above 125°C), but also new driveheads and intelligent pumps.

How are you looking to further develop your business in Oman?
The investments achieved by PCM in Oman in the past years have been significant and the company is willing to invest more in the coming years. We are lucky to have loyal Omani customers, who value the quality of services and products that they receive from us, and we continue to see room for further market development in the future. ■

Fuelling business value with data and analytics

The oil and gas industry is increasingly adopting a data-driven mindset to optimise production, says John Genovesi, vice president and general manager, Information Software and Process Business, Rockwell Automation.

THERE'S NO DENYING the fact that data and analytics are gaining steam in the oil and gas industry. And it is not only happening upstream. Midstream and downstream operators are also interested in – if not already demonstrating – the ways that data and analytics can help improve their operations.

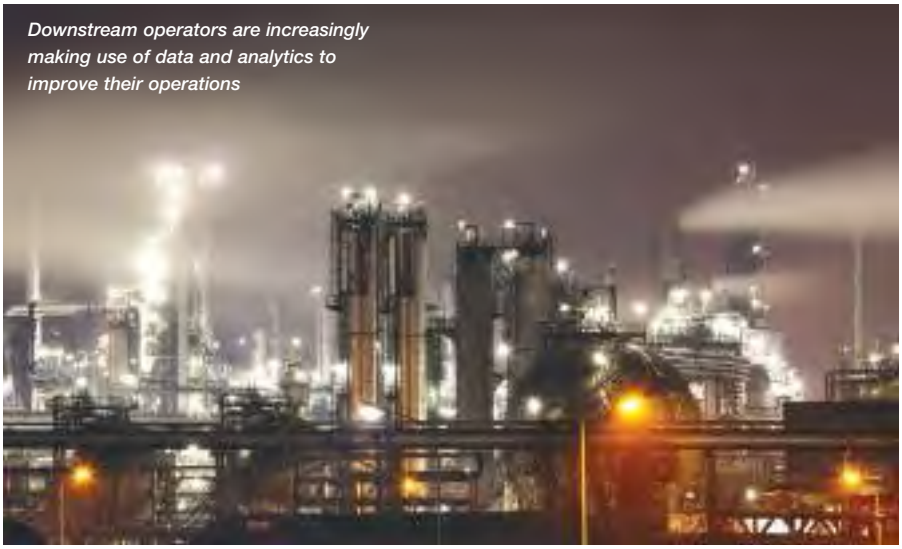
So what is driving this? Certainly, oil and gas companies see a significant opportunity to improve their operations. Better insights into processes can uncover issues and improve decision-making to help boost production, improve processes, minimise downtime and increase asset utilisation. But data and analytics can also help companies contend with some of their greatest challenges, including:

A growing skills gap: Like other industrial sectors, the oil and gas industry is facing a skills shortage. Experienced workers are nearing retirement, and qualified young workers are increasingly hard to find to replace them.

Increasing operational complexity: Oil and gas producers are capturing hydrocarbons from new and more challenging locations, whether it's deep, subsea reserves or tight geological formations. This is requiring more complex systems than ever – some with more than 200,000 tags of data and alarms.

Expanding regulatory challenges: Environmental and safety regulations continue to evolve as governments continue to put pressure on oil and gas companies to help prevent environmental damage and protect lives. This is only making compliance more complex.

> "Data and analytics can also help companies contend with some of their greatest challenges"



Downstream operators are increasingly making use of data and analytics to improve their operations

Image Credit : Rockwell Automation

Moving to a Connected Enterprise

The unconnected and distributed nature of oil and gas operations has traditionally limited companies in their ability to collect data. But this is changing as they adopt connected, information-enabled technologies and replace disparate networks with a unified network architecture.

This modern infrastructure – in which people, processes and technologies can be seamlessly connected across an enterprise that stretches hundreds or thousands of miles – is known as The Connected Enterprise. It embraces technology advances that include not only big data and analytics, but also open-standard IoT devices, mobility, virtualisation and cloud computing. Most importantly, it creates almost unlimited opportunities to improve and transform operations, for example:

- By collecting valuable asset data and contextualising it into actionable information, oil and gas companies can empower workers with critical operational information and help them optimise equipment performance.
- Equipment data also can be used to more quickly troubleshoot issues, create predictive maintenance strategies, and better understand worker behaviours – all of which can help reduce downtime.
- Remote access technology can be used to monitor remote wellheads, pump stations and storage sites, all from a centralised location. This can help reduce safety risks and costs associated with sending workers to manually check in on these systems.

A number of oil and gas producers and operators are already demonstrating how connected, information-driven operations can improve their performance and solve business challenges.

Keeping tabs on offshore operations from afar

Even in the most remote and challenging environments, operations are expected to run around the clock. That's certainly the case for one oil and gas company with offshore production platforms located off Alaska's coast. The company's oil-drilling platforms use submersible pumps to help keep production running 24 hours per day. If they stop, production stops – costing the

company anywhere from US$100,000 to US$300,000 each day.

To help reduce risk of downtime, the company upgraded to more efficient and reliable electrical submersible pumps, and used a virtual support service to remotely monitor the drives that power the pumps.

The cloud-based service collects vital equipment data, such as speed, current, power and voltage, and analyses that data in real time. If any potential issues or failures are detected, a Rockwell Automation support engineer is notified immediately. The service nearly paid for itself in the first two weeks, as it helped detect and notify essential personnel of four incidents in that time frame after implementation.

Refining business models onshore

Onshore, the use of cloud technology is growing as a remote monitoring tool, as well as for storing data, and analysing and contextualising information. For example: M.G. Bryan, a leading heavy-equipment and machinery supplier to the oil and gas industry, knew it needed a way to remotely monitor and maintain the performance of its US$1 million fracking trucks. Downtime on the vehicles can cost US$3,000 to US$7,000 per day – and that's before lost product revenues are taken into account.

The company invested in a cloud-based, fleet management system. Using mobile technology and the seamless transfer of business information over the cloud, M.G. Bryan securely pulls data to web browsers. The software management system then produces reports and dashboards showing the condition of individual vehicle's drivetrains and hydraulic fracturing performance. The system takes the guesswork out of maintenance scheduling, thus helping prevent unplanned downtime.

In addition, the instant visibility into remote asset data has improved asset uptime and productivity for end users. It has also allowed the OEM to shift its business model from monthly agreements to pay-by-use, giving the company a competitive advantage. By using the cloud, M.G. Bryan maintains no infrastructure, and it can scale the solution from one truck to 4,000 trucks.

> "Companies are beginning to explore the use of real-time production allocation"

Managing midstream transfers

Solutions that advance The Connected Enterprise have helped streamline and better secure midstream operations too, including an essential corner of the oil business – hydrocarbon transfers.

Hydrocarbon operations are spread far and wide, often in remote areas. Either on wellheads, storage tanks, pipeline inlets or terminals, buyers and sellers gain unattended access to oil supplies through a LACT unit. Until recently, accounting for these buyer/seller transfers has been a far less sophisticated process. Most LACT units have little automation and even less network connectivity.

Texas-based Trigg Technologies worked with Rockwell Automation to bring its LACT units into the digital age, by developing a turnkey, asset performance management (APM) solution, leveraging the Microsoft Azure cloud platform. Software applications combine real-time and historical data into dashboards that provide contextualised information on transfers, overall oil quality and well productivity over time. These measured variables and diagnostics can be seen from any location via a secure internet connection.

With information automatically pulled from the LACT control system to populate e-tickets, billing errors are virtually eliminated. Trending capabilities also allow site and operations managers to better understand the type of oil coming out of each well. This allows them to plan for long-term production across a number of wells or they can mix oil from a variety of wells to produce a more consistent product.

The future

The potential for data and analytics in oil and gas is growing every day as more companies tap into it. For example, companies are beginning to explore the use of real-time production allocation.

Rockwell Automation is working with a producer to capture real-time, multiphase flow volumes from all of its existing wells. This will enable operators to monitor data and allocate production to individual wells, specifically pinpointing assets that are under-producing and improving overall productivity.

That's just the beginning – the possibilities are unlimited. More advanced oil and gas companies are looking to integrate this field data with production planning and accounting systems to enable timely and accurate oilfield production reconciliation.

As more companies seek to capitalise on their data and make the journey to The Connected Enterprise, the decisions they make along the way will be critical to realising long-term business benefits. Accessing and monitoring assets from upstream, midstream and downstream operations, and merging disparate oilfield data into streams of actionable information are essential to remaining competitive. The space continues to grow with new technologies and smart devices. Working with a third-party automation and information provider, such as Rockwell Automation, can help oil and gas producers on their journey. ■

For more information, please visit http://www.rockwellautomation.com/global/industries/oil-gas/overview.page.

A novel approach to combatting CUI

AkzoNobel Global Technical Support discusses the benefits of a universal pipe coating based on alkylated amine epoxy (AAE) technology.

CORROSION UNDER INSULATION (CUI) costs industry millions of dollars annually. Moisture ingress into conventional insulation materials usually results in accelerated corrosion of the underlying steel surface, which can result in structural failure of the pipe, vessel or other insulated item. If left unchecked, CUI can result in leakage from pipes and vessels as a result of localised corrosion. If such equipment is operating under high pressure, this increases the potential for catastrophic failure.

CUI is generally a risk in the temperature range of -4°C to 175°C (25°F to 347°F) but the highest corrosion rates are normally experienced in operational conditions between 60°C to 120°C (140°F to 248°F). Under these conditions, corrosion rates of between 1.5-3.0mm per year have been reported, and the potential for corrosion doubles for every 15-20°C increase in temperature between 0-100°C (32-212°F).

> "AAE technology delivers the right balance of superior properties for both the applicator and the asset owner"

The oil and gas market uses continuous high temperatures and has a wide variety of process conditions, which inevitably involve heat and cyclic conditions. Environmental conditions can be extremely harsh and thermal cyclic conditions impose a high degree of stress upon coatings which can result in a loss of physical properties. Steam-out cleaning and short but severe temperature spikes can also create cyclic conditions which accelerate corrosion.

Traditionally, insulated pipework operating at elevated (or very low) temperatures has been coated using epoxy phenolic technology; this provides robust corrosion protection during downtime and excellent heat resistance in service. However, this traditional technology does come with some widely recognised limitations from a quality assurance and productivity viewpoint at the point of application. Costs are driven higher by dry film thickness sensitivity and potential for in-service cracking, as well as slow drying/curing speeds, particularly at lower temperatures.

If left unchecked, CUI can result in leakage from pipes and vessels as a result of localised corrosion

Image Credit: zhu difeng/Adobe Stock

Interbond 2340UPC is a universal pipe coating based on a novel alkylated amine epoxy (AAE) technology which provides a versatile solution to the menace of CUI. Temperature resistant from -196°C (-321°F) to 230°C (446°F), a high cross link density coupled with a flexible chain modification grants AAE excellent resistance to CUI, alongside much greater tolerance to natural application variation. This reduces the need for remedial work, helping to keep the project schedule on time, whilst minimising overall application costs. The high dry film thickness (DFT) tolerance greatly reduces the potential for cracking in service, helping to ensure excellent resistance to CUI and aggressive cyclic conditions in service. AAE technology has also been proven to surpass the traditional barriers of low temperature cure and long minimum overcoating intervals inherent of epoxy phenolic technology, forming a robust film that can cure rapidly down to -5°C (-23°F). A rapid, low temperature cure can allow applicators to double their productivity compared to traditional epoxy phenolic systems, as well as saving up to US$1,000 a day on heating costs in winter.

AAE technology delivers the right balance of superior properties for both the applicator and the asset owner, increasing confidence that the performance expectations inherent within the contract chain are delivered and helping to greatly reduce the risk of CUI. Delivering superb ambient temperature ISO20340 resistance, Interbond 2340UPC is a truly 'universal' pipe coating, allowing simplicity of specification and application, resulting in increased confidence for asset protection and improved application flexibility vs traditional coating solutions. ■

Agreement to enhance Saudi meter calibration and flow measurement capabilities

TÜV SÜD NEL, a global centre of excellence for flow measurement and fluid flow systems, and the Arabian Calibration Company (ACC) have signed a 10-year agreement to deliver meter calibration and flow measurement services within the Kingdom of Saudi Arabia, with the support of Saudi Aramco Entrepreneurship Ventures LLC (Wa'ed Ventures).

The agreement will see TÜV SÜD NEL supporting ACC in the creation and ongoing delivery of a number of services, including fixed and mobile calibration capabilities, and flow measurement services such as audits, uncertainty studies, meter selection and training. The longer-term goal of both parties is the development of measurement capability within the Kingdom, using Saudi nationals for the provision of these services.

Speaking to *Oil Review Middle East*, John Batchelor, head of Industry Service Operations at TÜV SÜD UK, said that a major market study is currently being undertaken by TÜV SÜD NEL with its Saudi partners to define the type of facility to be constructed, to ensure it meets market needs. It is envisaged that it will become an expert centre for the local market, playing a similar role to that played by TÜV SÜD NEL in the UK, where it is the National Measurement Institute responsible for the UK's National Flow Measurement Standards.


Image Credit: TÜV SÜD NEL's UK facility

Meter calibration in TÜV SÜD NEL

Batchelor commented that the venture reflects the worldwide trend for more accurate measurement to better understand and manage hydrocarbon assets. He emphasised that the agreement would involve knowledge transfer and would play an important role in developing local capabilities and promoting self-sufficiency in line with Saudi Aramco's localisation initiative. "This agreement is the fruit of good co-operation, trust and commitment from our own staff and our Saudi partners, to drive forward local competence development for fluid measurement and fluid mechanics in a calibration facility for the next 10 years. It is a win-win technical partnership that will develop the skillsets of both parties, and a positive development in terms of the enhancement and technological development of the oil industry."

While the principal customer focus for the initiative is the oil and gas industry, a local presence providing flow measurement and related engineering services has potential to save millions of dollars for other industries. The Kingdom's water companies are also looking to increase their certainty in measurement, and have shown interest in the venture, says Batchelor.

Oil spill response: industry trends for **today and tomorrow**

David Rouse, incident manager at Oil Spill Response Ltd. (OSRL) outlines five key themes that are impacting the development of oil spill response.

Image Credit : OSRL

An OSRL plane spraying dispersant

THE OIL AND gas industry is constantly in a state of transformation; responding to shifts in global challenges and evolving commercial priorities. A move towards drilling in deeper waters and regions with more extreme climates are just two current manifestations of this evolution. As part of this evolution, the oil industry continues to focus on the prevention of oil spills. Other significant consequences of these developments are changes to oil spill response processes and the emergence of new technologies to better support the response industry. These trends can be categorised into five main themes; evolution, collaboration, technology, data and information management, and public expectations.

Natural evolution

The recent period of low oil prices has resulted in leaner business models that have reduced the in-house expertise that exists within oil companies. Those responsible for oil spill response internally may also have several other responsibilities, reducing the amount of time they can dedicate to the discipline. This has resulted in more outsourcing of expertise and, as a result, companies must be diligent in choosing their experts in order to maintain best-practice principles and meet rising regulatory expectations.

> “There has been a trend for increasing collaboration between operators and government regulators”

To give a recent example, a company planned to drill a well off the West African coast. The company had 17 employees to manage the project, and it planned to rely heavily on outsourced, high-quality expertise. With this in mind, OSRL was contracted to develop and deliver the environmental and oil spill documentation required for the operator to be granted its licence to drill. The nation in question has little domestic oil and gas activity or regulatory experience, yet we were able to deliver the appropriate applications to the regulator within just three months. This was due in large part to our decades of experience, but also by developing good lines of communication between the operator and regulator, and perfectly demonstrates the value an effective, specialist external partner can have in today’s oil and gas landscape.

Deeper collaboration

Over the last decade there has been a trend for increasing collaboration between operators and government regulators. The purpose has typically been multifold; creating cost efficiencies, clarifying expectations and building closer relationships to ease the regulatory burden.

- Cost efficiencies arise when operators work together to reduce duplication of work. Regional sensitivity maps, for instance, can be scoped jointly – reducing cost and resource requirements.
- Clarifying expectations is especially important in the current era of high staff turnover, when a detailed understanding of who does what is not always retained in a company's corporate memory. Much of the collaborative work we see now is about ensuring individuals and organisations are clear about roles and accountabilities in the event of an incident.
- It is well known that establishing relationships during preparedness improves outcomes during a pressured response. The turnover of staff within operators, regulators and other stakeholders means that new relationships constantly have to be developed and systems put in place to ensure the sharing of knowledge.

The Global Initiative for West, Central and Southern Africa (GI WACAF), is an excellent example of long-term collaboration. Started in 2006 by the International Maritime Organisation (IMO), and IPIECA, the goal of the project was to organise workshops, training and exercises in 22 west, central and southern African countries. Since then, the project has facilitated the designation of competent authorities responsible for oil spill related issues and the development and publishing of National Oil Spill Contingency Plans in most countries. The collaboration is still thriving, and future goals include developing comprehensive, country-specific dispersant-use policies, shoreline response policies, and formalising trans-boundary agreements to enhance multi-national cooperation.

Leveraging technology

While the general principles of oil spill recovery remain largely the same, the technologies that are being deployed have advanced tremendously. The devices and processes used for offshore containment and recovery, for instance, have an entirely new generation. In the 2000s, oil spill responders would deploy booms to 'contain' surface oil, then skimmers would 'recover' the oil into a temporary container. Even under ideal conditions, two ships working together to spot and corral surface oil might manage to capture less than 200 bbls during a day. The problem was that the booms could not move quickly through the water, severely limiting the encounter rate.

Equipment manufacturers responded to operators' feedback and developed boom systems that could move faster through the water, without the oil escaping. Boom systems whicn could be operated from one boat were also developed, allowing more

Image Credit: OSRL

An oil spill training exercise

> "Unmanned, autonomous technology has tremendous potential"

systems to be deployed simultaneously. Equally, new technology that allowed the in-system separation of oil and water improved the rate of encounter.

Today, unmanned, autonomous technology has tremendous potential and OSRL is working closely with equipment manufacturers to educate them on oil spill response processes and requirements to enable the sector to address our needs. On-the-water testing has already been conducted on several emerging autonomous technologies to better understand their potential and make recommendations on future development.

Within this field, we are primarily talking about unmanned aerial vehicles (UAVs), unmanned surface vehicles (USVs), and unmanned underwater vehicles (UUVs). Instead of deploying expensive helicopters to patrol for shoreline surveys, relatively inexpensive UAVs, or drones, can be used to send back video and highlight areas of immediate concern. USVs and UUVs can produce huge amounts of data, such as recording the thickness and nature of oil and allow responders to prioritise areas of concern. All of these devices increase safety, rate of response and effectiveness of response, and their continued evolution will only further improve their effectiveness in this industry.

Big data and its management

Oil spill response operations have never generated so much data. From UAVs, satellite imagery, aircraft photo and video surveillance, and shoreline surveys, to water column monitoring, air monitoring, health monitoring, oil recovery volumes and financial expenditures, there is no end to the data that is available to us today. And it is only going to grow. Our responsibility is to drill down into that data to extract the information that will enrich our understanding and influence our future decision making.

Managing all this information is important for several reasons. One of the main purposes is to be able to justify response decisions. 'Technical Reasonableness' is the measure by which insurers evaluate response decisions. In the event of a spill where claims are made for damages, the justification for response actions (or inactions) will be examined by the courts.

Recently, OSRL was involved in the recovery of oil from a ruptured offshore pipeline. The country in question suffers frequent spills from various sources. Our response needed to document which oil emanated from the pipeline, as well as oil that was not related to the spill. Satellite images, aerial surveillance and recovered oil sampling were required to justify response actions and to enable future compensation claims to be assessed correctly.

When there is a significant incident, the amount of data generated is vast, and is expected to grow exponentially in the years to come. The challenge will be to ensure that quality control systems are in place and that data can be prioritised so that we can present responders with the right information,

when they need it, to make informed response decisions.

Rising expectations

Communicating to the public in a timely, appropriate and accurate manner is essential. An example of how poor communications can cause public perceptions to go awry occurred recently in a West African nation, where the authorities had organised an oil spill exercise. Oil spill equipment was deployed close to shore from ships, and workers arranged booms on the beaches. The exercise was hailed as a success until the local newspapers were published the next morning, speculating that an oil spill had occurred. The regulators realised belatedly that they had not informed the public, creating unnecessary adverse speculation.

Today, smartphones allow the world instant access to unfolding events and, in the case of an offshore rig fire, social media may make newspapers aware of the incident prior to the company. Oil spill responders and operators need to be aware of the implications of these challenges, which didn't exist 15 years ago.

Preparedness for oil spills remains as important today as it always has been. That means focusing on expert readiness, collaborating with stakeholders, deploying the best technologies, managing information and data, and communicating effectively with the public. It is a case of when, not if, the next big incident will happen, and it is our responsibility to make sure we are ready when it does. ■

Miros and Ocean Visuals co-operate to offer sensor package for oil spill detection

NORWAY'S OCEAN VISUALS and Miros have announced a formal cooperation agreement targeting a combination of remote sensors for oil spill surveillance, detection and verification. Miros' well proven radar and IR-based surveillance and detection system detects and tracks oils spills over large areas, while Ocean Visuals novel HLIF LiDAR provides high resolution point measurements for detection and verification.

Andreas Brekke, CEO at Miros AS, said, "The real novelty of this cooperation is being able to solve a wider range of our customers' operational challenges. We can now offer detection capabilities at all relevant distances and across a wider range of operating scenarios, with unprecedented automated verification capabilities."

New oil spill blocking system

HARBO TECHNOLOGIES LAUNCHED a revolutionary oil spill blocking system at Interspill, held in London in April.

According to the company, T-Fence blocks spills before they spread, and is small and light enough to be installed at every potential spill site. Within minutes of spill detection, two operators on a vessel the size of a lifeboat will deploy up to one km of T-Fence around the spill, preventing it from spreading and splitting. The disposable solution will enhance oil spill responders' operations. While its properties enable it to ride the waves efficiently, a 25m cartridge weighs just 23kg.

Image Credit : HARBO Technologies

Oil spill responder carrying a 25m T-Fence cartridge

"We believe that this system is a game changer, finally adding a long-anticipated layer of protection to oil spill response – the ability to block spills right when they start, wherever they occur and with local operators," said Boaz Ur, co-founder and CEO of HARBO. "In oil spill response, it's all about time. By keeping a spill from spreading in the first 10-30 minutes after it happens, we will multiply the recovery rates seen today and prevent disastrous consequences."

New polymer to soak up oil spills

A RESEARCH TEAM led by scientist Justin Chalker, senior lecturer in Synthetic Chemistry at Australia's Flinders University, has invented an absorbent polymer to soak up oil from spills.

The substance, made from waste products from the petroleum and refining industries, is capable of cleaning up crude oil and diesel spills. The team of researchers used canola oil from cooking, sulphur and sodium chloride to make the material.

Since the polymer has an affinity for hydrocarbons such as crude oil and diesel fuel, it can rapidly remove them from seawater.

According to a blog post on Flinders University's website, lab tests showed the polymer's ability to absorb the oil and diesel from water within a minute of the solution being sprinkled. The polymer can also be squeezed to recover the absorbed oil.

"This is an entirely new and environmentally beneficial application for polymers made from sulphur. This application can consume excess waste sulphur that is stockpiled around the globe and may help mitigate the perennial problem of oil spills in aquatic environments," said Justin Chalker, senior lecturer in Synthetic Chemistry, who led the research team. "This is a new class of oil sorbents that is low-cost, scalable, and enables the efficient removal and recovery of oil from water."

AES Arabia nets industry accolade in Paris

AES ARABIA, THE Riyadh-based water treatment company, has received the prestigious "Industrial Desalination Plant of the Year" award at the Global Water Awards held in April in Paris.

The honour was given in acknowledgement of AES's achievement in delivering the largest desalination plant in the world for the oil and gas sector, a turnkey 80,000 m3/day sea water desalination plant for the Saudi Aramco Jazan integrated gasification combined-cycle (IGCC) power plant. The facility, located on the Kingdom's Red Sea coast, was built in accordance with the high technical standards demanded by the oil and gas industry and under rigorous Aramco quality control requirements.

Image Credit : AES Arabia

Asad Khan, business development manager, AES Arabia (right) receiving the award

AES utilised its experienced in-house engineering and in-Kingdom manufacturing capabilities to assemble large portions of the installation off-site, thus significantly reducing the project cost and the delivery time.

AES Arabia has been operating in Saudi Arabia since 1993 and has delivered multiple industrial and municipal projects throughout the GCC area, with strong emphasis on the oil and gas sector, complying with stringent engineering and material requirements.

The company is working closely with Aramco to meet the 70 per cent IKTVA (localisation) target by 2021, which is required to qualify for future Aramco work.

CIRCOR releases new centrifugal pump solution

CIRCOR HAS ANNOUNCED a new Allweiler centrifugal pump solution for engine room designers. A next-generation redesign of the ALLMARINE MA-S and MA-C series now provides more vertical installation options for centrifugal pumps with axial inlets in marine and general service applications.

The ALLMARINE MA-S with spacer coupling and the MA-C, a closed coupled version, not only consume a smaller footprint but also offer a unique foot design to help assure stability of the pump in heavy seagoing conditions. A shorter, lighter design modifies the suction flange with integrated fixing holes for pedestal mounting of the foot to the ship foundation.

The new pumps consume a smaller footprint and offer improved stability

Image Credit : CIRCOR

This configuration promotes pump uptime and reduces wear on the bearings and shaft seal by redistributing pipe load forces through the foundation instead of into the pump aggregate. It also helps avoid damages at the impeller and casing.

"The MA-S is designed for maintenance ease and speed and engineered for minimal maintenance needs, while the MA-C is intended for customers facing significant space restrictions or with no need of the spacer coupling," said Kapil Rai, vice president, CIRCOR Industrial Pumps, EMEA&A. "Each solution design has been tailored to expressed marketplace needs."

New drill riser buoyancy system

ABERDEEN-BASED BALMORAL OFFSHORE Engineering launched a new drill riser buoyancy system that incorporates low drag vibration and suppression capabilities at OTC 2018.

Drill risers extend from the drilling vessel to the blowout preventer with their primary function being the provision of fluid communications between the well and the vessel. Buoyancy modules fitted around the riser provide uplift while reducing the submerged weight of the joints. However, drilling risers are prone to potentially catastrophic motions caused by subsurface vortex induced vibration and drag.

Balmoral developed the Balmoral DuraFloat LDV and Balmoral DuraGuard LDV, integrated and retrofit VIV suppression solutions respectively, to prevent such motion occurring in the ever-deeper waters encountered in oil exploration and production. Both products have patents pending.

"The new system offers optimum uplift while eliminating riser motion and high drag levels without compromising performance, safety or structural integrity," said Jim Milne, chairman and managing director, at the launch.

Technical Toolboxes launches new version of The Pipeline Toolbox

TECHNICAL TOOLBOXES, THE leading global provider of integrated and cloud-based pipeline software, consulting and industry training for pipeline engineering and technical professionals, has released Version 19.0 of its flagship product, The Pipeline Toolbox.

Drew Lafleur, chief technology officer, Technical Toolboxes, said, "The Pipeline Toolbox has been the industry standard calculation and analysis tool for the design, construction, operations and integrity of pipelines worldwide for more than 20 years. With its more than 230 unique pipeline-specific oil and gas applications and calculations, engineers, contractors, operators and inspectors have been able to design, build and maintain today's pipelines and help deliver much needed energy and petroleum products to our growing world."

The Pipeline Toolbox V19 features a range of improved calculations and applications, which improve the user experience, along with an embedded new license manager that strengthens security and enables visibility of The Pipeline Toolbox utility to better service client needs and identify opportunities to grow functionality within their businesses.

"We are guiding customers on their migration to the new platform, where they will have access to the most up-to-date industry calculations and applications," Lafleur continued. "The Pipeline Toolbox V19 will, in turn, drive the development of our next generation Digital Toolbox, where we will address much needed data, application and workflow needs in our various pipeline businesses and drive the pipeline industry well into the 21st Century," he concluded.

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New wellbore clean-up product line

REACTIVE DOWNHOLE TOOLS, independent supplier of well completion solutions to the global oil and gas industry, launched a new wellbore clean-up (WBCU) product line, CHIMERA, at OTC.

CHIMERA takes an innovative approach to wellbore clean-up with a range of modular tools encompassing a scraper, brush and magnet. Each product can be run separately prior to completion operations, or as a comprehensive package.

Mike Allen, CEO of Reactive

Image credit: Reactive Downhole Tools

Mike Allen, CEO of Reactive, said, "As Reactive strives to become a full-service completions solutions provider, we realise that the key to this is ensuring our completion tools are performing in the very best environment. It's because of this that I am incredibly excited to launch of CHIMERA - our full suite of wellbore clean-up tools."

"Because this market segment is completely new to us, we have engaged experienced professionals in the field to fully support our market entry and have invested an additional US$350,000 into our Houston-based facility to support the

Clarus develops App to detect anomalies

CLARUS SUBSEA INTEGRITY has announced the introduction of the iCUE Digital Anomaly Detection App, which provides rapid, accurate detection of anomalies by reviewing inspection video footage of subsea assets. By using the App to assess footage of subsea risers, pipelines or moorings, for example, operators immediately receive a more accurate account of conditions that might otherwise go undetected. In addition, the speed at which it analyses footage and identifies anomalies is at least 10 times faster than manual review, according to the company.

To achieve this, the App, which is based on machine learning and draws upon image analysis technologies, automatically carries out an engineering assessment of the inspection footage, lowering the time and expense typically required.

"Cutting the cost of detecting anomalies in subsea assets is a vital element of Acteon's strategy to reduce overall ownership costs by 30 per cent," said Paul Alcock, executive vice president of Acteon, parent company of Clarus Subsea Integrity.

Acteon intends to develop a full-scale production level Anomaly Detection App, which will be capable of detecting anomalies in real time as video inspection data is gathered subsea.

Halliburton introduces new diagnostics technology

HALLIBURTON HAS INTRODUCED InnerVue™ Non-Intrusive Pipeline and Wellbore Diagnostics, a technology that quickly and accurately detects blockages or leaks and profiles deposits in pipelines and wellbores.

Without the need for intrusive intervention, InnerVue diagnostics interprets pressure waves reflecting from internal features of the pipeline or wellbore and extrapolates the pressure reflections into deposit profiles or blockage and leak locations.

The new technology can accurately detect blockages or leaks

Image credit: Darren J. Bradley/Shutterstock

A proprietary software analyses the pressure wave signature to determine the profile of the hydraulic diameter of a pipe or wellbore, detecting blockages such as stuck pigs or the top-of-a-cement plug, and identifies fluid leakage locations and volume.

Scott Greig, senior director for Halliburton Pipeline & Process Services, said, "InnerVue diagnostics is unique in its ability to help customers make better decisions by monitoring the effectiveness of their flow assurance program, reducing the cost of blockage remediation, and preventing product loss and environmental damage."

InnerVue diagnostics has been successfully deployed in both the US and international markets.

Siemens brings marine electrification experience to offshore oil and gas

SIEMENS IS APPLYING its extensive electrification experience in the marine industry to offshore oil and gas, with a focus on reducing emissions and risk in particularly unforgiving operational environments. The company's advanced lithium-ion battery-based solution, known as BlueVault™, is suited for both all-electric and hybrid energy-storage applications. BlueVault energy storage solutions are designed to help ensure continuity of power and to minimise carbon dioxide emissions, with an end goal of a low-emissions platform.

Since 2013, Siemens has been supplying the marine industry with an innovative Diesel-Electric Propulsion (DEP) system, BlueDrive PlusC, designed to reduce greenhouse gas emissions, fuel consumption and maintenance costs when compared to traditional diesel-electric propulsion systems.

Image credit: Siemens

Siemens is looking to develop energy storage solutions for both marine and offshore oil and gas applications

In 2015, Siemens jointly developed the world's first electric car ferry, Ampere, with Fjellstrand shipyard and ship-owner, Norled.

Pursuant to its research and development efforts and experience with harsh offshore operating environments, the company will open a fully robotised and digitalised plant in Norway that will develop and manufacture energy storage technologies for both marine and offshore oil and gas applications. The same battery storage solutions for marine and offshore environments are also applicable to offshore wind farms. In the longer term, Siemens hopes to leverage its expertise to develop a low-emissions offshore platform.

"Energy storage solutions provide a means to establish a stable, reliable electrical network by buffering intermittency and providing clean, dispatchable power," said Terje Krogh, CEO of Siemens Offshore Solutions. "The Ampere ferry, which is entirely emission-free, serves as an example of how an energy storage system could also be successfully applied in an oil and gas environment."

Siemens has already signed several contracts for its new energy storage system and expects to deliver the first one this summer.

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Probe launches RAS pulsed-neutron tool

PROBE, WHICH MAKES measurement tools for energy companies, launched its RAS pulsed-neutron tool, used to measure reservoir fluid saturation of oil, water and gas.

The company said that the RAS pulsed-neutron tool uses sigma and carbon-oxygen techniques to measure reservoir fluid saturation.

Accurate measurement of saturation, the relative amounts of oil, water and gas present in the pores of the rock, helps drillers establish reserves.

Image credit: Probe

The tool has three modes

Tracking saturation changes during production shows which parts of the reservoir are being drained effectively, thereby helping engineers predict production changes and plan schedules.

"Operators and smaller wireline service companies had no alternative but to use the tools offered by a few major players," said Federico Casavantes, president and CEO of Probe.

"Consequently, demand for a full-function pulsed-neutron tool from an independent supplier, that could offer the same – or better - reservoir saturation data, continued to escalate. This demand was also being driven by market dynamics which greatly favoured tool reliability, long-life and low total cost of ownership, all of which we are now able to fully address through our product offering," Casavantes said.

The RAS pulsed-neutron tool, developed by a unit of Probe, operates in three modes: sigma, carbon-oxygen and water flow.

The carbon-oxygen mode detects oil saturation with gamma spectroscopy, while the sigma mode detects water saturation via thermal neutron decay.

Further, in sigma mode, the tool's three-detector array can be used to measure gas saturation. The water flow mode detects water velocity from oxygen activation.

At a combined 16.9 feet, the pulsed-neutron tool with the telemetry-gamma ray casing collar locator (CCL) is the shortest reservoir analysis tool string in the industry, according to Probe.

"Its compact size makes it easier to deploy and reduces potential failure points. It also means that it is very versatile and can be configured to suit different conveyance types and downhole conditions," said Casavantes.

The neutron generator in the tool operates at temperatures as high as 160° C and has a service life of 1,000 hours, double the lifespan of many other reservoir analysis tools.

The tool has seen more than 500 runs mainly in the US, Middle East-North Africa region, and China.

Probe makes the RAS pulsed-neutron tool at its facility in Arlington, Texas and provides customers with training and support.

The tools can be used for saturation logging of water, oil and gas, time-lapse reservoir monitoring, contact logging and time lapse contact logging, oxygen activation to determine water phase velocity, openhole emulation and wellbore performance.

Bell Flow launches Dynasonics TFX-500w

BELL FLOW SYSTEMS announced the launch of its new flow meter, Dynasonics TFX-500w, targeted at existing projects which need retrofitting of meter reading equipment.

The new meter was launched at the Hanover Messe exhibition in Germany by US-based Badger Meter.

Since the product has a clamp-on design, it is easy to install and also eliminates the need for a system shut down.

Customers need not tap or cut the pipe, making the product the ideal fit for retrofitting projects.

The TFX-500w can measure flow rate, velocity and water flow accurately and houses a user-friendly display.

The product is available in sizes 0.5 inch to 10 inch, and can function in temperatures between -40°C and 70 °C. The TFX-500w can measure flow from 0.38 to 37,000 litres per minute.

The TFX-500w can be used for water systems, wastewater effluent, agricultural irrigation and industrial discharge systems.

The meter can be integrated with the Badger Meter BEACON and AquaCUE Advanced Metering Analytics cloud-based software.

Image credit: Bell Flow Systems

Dynasonics TFX-500w has a clamp-on design

Teledyne Marine, RPDC partner on tech

TELEDYNE MARINE, WHICH makes underwater mapping instruments, has announced an agreement with Research Products Development Company (RPDC) for commercialisation of technologies developed within Saudi Arabia.

"We are pleased to have entered into this cooperation agreement with RPDC," said Mike Read, president of Teledyne Marine.

"It formalizes our support of new technology and collaboration in the offshore oil industry with the belief that it will facilitate new and innovative solutions," Read added.

Under the agreement, Teledyne will use a sensor design developed by state oil giant Saudi Aramco.

The advancements in remotely operated underwater vehicles (ROV) for shallow water inspection were first developed by the Network Integrity Team within the Research & Development Center at Aramco.

By collaborating with Teledyne Marine, Aramco is able to improve the realiability of these new features and a chance to commercialise the technology.

"We are excited about collaborating with Teledyne SeaBotix, in developing an advanced technology that will address the challenges posed by shallow water pipeline inspection monitoring. The technology will substantially reduce underwater infrastructure inspection costs," Ahmad Al-Khowaiter, chief technology officer at Saudi Aramco, said.

The sensor can help customers cut inspection costs and inspect difficult sections as it can make ultrasonic thickness readings and cathodic protection voltage measurements at a single touchdown.

RPDC partnered with King Abdulaziz City for Science and Technology (KACST) and Saudi Aramco for the project.

"This is an important milestone for launching our collaboration with Teledyne Marine to commercialise Saudi oil and gas technologies globally," Abdulmohsen Almajnouni, CEO, RPDC, said.

"We are planning to expand our partnership with Teledyne Marine and explore mutually beneficial opportunities in technology development and commercialisation," Mishal Alharbi, RPDC vice-president, strategy and planning, said.

Project Databank

Compiled by Data Media Systems

OIL, GAS AND PETROCHEMICAL PROJECTS - OMAN

Project	City	Facility	Budget (US$)	Status
BP - Block 61 - Ghazeer Field Development	Al Dahirah	Gas Field Development	5,000,000,000	Engineering & Procurement
BP - Block 61 - Khazzan and Makarem Gas Fields Development	Al Dahirah	Gas Field Development	24,000,000,000	Construction
BP - Block 61 - Khazzan Gas Fields Development - Phase 1 - Package 1	Al Dahirah	Gas Field Development	1,500,000,000	Construction
DNO - Block 8 Oil & Gas Field Development	West Bukha	Gas Field	45,000,000	Construction
DRPIC - Duqm Refinery - Main Process Units	Duqm	Refinery	4,000,000,000	Engineering & Procurement
DRPIC - Duqm Refinery - Offsites and Utilities	Duqm	Refinery	2,000,000,000	Engineering & Procurement
DRPIC - Duqm Refinery - Overview	Duqm	Refinery	7,700,000,000	Engineering & Procurement
DRPIC - Duqm Refinery - Package 3	Duqm	Oil Storage Terminal	800,000,000	Engineering & Procurement
DRPIC - Duqm Petrochemical Complex	Duqm	Aromatics	4,500,000,000	Feasibility Study
Duqm Petroleum Terminal Company - Duqm Liquid Jetty	Duqm	Oil Storage Terminal	600,000,000	Engineering & Procurement
Florexx International Investments - Biofuels Refinery	Sohar	Biofuels	800,000,000	FEED
Hydrocarbon Finder - Block 7 Onshore Exploration and Production	Al Wusta	Exploration	50,000,000	Engineering & Procurement
Masirah Oil Ltd - Block 50 (Masirah Bay Offshore) - Exploration	Masirah Basin	Exploration	250,000,000	Construction
Mingyuan Holdings Group - Methanol-to-olefin (MTO) Scheme	Duqm	Petrochemical Plant	2,300,000,000	EPC ITB
Ministry of Oil & Gas - Iran to Oman Subsea Natural Gas Pipeline	Sohar	Gas	600,000,000	EPC ITB
MOG - Block 43b Onshore Exploration and Production	Northern Oman	Gas Exploration	40,000,000	EPC ITB
MOG - Block 47 Onshore Exploration and Production	Northern Oman	Exploration	40,000,000	EPC ITB
MOG - Block 65 Onshore Exploration and Production	Northern Oman	Gas Exploration	40,000,000	EPC ITB
OLNG - Qalhat LNG Expansion	Qalhat	Liquefied Natural Gas (LNG)	100,000,000	EPC ITB
Oman Gas Company - Muscat Gas Network	Muscat	Gas Network	100,000,000	Feasibility Study
Oman Gas Company - Saih Nihayda to Duqm Special Economic Zone Gas Pipeline	Duqm	Gas	100,000,000	Construction
Oman Lasso Exploration and Production Karwan - Block 54 Onshore	Al Wusta	Exploration	50,000,000	Engineering & Procurement
OMPET - Sohar PTA/ PET - Overview	Sohar	Purified Teraphtalic Acid (PTA)	850,000,000	EPC ITB
OMPET - Sohar PTA/ PET - PTA Plant	Sohar	Purified Teraphtalic Acid (PTA)	400,000,000	EPC ITB
OOCEP - Block 48 Onshore Exploration and Production (Malih Block)	Al Dahirah	Exploration	30,000,000	Engineering & Procurement
OOCEP - Block 60 Concession - Onshore	Oman	Oil & Gas Field	1,100,000,000	Construction
Orpic - Liwa Plastics Industries Complex - NGL Extraction Units	Sohar	Natural Gas Liquefaction (NGL)	700,000,000	Engineering & Procurement
Orpic - Liwa Plastics Industries Complex - NGL Pipeline	Sohar	Gas	400,000,000	Construction
Orpic - Liwa Plastics Industries Complex - Overview	Sohar	Polyethylene	6,500,000,000	Construction
Orpic - Liwa Plastics Industries Complex - Polyethylene and Polypropylene Units	Sohar	Polyethylene	800,000,000	Construction
Orpic - Liwa Plastics Industries Complex - Steam Cracker	Sohar	Ethylene	2,900,000,000	Construction
Orpic - Muscat-Sohar Product Pipeline (MSPP)	Muscat	Oil	320,000,000	Commissioning
Orpic - Nitrogen Gas Plant	Sohar	Nitrogen	50,000,000	Construction
OTTCO - Main Line Oil - Ras Markaz Crude Oil Terminal Pipeline	Duqm	Oil	300,000,000	FEED
OTTCO - Ras Markaz Crude Oil Park	Duqm	Oil Storage Terminal	400,000,000	EPC ITB
PDO - Amal Steam Phase 1C Surface Facilities	Amal Oilfield	Enhanced Oil Recovery (EOR)	80,000,000	Commissioning
PDO - Amal Steam Phase 1C-2	Amal Oilfield	Oil Field Development	500,000,000	EPC ITB
PDO - Flare Gas to Power Schemes	Adam Ad Dakhliya	Gas Recycling	60,000,000	Project Announced
PDO - Kauther Depletion Compression Phase 2 (KDC2)	Al Dakhiliya	Gas Compression	190,000,000	Construction
PDO - Khulud Tight Gas Development Project (KLD)	Al Wusta	Gas Field Development	300,000,000	Engineering & Procurement
PDO - Rabab-Harweel Integrated Plant (RHIP) - Overview	Harweel	Gas Processing	3,000,000,000	Construction
PDO - Saih Nahaydah Depletion Compression Phase-2 (SNDC2)	Saih Nihayda	Gas Compression	180,000,000	Construction
PDO - Saih Nihayda Condensate Stabilisation Plant	Saih Nihayda	Gas Treatment Plant	115,000,000	Construction
PDO - SRCPP & SNGP Condensate Recovery Maximisation	Saih Nihayda	Gas Processing	300,000,000	Commissioning
PDO - Yibal Khuff Sudair Field Development	Northern Oman	Oil Field Development	3,000,000,000	Construction
PDO - Yibal Rejuvenation	Yibal	Oil & Gas Field	500,000,000	Engineering & Procurement
Port of Duqm Company - FRSU	Duqm	LNG Regassification	500,000,000	Feasibility Study
Salalah Liquefied Petroleum Gas (SLPG) - Salalah	Salalah	Liquefied Petroleum Gas	650,000,000	Construction

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Project Summary

Project Name	OMPET - Sohar PTA/ PET - PTA Plant
Name of Client	OMPET - Oman International Petrochemical Industry Company
Estimated Budget (US$)	400,000,000
Facility Type	Purified Teraphtalic Acid (PTA)
Sector	Petrochemicals
Status	EPC ITB
Location	Sohar
Project Start	Q4-2012
End Date	Q2-2021
FEED	WorleyParsons BP - British Petroleum (UK)
PMC	WorleyParsons
Award Date	Q2-2018

Background

OMPET a joint venture of Oman Oil Company (OOC) – 50 per cent, LG International (LGI) – 30 per cent and Takamul Investment Co – 20 per cent, plans to build a 1.1 million tonnes per annum PTA plant as a phase of PTA/PET scheme. Feedstock will be supplied by the Sohar aromatics complex owned by Oman Refineries and Petroleum Industries Company (ORPIC). Sohar port will be used for import of plant equipment and other raw materials.

Project Status

Date	Status
09 May 2018	OMPET is yet to finalise its decision on awarding the EPC contract to the preferred bidder, POSCO Engineering and Construction. No schedule set for the contract award.
29 Sep 2016	Evaluation of the technical and commercial proposals is completed. The date of the contract award has not been disclosed.
06 Jan 2016	OMPET receives bids for the EPC contract.
01 Sep 2015	BP completes and delivers the FEED for the PTA licence.
02 Mar 2015	Technology licence agreements have already been signed with BP for the PTA production know-how.
22 Dec 2014	An invitation to prequalify for the EPC contract was issued.
30 Oct 2014	The FEED for the PTA and PET plants, and the utilities and offsite works have been completed.
30 Mar 2014	WorleyParsons was awarded the PMC contract. WorleyParsons will also do the FEED design for the utilities & off sites.
04 Dec 2012	Oman Oil Company and LG International have signed a Joint Development Agreement for the implementation of the PTA and PET plants in Port of Sohar Industrial Area.

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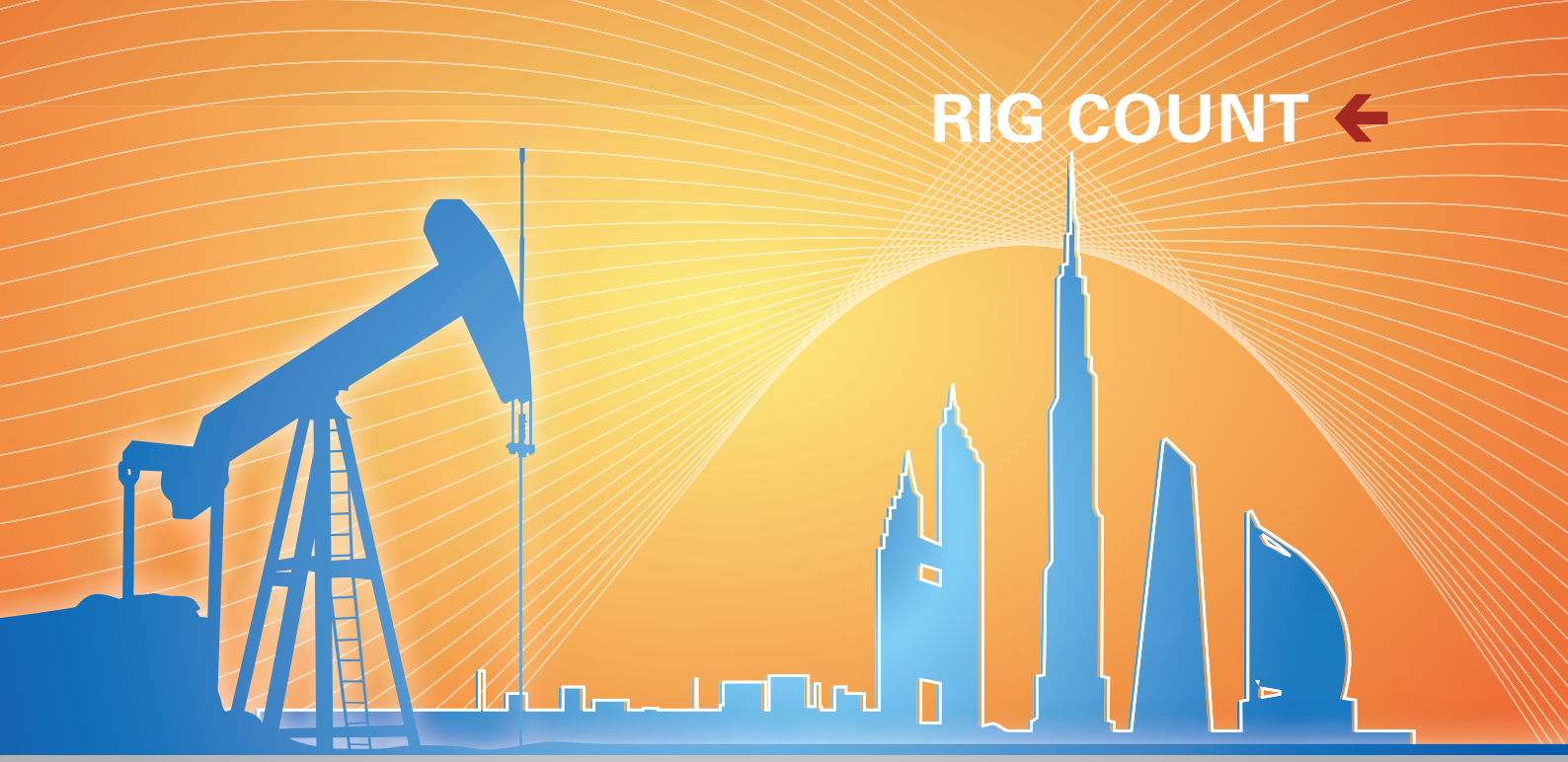

Middle East & North Africa

The Baker Hughes Rig Count tracks industry-wide rigs engaged in drilling and related operations, which include drilling, logging, cementing, coring, well testing, waiting on weather, running casing and blowout preventer (BOP) testing.

	THIS MONTH			VARIANCE	LAST MONTH			LAST YEAR		
Country	Land	OffShore	Total	From Last Month	Land	OffShore	Total	Land	OffShore	Total
Middle East										
ABU DHABI	39	14	53	2	39	12	51	35	14	39
DUBAI	0	1	1	-1	0	2	2	0	2	2
IRAQ	60	0	60	0	60	0	60	46	0	46
JORDAN	0	0	0	0	0	0	0	0	0	0
KUWAIT	54	0	54	0	54	0	54	53	0	53
OMAN	53	0	53	-1	54	0	54	54	2	54
PAKISTAN	23	0	23	-1	24	0	24	23	0	23
QATAR	3	8	11	2	3	6	9	5	7	12
SAUDI ARABIA	96	15	111	-2	95	18	113	103	16	119
SUDAN	0	0	0	0	0	0	0	0	0	0
SYRIA	0	0	0	0	0	0	0	0	0	0
YEMEN	0	0	0	0	0	0	0	0	0	0
TOTAL	328	38	366	-1	329	38	367	319	41	348
North Africa										
ALGERIA	55	0	55	0	55	0	55	57	0	57
EGYPT	26	4	30	3	22	5	27	23	4	27
LIBYA	0	1	1	0	0	1	1	0	1	1
TUNISIA	2	0	2	0	2	0	2	0	0	0
TOTAL	83	5	88	3	79	6	85	80	5	85

Source: Baker Hughes

• برنامج الحفر المُكثف
• تحسين إمكانات معالجة المياه.

إننا نسعى ـ في هذا السياق ـ إلى أن نحتل مركزا رائدا على الصعيد العالمي في مجال التنقيب والإنتاج كمؤسسة متكاملة معنية بتوفير القيمة، وذلك من خلال تعظيم القيمة الإستراتيجية للنفط والاستفادة من إمكانيات الغاز، هذا إلى جانب تنمية الاحتياطيات لبلوغ مستقبل مستدام، والاستفادة من التكنولوجيا، وتعزيز التزامنا بمتطلبات الصحة والسلامة والحماية والبيئة، والسعي بجهد دؤوب لتحقيق الأداء المتميز. ومن الجدير بالذكر أنه في حين يتم إنتاج أغلب النفط الخام الكويتي حاليا من الحقول البرية، فإن الخطط تدعم استكشاف وتطوير القدرات الإنتاجية للحقول البحرية.

• **ما هي الأنشطة التي تمنحونها الأولوية في إطار تطوير إمكانات قطاع التكرير والبتروكيماويات داخل الدولة وخارجها، وما هي الأسباب الكامنة وراء التركيز على آسيا؟**

•• تدعو الأهداف الإستراتيجية لمؤسسة البترول الكويتية، حتى عام ٢٠٤٠، إلى تطوير قطاعي التكرير والبتروكيماويات على المستويين المحلي والدولي. ونحن نخطط لتنمية طاقة التكرير المحلية لتصل إلى مليوني برميل يوميا بحلول ٢٠٣٥ والمحافظة على ذلك المستوى حتى عام ٢٠٤٠ بتكوينات مُعقدة، وفي الوقت ذاته ضمان الحصول على أقصى عائد من إنتاج النفط الثقيل المحلي مع الأخذ في الاعتبار تلبية الطلب المحلي على الطاقة.

كما نهدف أيضا إلى دمج عمليات التكرير والعمليات البتروكيماوية على المستويين المحلي والعالمي لإضافة القيمة، ما يضمن تحقيق أقصى عائد لدولة الكويت.

وبالإضافة إلى ذلك، نسعى إلى دعم الشركات العاملة في مجال التكرير والبتروكيماويات لإتاحة فرص العمل في قطاع الصناعات التحويلية للقطاع الخاص. وسوف نواصل توفير فرص الاستثمار عبر عقد الشراكات والتحالفات ذات الجدوى الاقتصادية، علما بأن كميات المواد الهيدروكربونية الكويتية المتاحة تصل إلى ١,٣ مليون برميل يوميا في عام ٢٠٣٥. ويأتي التركيز على آسيا لإحداث التوسعات وضخ الاستثمارات المستقبلية نظرا لأنها تعد مركزا للأسواق الناشئة والواعدة على مستوى العالم. ولهذا السبب نضع آسيا نصب أعيننا لضمان وجود منافذ مستقرة ومستدامة للمواد الهيدروكربونية الكويتية.

• **ما مدى أهمية التكنولوجيا والإبداع في تحسين إنتاج النفط والغاز في الكويت والارتقاء به؟**

•• لقد مكننا تحسين وتطوير إنتاج النفط والغاز في الكويت من التركيز بشكل أكبر على التكنولوجيات الجديدة، وذلك للدور الرئيسي الذي يلعبه التميز في البحوث والتكنولوجيا والإبداع للتغلب على التحديات.

وسوف يتيح التعاون مع الشركاء الداخليين والخارجيين، الذين تميزوا في التحول التكنولوجي وحققوا النجاح في الإبداع لمؤسسة البترول الكويتية، مواجهة التحديات في مجال التنقيب والإنتاج.

وهناك أمثلة عديدة شهدت نجاح تطبيق التكنولوجيات المُحسنة على عملياتنا، من بينها مبادرة الحقول الرقمية الكويتية التي تعزز التكامل بين الأفراد والعمليات والتكنولوجيا وتفسح المجال لاتخاذ القرارات بشكل جماعي مما سيوفر التكاليف ويعمل على تحسين استقرار العمليات.

هناك مثال آخر، وهو تقليل إنتاج المياه عبر استخدام التكنولوجيات الجوفية الملائمة، مثل الإنجاز الذكي للآبار، والذي يستخدم أجهزة وصمامات للتحكم في التدفق الداخل، فضلاً عن التكنولوجيات المتطورة لإيقاف إمداد المياه، وتشمل المراقبة المتطورة للمكمن.

ولا يفوتني أيضا إلقاء الضوء على تطوير نماذج المكامن الشاملة والمتكاملة عالية الدقة، إلى جانب تكنولوجيات الاستخلاص المعزز للنفط، وتشمل الحقن بالبخار والحقن الكيميائي. وقد تم التخطيط لهذه التكنولوجيا المُحسنة، التي تم تطبيقها وتصميمها مؤخرا، لتحقق القيمة المضافة التي تعطي نتائج ملموسة وتكسب المعرفة والخبرات على المدى القصير والمتوسط والطويل.

• **ما هو دور الشركات الدولية في تطوير قطاع النفط والغاز الكويتي حسب اعتقادك؟**

•• على مدى عملية تطوير صناعة النفط الوطنية في الكويت، واصلنا توطيد علاقاتنا التجارية بشركات النفط العالمية وشركات النفط الوطنية، فضلا عن شركات خدمات حقول النفط وغيرها من المؤسسات الأخرى في هذا المجال. ومن المتوقع أن تلعب شركات النفط العالمية وشركات الخدمات دورا رئيسيا في دعم وتنفيذ التوجهات الإستراتيجية حتى عام ٢٠٤٠. ونحن نتعاون بالفعل مع بعض من أفضل المقاولين في العالم ممن يوفرون الخدمات منذ عدة سنوات، ونتوقع أن يواصل هؤلاء المقاولون أداء دور مهم في إقامة مشاريعنا.

ولقد أسسنا علاقات راسخة تعود بالنفع على كافة الأطراف وكان من شأنها مساعدتنا في تطوير وتحقيق أهدافنا الإستراتيجية. واليوم تنشئ مؤسسة البترول الكويتية علاقات إستراتيجية ناجحة مع العديد من شركات النفط العالمية وشركات النفط الوطنية عبر المشاريع المشتركة في مجال التكرير والبتروكيماويات، مثل تلك المقامة في فيتنام وعمان.

• **ما هي التدابير التي اتخذتموها لجذب الشباب الكويتي لقطاع النفط والغاز والاحتفاظ بهم؟**

•• نفخر بأننا المؤسسة الوحيدة في هذا المجال في الكويت التي يعمل بها أكثر من ٢٠ ألف مستخدم، تبلغ نسبة الكويتيين بينهم ٨٥ في المائة. وسوف نواصل توفير فرص عمل جديدة كلما توسعت مشاريعنا. نحن نؤمن تماما بأن قوة العمل هي أهم الأصول وأعلاها قيمة لدينا. فمن خلالها نستطيع تحقيق أفضل العوائد ومنافسة الكبار في هذا المجال. كما نعي أن مجالنا يعد مصدر إلهام لتطوير قدرات الشباب وتحفيزهم وإشراكهم في مسيرة التنمية كلما اعتلينا مكانة أعلى خلال سعينا لأن نصبح شركة عالمية رائدة ومتكاملة في مجال النفط والغاز.

ونحن حريصون على تطوير إمكانات موظفينا حتى يكونوا قادة على جميع المستويات ويصبحوا أمثلة تُحتذى في تجسيد قيم الشركة. ومن ثم فإننا نسعى لجذب الشباب الكويتي وتشجيعهم على الانضمام لقطاع النفط بوصفه مجال عمل واعدا وطموحا. ويؤكد الاحتفاظ بالشباب الكويتي في قطاع النفط على توافر مناخ يُحفِّز على الابتكار ويدعم التعلم المتواصل.

تعمل مؤسسة البترول الكويتية على تطوير قطاعي التكرير والبتروكيماويات على المستويين المحلي والدولي

التقدم تحت مظلة التوجهات الإستراتيجية حتى 2040

في هذا الحوار، يعرض نزار العدساني، الرئيس التنفيذي لمؤسسة البترول الكويتية، نبذة موجزة عن مشاريع شركة النفط الوطنية وخططها التي تعتزم تنفيذها. وهو يقول إن المؤسسة تنشئ علاقات إستراتيجية ناجحة مع العديد من شركات النفط العالمية وشركات النفط الوطنية عبر المشاريع المشتركة في مجال التكرير والبتروكيماويات. كما أن مؤسسة البترول الكويتية تسعى إلى جذب الشباب الكويتي وتشجيعهم على الانضمام لقطاع النفط بوصفه مجال عملٍ واعداً وطموحاً. وإلى نص الحوار:

• كيف تتطلعون إلى تحقيق طموحكم للوصول بإنتاج النفط إلى أربعة ملايين برميل يوميا بحلول عام ٢٠٢٠، والوصول بإنتاج الغاز إلى ٢,٥ مليار قدم مكعب يوميا بحلول عام ٢٠٣٠؟

•• إن تحقيق أهداف إنتاج النفط والغاز في الكويت يتطلب الإنجاز الناجح لخطة التنمية وفقا للتوجهات الإستراتيجية حتى عام ٢٠٤٠ ، والتي تشمل المشاريع الكبرى التالية على سبيل المثال وليس الحصر:

• الانتهاء من إنشاء أربعة مراكز تجميع جديدة (مراكز التجميع ٢٩ و٣٠ و٣١ و٣٢)

• الانتهاء من إنشاء أربع منشآت لإنتاج الغاز من الحقول الجوراسية.

• تشغيل المنشأة المركزية لمشروع فارس السفلي للنفط الثقيل، والتي تبلغ طاقتها الإنتاجية ٦٠ مليون برميل يوميا.

إنترتك تفتتح مُجمع مختبرات في الشارقة

أعلنت «إنترتك»، الشركة الرائدة الموفرة لحلول ضمان الجودة المتكاملة لمختلف القطاعات في العالم، عن افتتاح مُجمع مختبرات جديد في الشارقة. وهو مُخصص لأعمال الضمان والاختبار والتفتيش والاعتماد، وذلك من أجل المساهمة في تلبية الطلب المتنامي على ضمان الجودة في قطاعات متعددة. وقد افتتح مجمّع المختبرات الجديد في الشارقة رسميا علي سالم المزروع، رئيس مجموعة المزروع.

وحضر الافتتاح قادة القطاع والخبراء، على أن يلي الافتتاح منتدى يستمر لثلاثة أيام تتخلله مجموعة من العروض التقنية والجولات المتخصّصة وتبادل المعارف مع خبراء ضمان الجودة في مجموعة «إنترتك». ويتضمن المجمّع الجديد، الذي شُيد خصيصا على مساحة ٣٨٠٠٠ قدم مربع في الشارقة، ستة مختبرات متخصصة جديدة تشمل مختبر الوقود، ومختبر مراقبة حالة النفط(OCM) ، ومختبر المسح المجهري الالكتروني (SEC) ، ومختبر المواد الكيميائية في عمليات الإنتاج، ومختبر علم الأحياء الدقيقة، ومختبر الأغذية والمياه. ويحظى المجمّع بأحدث التجهيزات والاختبارات المتطورة والخبرات التقنية، ما يوفر مجموعة كاملة من خدمات ضمان الجودة ضمن اختصاصات متعدّدة تحت سقف واحد. ويشمل ذلك الاحتياجات المرتبطة بضمان الجودة في قطاعات النفط والغاز والبتروكيماويات والمواد الكيميائية والطاقة والبناء والطيران والتصنيع والبيئة والضيافة والمواد التجميلية والأغذية والمياه. ويعد المجمّع الجديد أحد أكبر المختبرات المستقلة في المنطقة. فهو يعمل على توفير الخدمات إلى العملاء المتواجدين في دولة الامارات العربية المتحدة وفي منطقة الخليج بوجه عام. ويسمح هذا المشروع التطويري لمجموعة «إنترتك» بتلبية الطلبات الأكثر تعقيدا للعملاء على المستويين المحلي والإقليمي. كما أنه يأتي في وقت هام، إذ تسعى الحكومات إلى تنويع اقتصاداتها وتعزيز قدراتها التنافسية على المستوى العالمي من خلال ضمان الجودة.

افتتاح المعمل

توتال توقع اتفاقية مع سوناطراك لإنشاء مشروع للبتروكيماويات

وقعت شركة توتال اتفاقية مع شركة سوناطراك لبدء الدراسات الهندسية لمشروع البتروكيماويات في مدينة أرزيو غرب الجزائر. ويتضمن المشروع إنشاء وحدة نزع الهيدروجين من البروبان (PDH) ووحدة إنتاج البولي بروبيلين التي تبلغ طاقتها الإنتاجية ٥٥٠ ألف طن سنويا. وتبلغ قيمة الاستثمارات بالمشروع نحو ١,٤ مليار دولار أمريكي من قِبل الشريكين (سوناطراك ٥١ في المائة وتوتال ٤٩ في المائة) اللذين يخططان لبدء أعمال التخطيط الهندسي والتصميمات هذا الصيف، حسب موافقة السلطات التنظيمية الجزائرية المعنية.

وسوف يُحول المشروع البروبان، الذي يتم إنتاجه محليا بكميات كبيرة، إلى البولي بروبيلين الذي يرتفع الطلب عليه بقوة لإكسابه قيمة أعلى. وستكون الأولوية للتوريد إلى السوق الجزائرية والسوق الأوسع لمنطقة البحر المتوسط، في حين تتولى «توتال» مسؤولية التسويق التجاري لباقي الإنتاج في أوروبا، حيث تستفيد من خبراتها السوقية لتحقيق المنفعة لكلا الطرفين.

من جانبه، قال باتريك بويان، الرئيس التنفيذي لـ«توتال»، في بيان: «إن هذا المشروع في الجزائر يبرز استراتيجيتنا للنمو في البتروكيماويات، التي تشمل توسيع نطاق أنشطتنا المعتمدة على المواد الخام ذات المزايا التنافسية وخصوصا تلك المشتقة من الغاز، للاستفادة من طلب عالمي متنام على اللدائن البلاستيكية.

ويأتي مشروع البولي بروبيلين هذا استكمالاً لمشاريعنا الأخرى التي أعلنا عنها مؤخرا في الولايات المتحدة والشرق الأوسط وآسيا، والتي تركز في الأساس على البولي إيثيلين».

وأضاف: «إنها فرصة أيضا لدعم أواصر التعاون مع سوناطراك التي لم تعد تقتصر على الشراكة العريقة في مجال التنقيب والإنتاج، بل تتجاوزها إلى الاستثمار في مجال الصناعات التحويلية». ومن الجدير بالذكر أن «توتال» تشارك في أنشطة التنقيب والإنتاج في الجزائر منذ العام ١٩٥٢.

سيتم استثمار حوالي ١,٤ مليار دولار في المشروع

مفكرة رجال الأعمال 2018

يونيو/حزيران
5 ـ 8 ..... معرض قزوين للنفط والغاز ..... باكو
أغسطس/آب
27 ـ 30 ..... منتدى ومعرض حقول بحر الشمال ـ ONS ..... ستافنجر
سبتمبر/أيلول
17 ـ 19 ..... مؤتمر الشرق الأوسط للنفط الثقيل ..... مسقط
17 ـ 20 ..... معرض غازتك ..... برشلونة

أدنوك تعلن عن خطط للاستثمار في قطاع الصناعات التحويلية

كشفت شركة بترول أبوظبي الوطنية «أدنوك»، خلال ملتقى الاستثمار في التكرير والبتروكيماويات، عن خطط لاستثمار ١٦٥ مليار درهم (٤٥ مليار دولار أمريكي) مع شركاء آخرين خلال السنوات الخمس المقبلة، وذلك لدعم استراتيجية جديدة في مجال التكرير وتعزيز مكانتها كشركة رائدة عالميا في مجال الصناعات التحويلية. وسوف يتيح هذا البرنامج الاستثماري لـ «أدنوك» توسعة عملياتها في التكرير والبتروكيماويات في الرويس بدولة الإمارات العربية المتحدة، هذا فضلاً عن إقامة استثمارات خارجية مستهدفة تسهم في ضمان الوصول إلى الأسواق.

وتعتزم «أدنوك» إنشاء مُجمع متكامل هو الأكبر والأكثر تطورا على مستوى العالم للتكرير والبتروكيماويات في الرويس. كما أنها ستعمل، من خلال برنامجها للاستثمار والشراكات الاستراتيجية، على تطوير المُجمع لزيادة نطاق وحجم منتجات التكرير ذات القيمة العالية، فضلا عن تحسين الوصول إلى الأسواق ذات معدلات النمو المرتفعة في العالم، وأيضا تأسيس منظومة تصنيع في الرويس من شأنها الإسهام بصورة كبيرة في تعزيز القيمة المحلية المضافة، ونمو القطاع الخاص، وإيجاد فرص عمل جديدة. ويتضمن البرنامج خطة لبناء واحدة من أكبر كسّارات المواد الخام المختلطة في العالم، ما يضاعف الطاقة الإنتاجية ثلاث مرات من ٤,٥ مليون طن سنويا في ٢٠١٦ إلى ١٤,٤ مليون طن سنويا بحلول عام ٢٠٢٥. ومن المتوقع أن توفر الإستراتيجية الجديدة أكثر من ١٥ ألف فرصة عمل بحلول عام ٢٠٢٥، وأن تُساهم بإضافة ١ في المائة إلى الناتج المحلي الإجمالي. وبهذه المناسبة، قال معالي الدكتور سلطان أحمد الجابر، وزير الدولة والرئيس التنفيذي لأدنوك ومجموعة شركاتها: «في ضوء الزيادة الكبيرة في الطلب على البتروكيماويات والمنتجات المكررة عالية القيمة، نسعى لترسيخ وتعزيز مكانة «أدنوك» لتصبح لاعبا عالميا رائدا في مجال التكرير والبتروكيماويات. ولتحقيق ذلك، سنستثمر بكثافة في الرويس وسنتيح المزيد من فرص الشراكة الجاذبة للاستثمارات المشتركة، هذا إلى جانب التوسع في كافة مجالات وجوانب أعمالنا لإنشاء منظومة صناعية قوية جديدة في مجال التكرير والبتروكيماويات، وتحقيق النمو الذي سيعود بالفائدة على كل من دولة الإمارات وأدنوك وشركائنا».

الدكتور سلطان أحمد الجابر الرئيس التنفيذي لأدنوك

إيني تعلن عن كشف نفطي جديد في مصر

أعلنت شركة «إيني» الإيطالية عن كشف نفطي جديد بعد حفر البئر الاستكشافي الأول أ-٢إكس الذي يقع في امتياز جنوب غرب المليحة في الصحراء الغربية بمصر، والذي يبعد نحو ١٠٣ كيلومترات شمال واحة سيوة. ويعد الحقل هو الأول الذي تتولى «إيني» حفره في الطبقات الجيولوجية العميقة لحوض فاغور.

وقد أفادت إيني أنه «تم حفر البئر الاستكشافية المسماة «إس دابليو إم أ-٢إكس» بعمق إجمالي يبلغ ٥٠٩٠ مترا لتصادف ١٨ مترا من الزيت الخفيف في الأحجار الرملية القديمة من العصر الكربوني بمنطقة حوض دسوقي. وأضافت الشركة أنها وجدت مستويات هيدروكربونية أخرى في طبقة «علم البويب» التي ترجع إلى العصر الطباشيري. وقد تم فتح البئر للإنتاج في الأحجار الرملية بحوض دسوقي، وسلمت ٢٣٠٠ برميل نفط في اليوم من الزيت الخفيف، و٠,٤ مليون قدم مكعب قياسي من الغاز المصاحب.


تم الاكتشاف في صحراء مصر الغربية

وأعلنت شركة النفط والغاز الإيطالية الكبرى مؤخرا عن بدء تشغيل وحدة الإنتاج الثانية (ت-١) بمشروع حقل ظهر التي تقع قبالة السواحل المصرية، والتي من المتوقع أن ترفع إنتاج الحقل بمعدل ٤٠٠ مليون متر مكعب بعد قرابة أربعة أشهر من بدء العمل بالحقل. ويبلغ إنتاج حقل ظهر حاليا ٨٠٠ مليون متر مكعب، أي ما يعادل ١٥٠ ألف برميل يوميا. هذا، وتخطط «إيني» أيضًا لحفر آبار استكشافية أخرى بالقرب من اكتشاف أ٢-إكس لفتح منطقة إنتاجية جديدة في مصر. وبناءً على موافقة الجهة المعنية، من المنتظر أن يتم ربط الإنتاج بالبنى التحتية القريبة القائمة بالفعل، ثم شحنه إلى محطة الحمراء عبر خطوط الأنابيب القائمة. وتمتلك شركة «إيني»، من خلال الشركة الدولية الإيطالية للزيت (أيوك) التابعة لها، حصة تبلغ نسبتها ١٠٠ في المائة من امتياز جنوب غرب المليحة. وتنتج «أيوك» حاليا، من خلال شركة «عجيبة للبترول» التي تتولى الأولى مسؤولية تشغيلها والمملوكة مناصفة بينها وبين الهيئة المصرية العامة للبترول، ٥٥ ألف برميل يوميا من الصحراء الغربية المصرية.

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هاتف : +٩١٨٠٦٥٦٨٤٤٨٣ - بريد إلكتروني : tanmay.mishra@alaincharles.com

Country	Representative	Telephone	Fax	Email
India	Tanmay Mishra	(91) 8065684483	(91) 8040600791	tanmay.mishra@alaincharles.com
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