

Oil Review

Middle East

Covering Oil, Gas and Hydrocarbon Processing

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The changing refining and petrochemicals landscape

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Hosnia Hashim, V-P of Operations, KUFPEC, on Kuwait's efforts to advance women in the oil and gas industry

See page 26

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→ Editor's note

IT'S A BUSY time of year for shows, with GEO 2016, Saudi Downstream, Oil & Gas West Asia (OGWA) and OTC Asia taking place over the past month, and Tank World Expo, Kuwait Oil & Gas, Erbil Oil & Gas and MOC coming up in April.

While the low oil price has taken its toll on the size of some of these exhibitions, they have nevertheless provided a useful platform to discuss all the latest industry developments and establish business relationships, while also highlighting the need for innovative solutions to tackle industry challenges. Exhibitors at GEO 2016 spoke of 'hanging in there' and experiencing a slowdown in business, but felt the region continues to offer good prospects compared with other regions of the world. Many reported ongoing business with Saudi Aramco and other regional operators, while noting cutbacks in expenditure and increasing competition.

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A packed session at the Saudi Downstream conference, held from 8-10 March in Jubail, Saudi Arabia



The opening day of the Oil & Gas West Asia (OGWA) exhibition, which took place from 21-23 March in Muscat. HE Dr Mohammad Bin Al Zubair, Advisor to HM Sultan Qaboos bin Said for Economic Affairs, opened the show (second from right)



HE Dr Mohammed bin Hamad Al Rumhy, Oman's Minister of Oil & Gas, addressed the keynote session at the opening of Oil & Gas West Asia (OGWA) on 20 March



The VIP delegation at the opening of the GEO 2016 exhibition, Bahrain, 8 March. Bahrain's Deputy Premier, HH Shaikh Ali bin Khalifa Al Khalifa, is third from left and HE Dr Abdulhussain bin Ali Mirza, Bahrain's Energy Minister, stands second from left



Stand discussions at the GEO 2016 exhibition, Bahrain



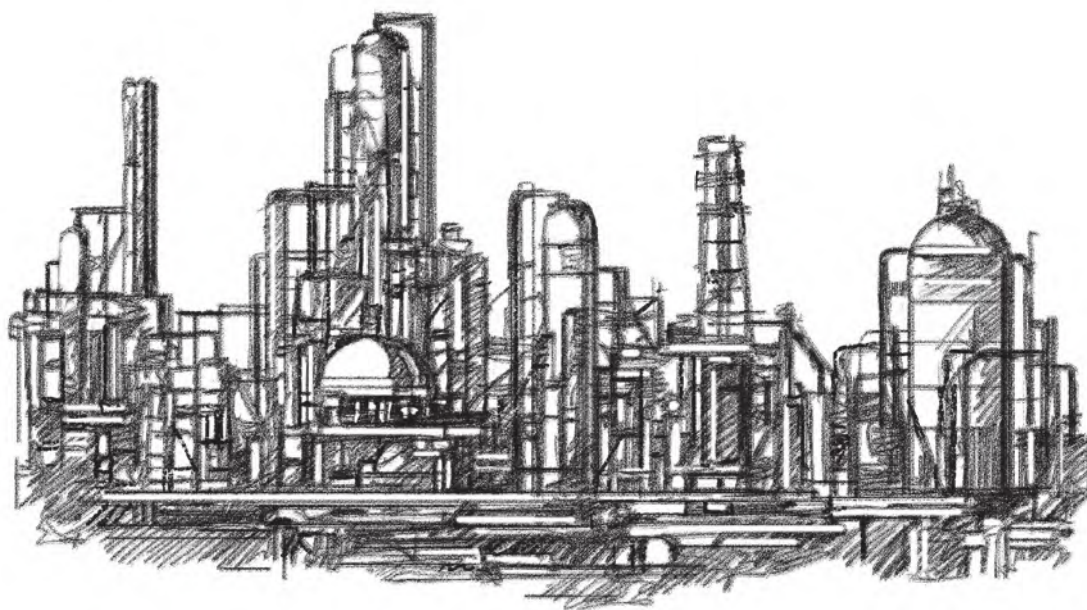
A group of female students at the GEO 2016 exhibition, Bahrain



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→ Executives' Calendar 2016

APRIL

10-11	Kuwait Oil & Gas	KUWAIT	www.cwckuwait.com
12-13	Tank World Expo	DUBAI	www.easyfairs.com
12-14	International SAP Conference for Oil and Gas	THE HAGUE	www.uk.tacook.com
13-17	Iran Plastics	TEHRAN	www.iranplast.ir
18-20	GCC Environment & Sustainability Forum	JEDDAH	www.gccenvironmentforum.com
19-21	8th Mediterranean Offshore Conference (MOC)	ALEXANDRIA	www.moc-egypt.com
20-23	Erbil Oil & Gas	ERBIL	www.erbiloilgas.com
24-27	5th Annual Cybersecurity for Energy & Utilities	ABU DHABI	www.cybersecurityme.com

MAY

2-5	Offshore Technology Conference (OTC)	HOUSTON	www.otcnet.org
24	GPCA Supply Chain Conference	DUBAI	www.gpca.org.ae/events
5-8	Iran International Oil, Gas, Refining & Petrochems	TEHRAN	www.iran-oilshow.ir
8-10	Abu Dhabi International Downstream	ABU DHABI	www.adid.wraconferences.com
10-11	Platts 8th Annual Crude Oil Summit	LONDON	www.platts.com/events
15-16	Oil, Rail & Ports Iran	TEHRAN	http://oilrailports.com
16-18	Saudi Safety & Security	DAMMAM	www.sss-arabia.com
23-25	Iraq Petroleum 2016	LONDON	www.cwciraqpetroleum.com

JUNE

1-4	Caspian Oil & Gas	BAKU	www.caspianoilgas.az/2016
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SEPTEMBER

6-8	SPE Intelligent Energy International	ABERDEEN	www.intelligentenergyevent.com
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Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

MOC 2016 to focus on the Mediterranean's unlocked potential

THE 8TH MEDITERRANEAN Offshore Conference & Exhibition (MOC 2016) will be held from 19-21 April at the Bibliotheca Alexandrina Conference Center, Alexandria, Egypt, under the patronage of the Minister of Petroleum and Mineral Resources of Egypt.

The Egyptian Petroleum Sector's biannual international meeting, MOC brings together hundreds of companies and attendees from both the northern and southern shores of the Mediterranean, to discuss and display the latest developments, technologies and discoveries in the energy industry.

MOC has grown in importance over the years, welcoming increasing numbers of visitors, delegates and exhibitors from Mediterranean countries throughout North Africa, Europe, the Middle East and further afield.

MOC 2016 will provide a forum to discuss, examine and share with the

international oil and gas community the unlocked potentials of the Mediterranean Sea. E&P companies, contractors, service companies and suppliers will find it an ideal opportunity to present their products and services, and to discuss the current themes and issues of the Mediterranean energy industry, from seismic technologies, exploration discoveries and innovation in drilling technology, to reservoir management, and natural gas.

More than 6,000 attendees are expected to participate, representing more than 10 nations, and including more than 1,000 conference delegates, while bookings for the exhibition already cover 87 per cent of the available area.

Egypt's offshore Mediterranean is witnessing extensive exploration activities, extending into ultra-deep waters. The energy potential of the Mediterranean has grown significantly with the recent giant Zohr gas discovery. This, along with Egypt's strategic location and reliable infrastructure, will lead the country to become an energy hub and one of the largest regional gas producers, according to Eng. Tarek El Molla, Egypt's Minister of Petroleum and Mineral Resources, who said, "We are planning and developing integrated strategies as well as investing considerably in the energy industry, and want to meet with present and new partners to address these important new opportunities." Egypt's energy strategy will focus on bridging the gap between supply and demand; upgrading and expanding infrastructure; developing the petrochemicals industry; and establishing Egypt as an energy hub, he added.

For further information contact IES SRL - INTERNATIONAL EXHIBITION SERVICES, tel: +39 06 3088 3030 / mob: +20 102 622 9655; e-mail: exhibition@moc-egypt.com; www.moc-egypt.com.

*The event will be held in Alexandria
(Photo: Egyptian Studio / Shutterstock)*



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Leading industry figures to address Kuwait Oil & Gas Summit

THE KUWAIT OIL & Gas Summit, to be held at the Jumeirah Messilah Beach Hotel, Kuwait, on April 11-12 2016, will provide the oil and gas industry with an unrivalled opportunity to share views on how Kuwait can adapt, innovate and prosper in the changing energy world.

Kuwait awarded projects worth a record US\$32bn last year and plans to raise the figure in 2016, despite a sharp decline in oil revenues, therefore making Kuwait very attractive to international investors. The Summit will feature an interactive programme designed to engage in forward-thinking debate and build relationships with industry leaders.

Nizar Al-Adsani, deputy chairman and CEO, KPC, stated, "It gives me great pleasure to announce that the 4th Kuwait Oil & Gas Summit will be supported by KPC. This highly interactive Summit provides an ideal vehicle for stakeholders to review the progress that is being made and discuss recommendations for future collaboration and growth."

The Summit boasts an unrivalled array of distinguished speakers, including HE Mr Anas Al-Saleh, Deputy Prime Minister, Minister of Finance and Minister of Oil, State of Kuwait; HE Hend Subaih Barrak Al Subaih, Minister of Social Affairs and Labor and Minister of State for Planning and Development, State of Kuwait; Mohammad G Al-Mutairi, CEO, KNPC; Bakheet Al-Rashidi, president & CEO, Kuwait Petroleum International; Mohammad Husain, president & CEO, EQUATE Petrochemical Company; Hosnia S Hashim, vice president - Operations, KUFPEC; and Isam Jassim Al Sager, group CEO, National Bank of Kuwait.

Andrew Brown, Shell's new upstream director, will speak on changing market dynamics and how Kuwait can adapt and innovate. Jason Bordoff, founding director of the Center of Global Energy Policy at Columbia University, summing up the Summit's aims, said, "The Kuwait Oil and Gas Summit is a valuable opportunity to foster a deeper shared understanding of how different regions are responding to a rapidly changing global energy system."

For further information see the website at www.cwckuwait.com, #CWCKuwait.



Kuwait awarded projects worth US\$32bn last year
(Photo: Khaleel Haldar / flickr)

Saudi Aramco CEO calls for industrial diversification

SPEAKING AT THE 4th Saudi Downstream Forum held from 8-10 March in Jubail, Saudi Aramco's president and CEO, Amin H. Nasser, called for a new era of industrial diversification, anchored by specialty chemicals, and underpinned by a widespread and rapid in-Kingdom expansion of small to medium enterprises producing high-value finished and semi-finished products in the petrochemicals conversion sector. This approach will unlock opportunities for the Kingdom's economic diversification, job creation and innovation potential, and create a world-leading downstream industry, remarked Nasser.

Nasser said, "Saudi Arabia is already a global leader in petroleum and petrochemical commodities, but today we have a tremendous opportunity to also become a leader in downstream conversion."

Saudi Aramco plans to raise the company's total global refining capacity throughput to between eight and 10mn bpd. It is collaborating with the Ministry of Petroleum and Mineral Resources, the Royal Commission for Jubail and Yanbu, and the Saudi Arabian General Investment Authority to build value parks and locate service providers adjacent to petrochemical facilities, such as Rabigh PlusTech Park at Petro Rabigh on the west coast, and the PlasChem Park adjoining Sadara in Jubail Industrial City 2.

Nasser called on the industry to do much more to support the development of home-grown downstream technologies, such as breakthrough crude oil-to-chemicals technologies that will make oil a viable petrochemical feedstock.

Saudi Aramco is currently developing and testing highly advanced oil-to-chemicals technologies, Nasser said.

Speaking at the Saudi Downstream Forum, Warren Wilder, vice president of chemicals at Saudi Aramco, said, "International partnerships and collaboration are a hallmark of Saudi Aramco's successful strategy to optimise the full value and economic potential of the Kingdom's hydrocarbon reserves. We continue to look for opportunities in growing markets, and many of these opportunities will involve the integration of petrochemicals with new refineries."

At the Saudi Downstream Forum, Saudi Aramco showcased the scale and technological strength of its downstream activities through an exhibition highlighting its refining and petrochemicals operations. The biennial Forum is the Kingdom's largest downstream gathering, combining a strategic conference and international exhibition.

6th Erbil Oil & Gas Exhibition to highlight KRI opportunities

THE 6TH ERBIL Oil & Gas Exhibition will take place at the Erbil International Fair Ground between 20-23 April 2016 as the foremost gas and oil exhibition of the region, offering a platform for local regional and international companies to showcase their products and technologies.

Despite being plagued by difficulties such as reduced oil revenues, the struggle against ISIS, disruption to its exports through the KRG/Ceyhan pipeline, and a troubled relationship with Baghdad, the Kurdistan Region of Iraq nevertheless continues to offer strong potential for oil and gas development. Holding 40bn bbl of oil and 60tcf of gas, with low geological exploration risk and a relatively low cost of production, the Kurdistan Region of Iraq has distinguished itself as a key oil and gas source in the region.

Last year's event attracted 52 exhibitors and 7,200 visitors including government associates, oil company engineers and decision makers, and representatives from the construction, engineering construction & contracting services, financial services, project consultancy, repair services, trade associations, transportation, storage and handling sectors.

For further information see the website at www.erbiloilgas.com.



The Kurdistan Region of Iraq continues to offer strong potential for development (Photo: mm-j / flickr)



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Iran boosts production and exports post-sanctions

IRAN'S OIL PRODUCTION rose by 220,000 bpd to a four-year high of 3.22 mn bpd in February following the mid-January lifting of sanctions, the IEA reports. A resumption of crude oil sales to Europe during the first full month of sanctions relief and higher sales to existing customers in Asia helped push crude oil exports above 1.4mn bpd – up from around 1.15mn bpd just before sanctions were eased.

Shipments of crude in March, much of it Iranian Heavy, are expected to rise by around 150,000 bpd, according to the IEA. (In late March Iran's First Vice President Eshaq Jahangiri said the country has been able to increase its oil exports to 2.2mn bpd, on a par with the pre-sanctions level). Regular buyers in Asia including South Korea, Japan and India have stepped up purchases; South Korea's imports of around 200,000 bpd so far this year are nearly double that of 2015. National Iranian Oil Co. (NIOC) is reportedly offering deferred payment options to major buyers, said the IEA.

Iran is reported to be in negotiations with several European, Asian, African and South American countries on building or buying refineries, and discussions are underway with Oman on building a 250 km natural gas pipeline between the two countries for the export of Iran's natural gas. Oman's Minister



Iran says it has stepped up exports to 2.2mn bpd (Photo: David Stanley / flickr)

for Oil and Gas, HE Mohammed bin Hamad Al Rumhy, is reported to have said at the Ministry's annual press briefing in March that Iran could use Oman LNG's spare capacity to liquefy their natural gas for export.

Iran's Oil Minister Bijan Zangeneh has repeatedly emphasised that the country is determined to regain its share of the oil market that it had lost as a result of the sanctions, and is looking to increase the country's oil production by 500,000 bpd immediately after the removal of the sanctions and by a further 500,000 bpd later on. He is also reported to have said that the country may be willing join other producers in a production freeze – but only when it reaches production of four million bpd.

Asia to drive strong growth in global crude refining capacity

GLOBAL CRUDE DISTILLATION unit (CDU) refining capacity is set to increase strongly from 96.2mn bpd in 2015 to 118.1mn bpd by 2020, registering total growth of 18.5 per cent, according to research and consulting firm GlobalData.

The company's latest report, *H1 2016 Global Capacity and Capital Expenditure Outlook for Refineries – Developing Countries Drive Growth in Global Refining Industry*, states that this robust global growth will be led by China and Southeast Asia. A total of US\$170bn is expected to be spent in Asia to increase capacity by around 9mn bpd over the next four years.

Matthew Jurecky, GlobalData's head of Oil & Gas Research and Consulting, commented, "The global refining landscape continues its shift eastwards. 40 per cent of global CDU capacity is projected to be in Asia by 2020, up from around 30 per cent in 2010. China has led this growth, and is projected to have a 15 per cent share of global CDU capacity by 2020. This activity is putting pressure on other regional refiners, especially now that China has become a net exporter, and will become a larger one."

In Europe, growth will occur at a substantially slower rate. Although demand is decreasing and less competitive older refineries in Western Europe are being closed, these factors are being countered by investment in geographically advantaged and resource-rich Russia, which sees Europe's CDU capacity increasing marginally from 21.7mn bpd in 2015 to 22.5mn bpd by 2020.

Overall, refining capacity will be dominated by Asia, North America, and Europe by 2020, with totals of 42.5mn bpd, 23.2mn bpd, and 22.5mn bpd respectively.

In terms of specific upcoming refinery projects important to capacity growth, four new projects have been announced since November 2015. These are Algeciras in Spain, Mangistau in Kazakhstan, Sapugaskanda II in Sri Lanka and Yehgvard in Armenia, said GlobalData.

Jurecky continued, "The lifting of sanctions on Iran has led to industry-wide project proposals, in particular new refineries in Spain and Kazakhstan where Iran is directly involved, with an eye on retaking market share lost over the last few years."

Saudi Aramco highlights commitment to localisation



Abdulaziz Abdulkarim addresses the Forum

SAUDI ARAMCO REAFFIRMED its commitment to help drive sustainable economic growth and diversification across the Kingdom through the promotion of its In-Kingdom Total Value Add (IKTVA) programme during the 4th Saudi US Business Opportunities Forum which took place from March 22-23 in Riyadh, Saudi Arabia.

Speaking at a plenary session on the first day of the Forum, Saudi Aramco's vice-president of Procurement and Supply Chain Management, Abdulaziz Abdulkarim, said, "Two critical objectives guide our new IKTVA localisation programme: First, we will double the percentage of locally-produced energy-related goods and services to 70 per cent by 2021. And second, our local energy goods and services industry will export 30 per cent of its output over the same period."

He continued, "IKTVA is a win-win proposition for companies able to build a deep and lasting relationship with the Kingdom by setting-up shop here and investing in training and workforce development, to help capture their share of Saudi Aramco's future spend on materials and services." IKTVA, launched in December 2015, is the company's commitment to local content development that is now required across its domestic and international supply chains and is helping drive investment, economic growth and diversification, job creation and work force development within the Kingdom.

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Oman's oil and gas sector progress outlined at Ministry briefing

OMAN'S MINISTER OF Oil & Gas, HE Dr Mohammed bin Hamad Al Rumhi, said at the Oman Ministry of Oil's annual media briefing in March that the country's average crude oil production this year would be around 990,000 bpd, compared with 980,000 bpd in 2015, according to a report in the *Times of Oman*. Oman's average daily crude oil production in January and February was over one million bpd, although it declined in March, due to heavy rains. The minister is reported to have said that, although some oil projects are being reviewed, the general policy is not to slow down production. Similarly, natural gas production will increase this year to 104.5mn cubic metres per day from 103mn cubic metres per day last year.

The daily production of natural gas increased by 5.5mn cubic metres in 2015 over the previous year, he added.

Salim Al Aafi, undersecretary at the Ministry of Oil and Gas, said that 437mn bbl were added to oil and condensates reserves and 0.07 tcf to gas reserves in 2015, due to new discoveries and re-assessing producing fields. The Sultanate's total reserves of oil and condensates amounted to around 5,373mn bbl and approximately 22.99 tcf of gas by the end of 2015.

He added that Oman invested US\$11.4bn in developing the oil and gas sector last year, although the government was able to reduce its total budgeted expenditure in the oil sector by US\$1.3bn, mainly due to enhanced efficiency.

Of the total expenditure, US\$8.2 bn was for the oil sector, while the remaining US\$3.2 bn investment was for developing natural gas fields.

However capital expenditure in the natural gas sector increased by US\$600mn last year, mainly due to BP's investment in the Khazzan field, Al Aafi added.

He said that the government would follow



Oman is looking to boost oil production this year (Photo: Francisco Anzola / flickr)

a similar policy in cutting expenditure this year as well, but not at the expense of the Omani workforce. As many as 1,130 new jobs for locals were added in 2015 in oil and gas companies.

Petroleum Development Oman (PDO) confirmed at the Ministry of Oil briefing that it set a new combined oil, gas and condensate production record of 1.29mn bbl of oil equivalent per day (boepd) in 2015.

The company said it was confident of reaching a new sustainable long-term oil production plateau of 600,000 bpd, well ahead of its original 2019 target, to support revenue generation.

At the same time, it is pledging to intensify its cost-control programme to combat the effects of the low oil price environment, with an efficiency drive across its operations, and has reduced planned

expenditure this year by US\$1.6bn.

The average PDO daily oil production for 2015 was 588,937 bpd, the highest since 2005 and almost 14,000 bpd above the planned target.

Gas production was 83mn cubic metres a day, one million cubic metres above the planned target, as the company stepped up its effort to meet growing national gas demand.

During his presentation at the briefing, Raoul Restucci, managing director of PDO, highlighted a string of PDO achievements last year.

These included the creation of 7,200 employment, training and re-deployment opportunities for Omanis with PDO contractors, and the award of contracts worth more than US\$3.7bn to nationally registered firms.

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Qatar Petroleum - shaking up the business

Qatar Petroleum is looking to sell parts of its vast business empire to trim costs in the face of weak oil and gas pricing, although it remains open to new ventures, says Martin Clark.



Qatar has been hit by the collapse in energy prices, but remains well financed (Photo: JP Richard / Shutterstock)

QATAR, LIKE OTHER Gulf states, has been hit hard by the collapse in energy prices. Even though the country remains relatively well financed, with plenty of cash in the bank, it has caused a rethink in certain key policy areas as officials seek to navigate the current downturn.

This includes state-owned Qatar Petroleum (QP), which has announced a raft of cutbacks in recent months as it repositions its business for the challenges lying ahead.

Qatar holds a prominent position in the global gas industry, with upstream and downstream interests spanning the world, and QP playing a lead role in its development.

The country's North Field, which covers around 6,000 sq km in area, is the world's largest single non-associated gas reservoir. Qatar is now recognised as the world's

largest producer and exporter of LNG, and is known as the capital of the gas-to-liquids (GTL) industry with the launch of Shell and QP's joint Pearl GTL plant.

“ QP is looking to shake up things to secure its business for the future.”

QP's activities cover the whole gamut of the energy business, from exploration, production, crude oil sales and natural gas through to refined products, synthetic fuels, petrochemicals, fuel additives, fertilisers, steel and aluminium.

Nonetheless, the group is being tested on all fronts as a result of the weaker price climate. This includes handling

renegotiations on key LNG contracts with buyers looking to save some money. Heightened competition from rival LNG producers is adding to the problem.

India's Petronet has reportedly slashed the price it is paying for Qatari gas by half, while other countries including China, Japan, South Korea and Pakistan are also seeking reductions.

Non-core assets

It means, despite this enormous wealth and asset base, QP is looking to shake up things to secure its business for the future. This includes plans to divest a number of assets deemed 'non-core', in order to trim costs and secure funds for other ventures.

QP's leadership said last year that the company would also seek to reduce staff numbers as part of a restructuring process, which would also see it exit a number of non-core businesses.



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Among these is the sale of its Al Shaheen Holding subsidiary, which is fully owned by QP and which has three joint ventures in the oilfield services industry. Two of these are with GE Oil and Gas and one with the Middle East unit of Weatherford.

The business was set up in 2006 to "develop a leading national energy services provider" according to its website, but is apparently now deemed among the group's 'non-core' portfolio. The company has reportedly hired investment bankers HSBC to advise on the sale.

Separately, QP is also seeking a new operator for the local Al-Shaheen oilfield – not a part of the Al Shaheen Holding subsidiary, despite the name – starting in mid-2017 with the expiry of an existing agreement with Maersk Oil of Denmark.

Located 80 km offshore, it is the largest oil producing field in Qatar and currently produces around 300,000 bpd.

The field forms just a small part of QP's enormous asset pool, with operations and activities conducted at various onshore locations, including Doha, Dukhan and the Mesaieed and Ras Laffan Industrial Cities, as well as offshore areas, like Halul Island, offshore production stations, drilling platforms and the North Field.

Managing this enormous infrastructure remains a mighty logistical and high cost challenge, complicated all the more by diminishing income from gas and oil sales.

International shift

The shake up in QP's business empire is also evident elsewhere, with its foreign investments arm Qatar Petroleum International (QPI) being folded into the parent group, another key strategic move outlined early on by senior executives.

QPI has created around 10 joint ventures in the USA, the UK, Italy, Singapore, Egypt and elsewhere since its formation.

And, more recently, QP appears to be shaping plans with the UK's Centrica to sell a joint natural gas venture in Canada, amid declining prices, according to a recent report by Bloomberg.

The two sides agreed to buy natural gas fields from Canada's Suncor Energy in a C\$1bn (US\$754.8bn) deal in 2013, forming a new joint company called CQ Energy Canada Partnership.

QP also bought 40 per cent of Centrica's North American natural gas business for C\$200mn in 2014 and agreed to fold it into the venture. Centrica chiefs have stated that Canada is now deemed non-core to its business – the company is the largest energy supplier to UK households – and it appears that QP agrees.

That would still not undermine the enormous chain of interests and investments that QP maintains around the world, including in the UK itself, with a stake in the nation's LNG infrastructure.

It is indicative, though, that times have changed, not only with oil prices suffering, but with the glut of new gas from rival producers around the world such as Australia and the USA.

“ For QP, rationalising at home and overseas does not mean retreating.”

New investment

For QP, however, rationalising at home and overseas does not mean retreating.

Despite merging its international arm, QP clearly still sees a part of its future in upstream exploration.

In February this year, the company

secured a 30 per cent stake in three deepwater blocks offshore Morocco, alongside operator Chevron Morocco Exploration Ltd, a subsidiary of Chevron Corporation, and Morocco's Office National Des Hydrocarbures Et Des Mines.

Saad Sherida Al-Kaabi, QP's president and chief executive, said the deal marked an "important step" in building an international upstream presence with the US oil major.

The three offshore areas are Cap Rhir Deep, Cap Cantin Deep and Cap Walidia Deep, located between 100-200 km west and northwest of Agadir, in water depths ranging from 100 metres to 4,500 metres.

At home too, QP is exploring new business opportunities, despite the retrenchment elsewhere.

As well as its core upstream business, QP is keeping one eye on the future after signing a pact with Qatar Electricity and Water Company (QEWC) to set up a joint solar power company.

Al-Kaabi said the move is a continuation of QP's environmental commitment as demonstrated by various other projects, such as the reduction of gas flaring and greenhouse gas emissions, and the company's Jetty Boil-off Gas Recovery (JBOG) project, to cut the carbon footprint of the giant LNG business.

Diversifying sources for energy production, and increasing reliance on renewable sources is also a stated national target of the Qatari government. QEWC itself hopes to construct as much as 1,000 megawatts of solar power to diversify the local economy away from hydrocarbons.

Solar power generation may not be what QP is known for around the world, but it is perhaps indicative of its innovative spirit, one which turned a tiny Gulf state into the world's greatest LNG exporter in just a few decades. ■

Qatar has become the world's leading LNG exporter in the space of a few decades





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Investment strategies in an uncertain environment

Ekaterina Kalinenko and Stefan Chapman from Euro Petroleum Consultants discuss the challenges and opportunities in today's global refining and petrochemicals market.

LOW OIL PRICES in the last two years have been affecting global investment in the energy sector. While oil and gas projects are still being developed, investment in new onshore and offshore oil and gas projects is being cut, which will negatively affect future market supply.

However, it is noteworthy that the refining business has helped vertically integrated companies offset the losses of their upstream sector – maybe for the first time in many years. ExxonMobil's overall earnings for 2015 declined by 58 per cent compared to 2014, with downstream results partly offsetting the losses in the upstream sector. BP experienced an even more dramatic earnings drop in its upstream sector, but reported record pre-tax earnings of US\$7.5bn in its downstream operations – a 68 per cent increase over 2014. Interestingly, the company expects to achieve annual savings of US\$2.5bn up to 2018 by restructuring upstream and downstream costs.

“Refineries in all regions have been deferring investment.”

Current uncertainties

If oil prices remain low, refiners are expected to continue to benefit, but there are considerable uncertainties concerning oil demand growth, economic growth and inventory levels. Refiners in all regions, particularly US refiners, are increasing profits and raising market capitalisation. In the USA, refinery margins have benefited from strong domestic demand and strong export markets. The majority of oil analysts are cautiously optimistic, however, some experts are suggesting that refining margins will be unable to compensate for the negative effects of falling crude value. Fitch Ratings point out that current high levels are unlikely



Ekaterina Kalinenko

to be sustainable, taking into account issues such as overcapacity, competition and unequal level of technological complexity – these issues will inevitably impose considerable risks and undermine refiners' competitive position and profitability levels.

Market observers are cautiously optimistic regarding the European market, indicating the distillate market is fairly balanced even with the additional supply of middle distillates from the new Middle East refineries. However, the build-up in oil product inventory could become a serious problem, exerting downward pressure on refinery margins.

In theory, low oil prices should stimulate economic growth and contribute to a more positive oil demand outlook. In reality, oil demand is fairly inelastic – in 2015 the impact of low prices on oil demand was quite modest. Weak oil demand in Europe and a slow-down in demand in the Asia region is contributing to the bearish oil market outlook. The long-term effect of low prices will have a negative impact across all sectors, as national companies in Asia and the Middle East, depleted by lower oil price revenues, will postpone investment in both the upstream and the downstream sectors.



Stefan Chapman

Refineries in all regions have been deferring investment due to concerns with future prospects and lack of available funding. Marathon Petroleum postponed a refinery upgrade at its Louisiana refinery. Kuwait Petroleum announced it was cancelling the investment in its Rotterdam refinery. In China, Sinopec is cutting investment by 12 per cent due to cash constraints and lower domestic oil demand, and PetroChina has cancelled two grassroots refinery projects.

Competition issues and supply and demand balances are crucial factors that will impact global refiners in the future – European refiners will be particularly vulnerable to competition challenges from other regions. The export of middle distillates to Europe from Russia and the Middle East is threatening to overwhelm the European market, creating oversupply pressures. Confronted with weaker distillate markets, European refiners are relying on gasoline to strengthen their margins.

Oversupplied markets and intense competition between regions require well-crafted strategies by international companies as well as by National Oil Companies (NOCs). NOCs cannot rely on

low operating costs alone to remain competitive, but need to increase operational efficiency and diversify investments by partnering with international companies for access to technology and acquisition of assets to secure markets.

“The downstream sector has for the most part reaped good returns and high margins.”

Middle East NOCs are already implementing this strategy by promoting close relationships with Asian countries. South Arabia is leading the way – joint ventures with Chinese NOCs and the purchase of a majority stake in South Korea's S-Oil are the most recent examples.

The downstream sector has for the most part reaped good returns and high margins, but prospects are far from certain across the regions. Companies need to understand



*The global petrochemical landscape is changing
(Photo: James Dalsa / flickr)*

market dynamics and choose the appropriate strategy for each market.

Changing landscape

The global petrochemical landscape was already changing prior to the collapse of oil prices in the second half of 2014. Many factors have been affecting the global petrochemical market, such as the

availability of unconventional gas in the USA and Canada and the high demand for oil and petrochemicals in the Asia Pacific region.

These factors spearheaded the expansion of the petrochemical industry in the Middle East, the USA and Asia. A large amount of petrochemical capacity has been added in these regions, threatening the fragile global supply-demand balance.

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Contrasting fortunes

In recent years, contrasting fortunes distinguished Middle East and US producers from Asian and European producers, with the latter struggling due to high feedstock costs. Those companies cracking ethane-based feedstock have enjoyed a significant cost advantage over those cracking naphtha. That has created a significant advantage for Middle Eastern producers and, more recently, for those North American producers who have been taking advantage of the shale gas boom. Now, the cost curve has shifted, and whilst those companies cracking gas still have some cost advantage, those cracking liquids are now benefiting from a much-improved competitive position based on lower feedstock price.

The Middle East enjoys the world lowest cost ethylene production, thanks to cheap ethane. Low gas prices in the Middle East have led to substantial capacity additions in the last decade, with growth of 10 per cent recorded since 2008. In the future the expansion rate is expected to be more moderate, but several petrochemical projects are still underway or at the planning stage. The majority of the additional petrochemical production will be targeting export markets.

The decline in oil prices changed the dynamics of the market and reduced the advantage of ethane versus naphtha-based feedstocks. This change has had an impact on the level of competitiveness of regional petrochemical producers. European and Asian petrochemical producers with predominantly naphtha-based feedstock have been able to bridge the level of competitiveness versus US and Middle East producers. The Middle East, on the other hand, will remain a key ethylene producer, due to feedstock cost advantage. The lower price of feedstock reduces, but does not remove, the US and Middle Eastern gas-based chemicals advantages, which support further investment in these regions. The Middle East and the USA will see the most ethylene capacity additions. On the demand side, Asia, and China in particular, will drive consumption and trade in ethylene and primary derivatives.

In the USA, low ethane prices have triggered a revival of the US petrochemical sector – a substantial number of petrochemical plants have been built and new projects are in the pipeline – taking advantage of the significant cost advantage of cracking gas. As the scope for expansion in the domestic market is fairly limited, US ethylene producers, and even producers of on-purpose propylene, will be targeting export markets.

In the Asia Pacific region, rapid economic growth and high energy demand have been driving the expansion of the global oil and



US producers will be targeting export markets
(Photo: MPCA Photos / flickr)

petrochemical industries. The region holds the largest ethylene capacity in the world, ahead of North America and the Middle East. It is estimated that two thirds of the global petrochemical demand in the next decade will come from the Asia Pacific region. However, significant petrochemical investment – particularly in China – is undermining supply and demand balances in the region. Recent capacity additions have led to oversupply, which will affect petrochemical markets in the coming years.

“The Middle East will remain a key ethylene producer, due to feedstock cost advantage.”

Africa's energy sector has been attracting considerable interest from global investors in recent years. Africa's chemical/petrochemical production is intrinsically connected to the agriculture sector, which is the biggest chemical consumer. The continent's demand for petrochemicals is expected to increase substantially in the coming decades as a result of faster economic growth and improving socio-economic conditions, stimulating business investment and domestic consumption. A substantial increase in demand for petrochemicals will derive from infrastructure, construction and production of consumer goods – industries expected to experience significant growth in developing countries.

In the future, the main petrochemical consumer industries – the construction and automotive sectors – are set to grow in Africa, helping to stimulate demand for polymers and rubbers. Low operating costs and availability of feedstock are creating the conditions for a profitable and competitive upstream and downstream petrochemical industry. African petrochemical producers can achieve competitive advantage in

international markets based on low operating costs, and benefit from low import duties in European markets.

Market challenges

At the latest Middle East Technology Forum for Refining & Petrochemicals (ME-TECH 2016) many market challenges were highlighted, including capacity growth leading to oversupply, the shortage of qualified labour, the slowdown of emerging energy markets and unstable commodity prices. In the Middle East region, trends in refining that have been seen recently in other regions, seem to be present: lower levels of business activity, postponed projects, and reviewed budgets and investment programmes, requiring the development of strategies to adapt to the current market situation.

Nevertheless, both the refining and petrochemicals industries have set a goal for expansion, with refining capacity set to reach around 7mn bpd by 2020. Many experts agreed upon the importance of the wider introduction of refinery/petrochemicals integration processes for the industry to survive and prosper during this period. African producers also could benefit from adopting a more integrated approach.

2016 will be another challenging year for the oil, gas and petrochemicals sector. Companies must be competitive to thrive, maximising returns through technological innovation, improved operational efficiency and product diversification, while investment in human resources will continue to play a crucial part in the survival and prosperity of the industry. ■

Euro Petroleum Consultants (EPC) is a technical oil and gas consultancy with offices in Dubai, London, Moscow, Sofia and Kuala Lumpur. EPC also organises leading conferences and training workshops including 'BBTC 2016 – Bottom of the Barrel Technology Conference', which will take place on 26 & 27 October in Bahrain. For details please visit www.bbtc-mena.biz.

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What it takes to leverage E&P Big Data

Dr. Satyam Priyadarshy, chief data scientist, Halliburton, Landmark, outlines how an integrated and modular Big Data platform based on SMART technologies can create value from E&P Big Data.

BIG DATA IS one of the most talked about technology topics in all industries, and upstream oil and gas is no exception. The growing need to better understand the subsurface, have cost-effective drilling operations and achieve highly efficient reservoir management has led to the creation of huge amounts of data. This data is coming from a large number of sensors, devices and equipment at higher frequencies than ever before, inundating existing information infrastructure. However, it is presumed that the oil and gas industry generates value from only one per cent of all the data it creates [McKinsey Report 2015¹; CNBC 2015²].

Recently, upstream oil and gas companies have begun to focus on creating more value from Big Data, trying to grasp the concept and what it means for their business and the industry as a whole. But, compared to other industries that have already successfully leveraged Big Data – like the financial sector, digital media, healthcare, etc. – the oil and gas industry is much less mature.

The challenges and obstacles faced by upstream oil and gas with respect to Big Data could be overcome with the following types of solutions:

- More efficient processes and workflows across the upstream oil and gas lifecycle
- A higher degree of 'real-time' actionable insights
- A consolidation of data (rather than data silos, data lakes and remote data stores).

Before implementing such solutions, it's important to understand what Big Data is.

Understanding Big Data

While there are many definitions of Big Data used in the industry, the most common misconception is that it involves "lots" of data. If it was just about lots of data and the processing of it, then the oil and gas industry would be considered a pioneer of leveraging Big Data, as it has accumulated lots of data over the last couple of decades.



Dr Satyam Priyadarshy, chief data scientist, Halliburton, Landmark

However, in the present context, this is not true. So, what exactly is Big Data?

My definition of Big Data leaves no room for misconception or confusion about the meaning:

'Big Data is about all the data whose scale, variety, source, context and complexity needs emerging technologies and solutions for creating actionable insights to enable business growth and innovation.'

Industry reports will talk about Big Data

in terms of the three Vs, four Vs, etc., where the Vs are Volume, Velocity, Variety and Veracity. A more appropriate description is to see them as pillars of Big Data. Based on the above definition, there would be seven pillars [CIO Review 2015³, PR 2015⁴] consisting of Volume (small to large), Velocity (slow, to fast, and data in motion), Variety (unstructured to structured), Veracity (the truth in the data), Virtual (data anywhere, not in silos and lakes only), Value (the value for business growth/innovation) and Variability (the unique mix of Volume, Velocity, Variety, Veracity, Virtual and Value for the specific context).

Creating value from upstream Big Data

The E&P oil and gas industry has done a great job of managing its data and information because of products and solutions from companies like Landmark, a division of Halliburton. Landmark pioneered the storage of exploration data, and over many decades built a strong foundation for creating value from multiple data sets, depending on the phase of the oil well life cycle. To truly benefit from Big Data, however, a paradigm shift is required in order to address the many challenges.

Interconnectivity of data collected during multiple phases of the oil well lifecycle -

Upstream oil and gas has multiple phases, from exploration to drilling to completion to production and beyond. Each of these phases is equivalent to an industry vertical by themselves; so on a scale basis, exploration alone could be much more complex and bigger than the digital media world. Hence, the solutions that the digital world uses could not be easily translated to solve challenges in these phases. There are a number of niche solution providers for managing data – whether it be storing, transforming and mining data. Solutions from these providers are generic and require a large degree of customisation for the upstream oil and gas industry. As it exists

“The oil and gas industry generates value from only one per cent of all the data it creates.”

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today, this customisation could lead to cost over-runs, ineffective use of technology and unwanted complexity.

Management of upstream oil and gas scientific workflows - Scientific workflows play a more critical role in the upstream oil and gas industry than in other industry.

These workflows are quite complex, computationally intensive and time consuming in terms of interpretation. Their interplay is also important. With the ever-increasing data in terms of volume and dimensionality, the execution and management of workflows could become much more cumbersome. The data-intensive scientific workflows are a good target for leveraging Big Data technologies, such as distributed computing, cloud resources, etc. However, the implementation of these technologies requires a significant amount of domain knowledge in order to adapt the scientific workflows on such systems.

Leveraging the appropriate analytics value chain - Interpreting seismic data with high accuracy requires efficient computational processing and extensive domain knowledge. To date, there is not much tacit knowledge that is captured for building highly cognitive systems. Hundreds of papers have been published on attempts to build various predictive models for rate of penetration for drilling performance; predicting the occurrences of unwanted stuck pipe events; and estimating the invisible lost time by using various

“To truly benefit from Big Data, a paradigm shift is required in order to address the many challenges.”

descriptive, predictive models and machine learning algorithms. The success of models is yet to be realised by the industry. One of the reasons for minimal value from such analytics modeling is a lack of domain expertise and holistic domain knowledge that must be incorporated when creating data driven analytics modeling. A large number of vendors and solution providers can provide the analytics modeling, but not the domain expertise. For example, topological data analysis algorithms have provided some value in cancer research; but, when one applies these algorithms to seismic data, the resultant topological maps require a significant input of domain expertise to make sense, and do not add much accuracy in subsurface interpretation.

Using the SMART approach

The solution lies in the SMART approach from Landmark. Landmark has successfully built and deployed one of the most integrated and modular solutions for the upstream oil and gas industry, called the DecisionSpace™ platform, using this SMART approach. So, what does SMART stands for?

- Simplification of the underlying technology infrastructure to address all phases of the

oil well life cycle, scientific workflows and analytics value chain. This simplification is done in a manner so that anyone from exploration to production can use the same platform to create value, which many of the niche solution providers cannot do, as they lack significant domain knowledge and experience in the field.

- **Management of data silos, data lakes and data stores** through the DecisionSpace integration server, with a single data view; thus, addressing the Virtual pillar of Big Data. It provides access to data without the need for moving massive amounts of information from the field to the back office, etc. It leverages a virtual cube concept that can be saved to do repeated data mining on required attributes. It also provides for handling data in motion, an important component of the upstream oil and gas industry, which is an ability that outside vendors and niche solution providers lack.
- **Agility of combining logs** from multiple sources and addressing the contextual data quality that increased the time to value from E&P Big Data. Many solution providers have data quality tools and technologies, but not E&P Big Data.
- **Reduce costs and risks** associated with managing data, data mining, and analytics and increase efficiency in creating actionable insights from data sets that was not possible before.
- **Technology platform** that is scalable and expandable to adapt and incorporate new data ingestion technologies, data storage solutions, Big Data analytics tools and



Scientific workflows play a more critical role in the upstream oil and gas industry than in any other industry (Photo: Maersk Drilling)



The oil industry has started to pay more attention to creating value from Big Data (Photo: Shutterstock mania / Shutterstock)

technologies, and insights visualisation and interpretation platform that provides access anywhere. ■

Summary

In brief, many niche solution providers for Big Data technologies exist and have solutions to meet one or more of these challenges; but to innovate from E&P Big Data, one needs to work with companies that have significant domain knowledge combined with Big Data expertise. An integrated and modular Big Data platform based on SMART technologies, such as DecisionSpace, is the way ahead to leverage E&P Big Data.

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Advancing women in Kuwait's oil and gas industry

The commitment of leadership and the K-Companies Professional Women Network have set Kuwait on the path towards gender balance in the oil and gas industry, says Hosnia Hashim, V-P of Operations at Kuwait Foreign Petroleum Exploration Company (KUFPEC).

SPEAKING AT FEBRUARY'S IP Week conference in London on the attraction and retention of women in the oil industry, Hashim remarked, "Women hold less than 15 per cent of executive roles in Fortune 500 companies, including oil companies, but this is changing. Although the GCC is at the lower end, of gender gap comparisons, with women accounting for less than one per cent of executive committee and board positions, it is important to highlight that 65 per cent of organisations in GCC countries are prioritising gender balance and topics related to female empowerment in their political and corporate agenda."

Hashim is counted amongst that one per cent minority attaining executive committee and board level positions in the GCC, having reached the highest executive positions achieved by a woman in the oil industry in Kuwait in the course of a trailblazing career spanning more than 25 years in the industry. In her current role with KUFPEC, Hashim is responsible for Kuwait's international oil operations in 15 countries across the world. Prior to this she held senior leadership and management positions at Kuwait Oil Company (KOC), where she founded the pioneering KOC Professional Women Network. Her achievements and contribution as an inspirational role model have been recognised by numerous awards, most recently the ADIPEC Oil & Gas Woman of the Year award in November 2015.

"The leadership in Kuwait's oil and gas sector recognised the need to advance women and enable them to achieve their full potential," said Hashim.

"They launched the Professional Women Network in KOC, the main operator, in 2009, and in 2014 that network was extended to all the nine subsidiaries of Kuwait Petroleum Company (KPC). Today, we have more than 3,000 women working in the oil sector in Kuwait, and this network has a responsibility to ensure that conditions improve for all of them."



Hosnia Hashim, V-P of Operations, Kuwait Foreign Petroleum Exploration Company (KUFPEC)

Fifty-three per cent of all women in K-companies are working in KOC, where women account for nearly 19 per cent of the workforce and are found throughout the company in disciplines from HR to drilling.

"Our network has a number of objectives; we aim to enhance the work environment in terms of gender diversity, and to empower and integrate K-Companies women workers to pursue the highest level of technical and managerial roles," said Hashim.

“The leadership in Kuwait's oil and gas sector recognised the need to advance women”

"What is our learning from our experience in Kuwait? A network is the first step to support the advancement of women, and the support of leadership is key. We have strong support from the CEOs of KOC and KPC. We meet regularly with them and discuss our issues, and action follows within a couple of months.

"The main challenges of women in Kuwait in the workforce are firstly, culture and self empowerment," said Hashim. Field

related work is a challenge for family life and still represents a barrier in many Gulf countries, she commented. "Secondly, the working conditions of women in the field and in refineries are not adequate. Four months ago, our CEO gave an instruction that all the facilities in the gathering centres and the drilling rigs (KOC has more than 130 drilling rigs and more than 40 gathering centres), should be equipped with facilities for women. More than 60 per cent of them are now equipped with such facilities.

"Thirdly, HR policies are not always equal for men and women. For example in Kuwait, we have a law prohibiting women from working at night, except for doctors and nurses. Such laws should be revisited. We aim to keep pushing for gender balance.

"I am convinced that through our network we can voice our challenges and our needs. We have already raised awareness about some imbalances with our leaders, and they are taking these issues seriously."

A key activity of the network is holding meetings and providing networking opportunities to introduce the young generation to female leaders. "We have so many role models who show that women can climb the ladder and achieve in harsh environments," said Hashim.

"We need to do more; the main thing we want to achieve is to establish flexible hours within our companies; that would be an important step in changing the environment to attract more women."

While there is still a need to encourage more women into STEM subjects, it is noteworthy that women are outperforming men in schools and universities in Kuwait, and are entering the oil industry in large numbers. The challenge now is to help and encourage them to move up the ranks.

"We need the women in our workforce to feel they have rich career path and that their future will not be jeopardised by a lack of promotion or opportunities," concluded Hashim. ■



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Highlighting opportunities in bulk liquid storage

TANK WORLD EXPO, the definitive tank storage event for the Middle East and North Africa region, will bring together the best and brightest from the Middle East and African bulk liquid storage industry, opening its doors to suppliers and key decision-makers from across the region.

His Excellency Eng. Suhail Mohamed Faraj Al Mazrouei, UAE Minister of Energy, will open the show and deliver the welcome address. Officially supported by the UAE Ministry of Energy, Tank World Expo also boasts many other major show supporters, including Horizon Terminals, ENOC, Fujairah Oil Terminal, Gulf Petrochem and Star Energy Oil Tanking, as well as some of the world's leading suppliers including Emerson Process Management, Kanon Loading Equipment, ATECO Tank Technology Engineering and Endress+Hauser.

“Many exhibitors will be using Tank World Expo 2016 as a platform to launch new innovations and technologies.”

Tank World Expo 2016 will feature a two-day conference programme led by 18 industry figures from organisations such as the UAE Ministry of Energy, Oiltanking Odfjell Terminals Oman, Dubai Mercantile Exchange, Burgan Cape Terminals and CITAC Africa. The programme reflects the changing market place, with an increased focus on the greater GCC region, as well as Fujairah and the UAE, which both feature strongly in the programme, alongside Africa.

Roderick de Rooij, commercial manager at Oiltanking Odfjell Terminals Oman, will be



The Middle East is a hub for the bulk liquid storage industry (Photo: Roel Hemkes / flickr)

looking at the future outlook for the storage market in Oman. He will discuss how to capitalise on the trade routes between Asia and Europe, whilst analysing the region's demand for storage capacity. He will also explain how best to increase the terminal's efficiency and explore Oman's future growth ambitions.

The growth of Fujairah is still a key driver in the Middle East's continued rise. It is the second most productive region in terms of bunkering capacity and the third largest oil storage and products trading centre in the world. In light of this, Malek Azizeh, commercial director at Fujairah Oil Terminal, will discuss the region's crude oil storage position as a strategic regional hub for products and crude.

Paul Young, head of Energy Products at Dubai Mercantile Exchange, will be looking at the impact of oil prices on the storage

sector, and delving into crude supply and demand drivers in the Middle East.

Many exhibitors will be using Tank World Expo 2016 as a platform to launch new innovations and technologies to the Middle East and African markets. Arflu Industry Valves will be presenting its dual expanding plug valve, while Fort Vale will demonstrate its MK3 Safeload semi-automatic bottom loading coupler. Knowsley SK will be displaying its latest foam mixing technology – the Turbinator, designed to accurately mix foam concentrate liquid with either freshwater or seawater. Omnivalve will be presenting its OmniSeal Double Block and Bleed (DB&B) expanding plug valve. ■

For more information contact Nick Powell, tel:+44 (0)20 8843 8801, email: nick@stocexpo.com, or visit the event website: www.tankworldexpo.com.

Cooling solutions for production optimisation

Aggreko, a global leader in the provision of temporary power and temperature control, outlines how its temporary cooling solutions can result in cost savings and operational efficiencies.

FOR PRODUCERS IN many industries, such as refining and petrochemicals, process optimisation is an ongoing challenge when trying to meet defined production specifications and to deliver quality product on time during the peak of the Middle East summer. The failure of just one part of the cooling process in a refinery to meet the required temperature can result in decreased production and can be disastrous for the manufacturer's bottom line.

One of the main issues currently plaguing refineries pertains to the lack of seasonal supplemental support for critical cooling of process or sea water during the peak of summer. Many companies are now investigating options to mitigate this risk, including the use of temporary cooling solutions to overcome issues such as fouled sea water heat exchangers, increased sea water temperatures from the Gulf, and periodic maintenance of heat exchangers.

Temporary rental of sea water cooling tower and heat exchangers, such as those available from Aggreko, can allow producers to maintain or increase production levels during the summer period by optimising process cooling in their production facilities. In many situations, these customised temporary solutions also help manufacturers improve their balance sheet by avoiding high-cost capital expenditure (CAPEX) commitments to meet short-to mid-term needs. Refineries worldwide are benefitting from the cost savings and operational efficiencies that temporary cooling tower solutions provide.

When considering a temporary cooling system, it is important that the equipment and the solution match the specific demands



Aggreko cooling towers can help operators to maintain or increase productivity during the summer months

of the environment. Each stage in the refining process is unique and has different needs, so there is no such thing as one size fits all solution.

Optimising productivity at different phases in a refinery process

Aggreko temporary cooling towers can be applied in a number of ways to address vital process cooling needs and maintain productivity, from both an economic and operational standpoint:

Optimised cooling to saturate (sat) gas plant – Feed to the sat gas plant can come from various sources within the refinery, though the major source is gas from the overhead drum in the crude unit. The sat gas plant compresses feed gas in order to recover LPG-grade material from natural gas. Normally the sat gas plant also has a depropaniser and debutanizer to split the liquid LPG stream into individual propane and butane products.

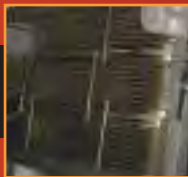


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To ensure the processes in this section are carried out seamlessly, additional temporary cooling can be required at any of the processes taking place in the distillation tower overhead, wet gas compressor, rundown cooling, absorber lead oil process.

“The maximum benefit of these temporary systems can only be realised by partnering with the right provider.”

Aggreko can provide the additional cooling that circulates cooling water through a closed-loop mechanical refrigeration or cooling towers to utilise salt water. This additional cooling will mitigate any cooling issues, thereby allowing the plant to lower distillation tower pressure and increase unit rates over previous summer periods.

Cooling vacuum unit to enhance performance – The vacuum tower pressure that can be achieved is proportional to the temperature of the water used in the condensers' cooling water exchangers. Thus, water used in these condensers lowers the potential vacuum pressure. Cooling water comes from the plant's closed-loop cooling water circuit. After being warmed, it passes through numerous exchangers in the plant, and then the cooling water is re-cooled in a cooling tower. However, it can only be cooled so far, due to the higher ambient temperatures in the summertime.

Aggreko can provide cooling water exchangers that circulate



Aggreko temporary cooling solutions can be used in a number of ways to address vital process cooling needs

chilled water through a closed-loop mechanical refrigeration or cooling towers able to utilise sea water in order to lower vacuum tower pressure. This allows the refinery to incrementally capture more heavy vacuum gas oil (HVGO) from vacuum tower bottoms material and increase refinery profitability in the process.

The applications described above are just a couple of examples of how temporary cooling solutions can help refineries mitigate operational hazards, minimise CAPEX spending and ensure optimal production uptime. The maximum benefit of these temporary systems can only be realised by partnering with a provider with the right technical, engineering and project management expertise to execute a customised and scalable turnkey solution, for short- and long-term needs. ■

For further information see the website at www.me.aggreko.com.

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Bringing cost savings to unconventional oil and gas through smart tracers

LEADING TECHNOLOGY COMPANY Tracerco has been helping customers to achieve savings of as much as 20 per cent in reservoir stimulation costs through their smart tracer technology.

Over several projects in the last few years, Tracerco has demonstrated the value of using smart tracers to measure stimulation effectiveness in unconventional oil and gas reservoirs. In the challenging market conditions that the industry faces today, reducing lift costs is paramount. Stimulation optimisation is a key area to reduce spend on stimulation activities, and yield maximum production.

Unique tracers are used to tag the native oil, gas and frac water in each of the stages in unconventional wells. Samples are taken at regular intervals and analysed at one of Tracerco's specialist tracer laboratories located around the world, or at a mobile lab which can analyse results onsite.

The analysis allows accurate stage flow data comparison to be made and determine the most effective stimulation conditions. This can identify where stimulation is not effective, and therefore in future wells with similar geophysical expectations, stimulation can be deleted in those stages, ensuring resources are optimised.



Smart tracers have been used to measure stimulation effectiveness in unconventional oil and gas reservoirs (Photo: Erick Gustafson / Flickr)

In addition, tracers can be used to compare stimulation technologies in order to identify the most effective overall. One customer used smart tracers in this way, tagging two wells with the same geophysical expectations, but with two competing stimulation strategies. Not only did they identify two stages where stimulation was ineffective (eight and nine within each well), they

discovered that one stimulation strategy yielded 18,000 barrels per month, whilst the other yielded 26,000 barrels per month, with no anomaly showing majority flow from one stage due to unforeseen geological properties. If the operator deleted stages eight and nine from the stimulation in either strategy, it would have yielded a 20 per cent saving in stimulation costs, with only a four per cent reduction in production. This, coupled with the knowledge that one stimulation technology was far superior in terms of yielding product, meant the operator could cost-effectively optimise their stimulation strategy.

Paul Hewitt, Reservoir Technologies director, commented, "Optimising stimulation strategy is an effective way to reduce lift costs. Using tracers to measure the effectiveness of different stimulation strategies on a stage by stage basis in similar geophysical wells, means our customers can optimise development plans. The advantage of using tracers is their ability to pinpoint stages of the well that are successfully producing or not. In this case, what is more interesting are those not responding to the stimulation, which could effectively be deleted from future stimulation activities within similar wells, therefore yielding significant savings."



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Harnessing technology in a cost-critical climate

John MacKay, from global surveillance solutions business Synectics, provides an overview of current offshore surveillance technology trends relevant to the Middle East market.

THE GLOBAL OIL and gas industry has entered a turbulent era of oversupply, with unstable pricing and restricted budgets posing a long-term challenge, not just a short-term hurdle.

Though experiencing the same squeeze on margins as other international markets, analysts predict that the Middle East will – over the next 20 years – retain its mantle as the world's top oil exporter and see oil consumption increase by around 60 per cent. To seize this long term opportunity however, operators need to 'ride the storm' by boosting operational efficiency. It is an objective prompting many to innovate by adopting technologies that aid production while minimising the demand on resources.

Middle East offshore operators should not underestimate the potential operational efficiencies – and therefore cost efficiencies – attainable by using the right surveillance solutions, in the right way.

“Consolidating site monitoring in this way enables swifter threat response.”

Integrated systems

The emergence of IP-based surveillance presents the most significant opportunity for the sector in this regard, as it enables seamless integration between video and a wide range of critical third party systems such as access control, process control, chemical detection, emergency response and even radar. The immediate benefit of this is that it takes fewer people less time to monitor systems when they are unified – and therefore manageable – in a single command and control environment. But the more significant benefit for a cost-conscious market is the depth of data analysis this level of integration facilitates.



Using integrated surveillance systems can result in operational and cost efficiencies for offshore operators (Photo: iurii / Shutterstock)

Details such as fluctuations in temperature, noise or equipment performance, access anomalies and unusual personnel movements, can be easily monitored and continually cross-referenced via a single security management system to identify issues before they have a chance to escalate. The same system can also be configured to prompt high definition visual feed (from the nearest camera stations) and generate automatic on-screen incident investigation/response workflows for even greater efficiency.

Consolidating site monitoring in this way enables swifter threat response, and can ultimately prevent incident escalations that would be dangerous to people, places and profits.

Maximising existing assets

Of course, while the dominant surveillance trend for new developments in the Middle East is for HD IP-based systems, there is still a huge number of analogue cameras in operation. The scale of some sites, combined with budget restrictions, means wide-scale replacement of analogue cameras is simply not feasible, and given

that many operators will be looking to develop their existing assets ahead of new project investment, ensuring that all 'old and new' can work together is essential.

This is particularly relevant in areas such as Qatar and Saudi Arabia where project expansion, due to a long history of development, is more common.

One of the major benefits of the latest interoperable surveillance systems, in terms of pure cost effectiveness and ease of use, is that they can utilise legacy products, i.e. existing analogue cameras and their infrastructure, connect them with new technology, and unite them in a system that delivers all the advantages of digital control functionality – a hybrid system.

This can make a big difference to the overall investment figure for upgrading a project (for example introducing new drilling platforms or improved logistics infrastructure), as it negates the need to strip out and start from scratch. With a fully interoperable system, these new camera stations can be quickly and easily introduced, and work side-by-side with existing cameras, feeding into one digital monitoring and control system.

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Safer assets are more cost effective

Using surveillance to detect corrosion and degradation may not be the first thing that springs to mind when discussing technology as a cost-reduction measure, but the reality is that safer assets are more efficient, and therefore more cost-effective.

Offshore assets are susceptible to extreme weather conditions, and factors such as salt corrosion. This can leave equipment open to levels of wear and tear that can quickly escalate from minor degradation to complete malfunction. Constant manual inspection is expensive, and in many instances dangerous for the personnel concerned. Today's surveillance solutions offer an alternative.

Real-time, high resolution, high efficiency transmission of visual data, using low bandwidths to avoid resource drain and unnecessary spend, is possible using cameras that can operate in confined spaces, low light and at extreme low and high temperatures. They are ideally suited for monitoring non-hazardous rig areas, and are perfectly tailored for continuous monitoring of hazardous areas, often difficult or dangerous to inspect manually on such a regular basis.

By integrating video feed with analytics via a command and control platform, any deviation from set parameters (or combination of possible degradation indicators) can be programmed to trigger an incident alert on monitors in the control room for personnel to investigate further. Thanks to improving IP networking and connectivity, monitoring of this nature can be conducted from an onshore base, supporting leaner operations for assets located offshore.

“Integrated surveillance solutions enable operators to ‘do more with less’.”

Equipment degradation monitoring, however, is not the only way that surveillance can be used to improve safety and cost-efficiency. For example, through combining data sets from multiple systems, the time required to detect and respond to suspected leakage can be greatly reduced.

Thermal camera stations are able to detect spillage by demonstrating variations in temperature and thermal emissivity between the oil and the water. Generally, due to the thermal conductivity of oil, it will become warmer than the surrounding water in the day by absorbing heat more quickly. Integrating thermal video with other process monitoring systems ensures



*The number of LNG carriers and FLNG facilities operating in the region is set to increase
(Photo: VladSV / Shutterstock)*

that any signs of spillage trigger alerts and guidance for operators to check process equipment nearest the potential leak.

This enables rapid incident reaction in order to limit any negative fall-out from a safety and an environmental perspective, but also ensures financial losses are minimised in terms of product loss and regulatory fines.

The same principle applies to areas such as flare, tank and pipeline monitoring. Early detection of poor flame colour or equipment ‘hot spots’ enables the deployment of maintenance personnel before process inefficiencies become full scale issues. This is a valuable capability for a sector focused on keeping a lean bottom line.

Surveillance and piracy

Piracy continues to be a global problem for the offshore industry, and while over half of the world's piracy incidents occur in Southeast Asia, threat levels remain high in the Middle East. And they could increase.

LNG is a growth market for the region, and the UAE is currently investing heavily in developing LNG regasification terminals. Estimates suggest that by 2018, the total LNG liquefaction capacity in the UAE will be around 1.6 bcf/d. The number of LNG carriers and FLNG facilities operating in the region will increase.

While operators of offshore assets – fixed or floating – may not be able to prevent physical incursions, they can use integrated security management solutions to detect and deal with threats earlier.

Radar, cameras (fixed, PTZ, thermal and multi-spectral), Automatic Identification Systems (AIS) and Electronic Chart Display and Information Systems (ECDIS) are increasingly being integrated using open platform command and control solutions.

This facilitates the creation of virtual perimeters that trigger immediate vessel-type identification and positioning if breached, and the production of automatically generated incident response workflows, including instruction for SOS notifications or evacuation procedures.

In the event of intruders boarding the asset, it is also now possible for crew taking refuge in a citadel (designated safe zone) to transmit surveillance footage or communicate via VSAT to ‘friendly forces’ such as police, coastguard etc., providing real-time updates of the situation as it continues to unfold.

Surveillance technology is already being used by the offshore industry in this way to protect assets vital to the global oil and gas infrastructure. It's a trend which is undoubtedly set to continue.

To summarise, while Middle East oil and gas operators have more reasons to be positive than most, the impact of global pricing instability is still keenly felt. Investment in assets and infrastructure, particularly offshore, continues at a steady pace but against a relatively unfamiliar backdrop of austerity.

Investing in solutions that support efficient, effective operations is an increasingly attractive proposition.

Integrated surveillance solutions enable operators to ‘do more with less’ by unifying sophisticated safety, security and process management systems to facilitate unprecedented levels of situational awareness – awareness capable of bridging the offshore/onshore divide.

Boosting detection, prevention and protection capabilities in this way, while also reducing demand on resources (time and personnel), ultimately means that operators can confidently protect their investment and prepare for the future. ■

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Providing a new lease of life for oil & gas equipment

Andrew Courtney, operations director for specialist coatings company Surface Technology, discusses how companies in the oil and gas sector should be looking to introduce new approaches to repair and refurbish their equipment to increase efficiencies throughout the current sector downturn.

AT SURFACE TECHNOLOGY we have always endeavoured to work in partnership with oil and gas customers and are always looking at ways in which they can significantly reduce costs, waste and environmental impact through effective repair and refurbishment of offshore equipment, at the same time as improving the functionality and performance of the equipment. We also practice this approach internally – as a part of Norman Hay plc and alongside our sister company SIFCO Applied Surface Concepts (ASC), which provides a unique repair and refurbish solution to the oil and gas market.

In the current climate, companies are reluctant to buy oilfield equipment, not only because of the huge capital investment and maintenance cost, but also because the equipment depreciates and eventually becomes obsolete. This is when maintaining the integrity of assets to extend equipment life can play an important role, both for operators' own equipment and in the oilfield equipment rental sector.

While a wide array of surface solutions is available to repair and refurbish critical components, many oil and gas companies are not utilising these to their full effect and may be missing valuable cost-saving opportunities. The decision on whether equipment can be refurbished or salvaged is driven by many factors, highlighting the need to work with a technical partner equipped to diagnose the appropriate solution. Customer approvals and accreditations must also be considered.

Drilling down to what's possible

Coatings can extend the operational life of a range of critical oilfield equipment. The range of processes available include thermal spray, selective plating processes such as the SIFCO Process®, painting to marine specification from spot repairs to full asset re-coating, machining and grinding, NDT inspection and pressure testing. Coatings can enhance a number of functional



A wide range of surface solutions is available to repair and refurbish critical components

properties including wear resistance, anti-corrosion, anti-fretting, anti-galling and surfaces requiring electrical insulation. Examples include:

Valve applications - Typically valve bodies and seats can suffer from corrosion and abrasive wear in use when particles are introduced between two moving surfaces. Thermal spray can refurbish them to their original condition using high-velocity oxy fuel (HVOF) coatings, eliminating the need to purchase new parts.

Drilling equipment - Issues with the manufacturing process can also lead to a need for component salvage. For example,

we received the sealing bore of an outer connector sleeve – a critical part of the drilling system – which had been scored during the manufacturing process. A HVOF thermal coating was recommended due to its wear, corrosion and oxidation-resistant characteristics. Once coated, the surface profile of the sealing bore was re-machined to meet the manufacturer's original specification and then comprehensive inspection and non-destructive testing (NDT) carried out to ensure the part had no microscopic cracks or inherent weaknesses.

Christmas trees - Pipelines and Christmas trees, which are used in subsea oil drilling operations, are subject to harsh undersea conditions, but this equipment can be cost-effectively refurbished by working with an oil and gas coating specialist. We use a bristle blasting method, as it enables rapid spot repair to small and medium-sized areas.

Subsea / marine risers - Larger components with threaded connections, such as risers and tethers for tension leg

“Coatings can extend the operational life of a range of critical oilfield equipment.”



Maintaining the integrity of assets to extend equipment life can play an important role in the current industry climate

platforms, present a coating challenge due to their size and complex handling, with resultant health and safety issues. Surface Technology has a facility in Renfrew, Scotland specifically for handling larger and more complex work pieces.

BOPs - A blowout preventer (BOP) is a large high pressure valve used to prevent the uncontrolled flow of liquids and gases during drilling operations. A common industry problem is mechanical damage caused to the internal sealing diameter of the valve. The most common method of repair is to weld clad with Inconel. However, a more dynamic method of repair would be an HVOF thermal coating due to the moderate transfer of heat to the powder particles and to the workpiece.

“ The selection of an appropriate coating can be a somewhat daunting and complex task.”

In-situ repairs

Some repairs can also be carried out in-situ without significant disassembly using the SIFCO Process® and our oilfield equipment preservation service.

The SIFCO Process® is the leading method of electroplating localised areas on components without the use of an immersion tank. Benefits include the ability to focus the plating onto specific areas of a component, enabling parts to be plated in-situ, helping to minimise downtime and production delays.

In contrast to tank plating, the SIFCO Process® does not require extensive masking or special fixtures to plate the component. SIFCO Process® deposits can be plated at rates that are 30 to 60 times faster than conventional tank plating.

In summary, the selection of an appropriate coating for repair or refurbishment can be a somewhat daunting and complex task. Having more than 50 years' experience serving the global oil & gas industry, Surface Technology is well placed to help oil and gas customers select coatings to repair and refurbish to the highest standard, increasing asset service life, reducing capital costs and improving profitability. ■

For more information on Surface Technology's repair and refurbish offering to the oil and gas industry, visit: www.surfacetechology.co.uk/oil-and-gas-coatings/oil-gas-equipment-repair-and-refurbishment. For more information on the SIFCO Process®, visit: www.sifcoasc.co.uk/oil-gas.

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Act now to protect oil & gas assets

Dr Walid Fayad, executive vice-president at Booz Allen Hamilton MENA and Atif Kureishy, principal at Booz Allen Hamilton MENA, explain how IACS security can protect the energy sector from cyberattack.

THE INTERNET IS a global system so advanced it can respond to touch-of-a-button requests in tenths of a second, connect people across continents like never before, and execute transactions in the blink of an eye. Such is its power — and potential — that the World Wide Web is touted by some, not just as the greatest invention of our generation, but of all time. However, when power falls into the wrong hands disaster can strike, and in

cyberspace, where hits are growing in both strength and number, the question is not where a cyberattack will happen against critical infrastructure, but when — with industrial companies emerging as prime targets. The time to act is now.

Recent statistics drive home the seriousness of the situation: across sectors and industries, average annual losses to companies worldwide from cyberattacks now exceed US\$7.7mn, according to the Ponemon Institute — and it is the industrial sectors that find themselves amongst the most at risk. The Industrial Control Systems Cyber Emergency Response Team (ICS-CERT) has reported more than 800 cybersecurity incidents since 2011, with most occurring in the energy sector.

Exacerbating the threat to industrial players is the potential for wider-reaching damage spurred by the increasing integration of information and operations cross sectors. While this development can drive cost and resource management efficiencies, and address safety and environmental concerns, it can also leave entire organisations and their infrastructure open to attack. Expanding in line with the spreading threat of cyberattack is the importance of industrial automation and control systems (IACS) security. IACS are the controls systems that manage and operate physical processes used in various critical infrastructure and industrial sectors such as manufacturing, oil and gas separation and power generation. Not only should organisations consider IACS in the equation of shoring up security, it is crucial that those same organisations take an all-encompassing approach to integrating such systems. Failure to do so could result in an inefficient, incomplete solution that overlooks important threats, impedes swift resumption of critical operations in the event of an attack, or fails to evolve in a changing environment. Consideration of the following factors can help firms get it right:

“ Amongst the most notable cases is the Shamoon virus attack, which shut down more than 30,000 workstations at Saudi Aramco.

Threats are multi-faceted: Technical risk assessments are fundamental to managing IACS security within an enterprise. In addition to the specific methods required to perform technical assessments on IACS, such as passive vulnerability assessments and non-intrusive technical analysis, effective IACS security involves a human/geopolitical element as well: it is important to investigate and, where possible, understand the actors behind attacks as well as their motivations. It is also vital to monitor and understand threats as they evolve, which they inevitably do. But while various industries have fallen prey to attack, the oil and gas sector has been one of the hardest hit. Amongst the most notable cases are the Shamoon virus attack, which shut down more than 30,000 workstations at Saudi Aramco, and the largest ever coordinated cyberattack in Norway, in

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which more than 300 oil and energy companies were breached.

Prediction and compliance are power:

Predictive intelligence and analysis from a trusted advisor who knows the landscape can assist an organisation in putting all the human and technological variables on its radar, and tracking them to make informed IACS security decisions. Meanwhile, researching and complying with the many standards that have been developed in response to emerging threats is another essential component in understanding and averting IACS risk. These standards have been developed from the knowledge of world-leading experts as well as best practices from across sectors: utilities, oil and gas, energy, transport, health, ICT, government, finance, emergency services, and more.

A solid plan: With cybersecurity threats now a given in today's world, it is crucial that companies develop an effective response and recovery plan. From emergency response to remediation, cybersecurity strategies must be multi-faceted, involving advanced data analytics, business impact analysis, and crisis management amongst other components. Third-party advisors can help organisations build capabilities in these areas, as well as design



*Atif Kureishy is the principal at
Booz Allen Hamilton MENA*

security operations centres for centralised implementation and administration.

Even the best laid plan requires training:

With a carefully-developed strategy in place, bringing mission-critical plans to life requires training – another area where external, third party advisors can be of help. Proper training raises awareness of IACS safety and cybersecurity as a priority and prepares the workforce for current and emerging threats. In order for this to be done successfully, it is vital to source trainers who are experts in industrial cybersecurity as well as oil and gas processes and systems.

Integration is not for the uninitiated:

Many competencies come into play when integrating IACS security into operations. Take for instance an IACS security initiative's technical challenges: operational technology (OT) can be very different to information technology (IT), which means that IT best practices may not translate to an OT environment. Furthermore, the systems being integrated may themselves lack adequate security features. With this in mind, successful integration requires a multi-faceted team with knowledge across areas including IT, cybersecurity, industrial automation, electronics, engineering, and critical infrastructure protection. ■

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KERUI Group launches new desert truck-mounted workover rig

A NEW DESERT truck-mounted workover rig integrating industrial design concepts has recently been completed by KERUI Group's Dongying drilling equipment production base. The workover rig is customised for a client in desert areas of North Africa, featuring high levels of mobility, integration and adaptability to different environments, and catering to workover operations at a depth of below 8,000 m. With an optimised structure and a custom upgraded chassis, it shortens the relocation time by one quarter, greatly reducing costs for customers and opening a new chapter in the industrial design of oil and gas equipment.

KERUI Group revealed that as deserts are widespread in North Africa, it can take longer to relocate the equipment. KERUI Group pioneered the connection of the platform and its legs using hinges instead of plugs, so the entire workover platform can be transported by the vehicle without the need for disassembly.

KERUI Group's R&D team optimised the structure and counterweight of the workover platform based on its load requirements, to reduce the weight of the platform by 30 per cent.



KERUI Group's new workover rig

The customised chassis, equipped with professional desert tyres, can easily cope with the harsh desert conditions, says the company.

As well as ensuring good off-road performance and relocation cost control, the equipment is also equipped with electrical components, drive system sealing, lubricating oil and hydraulic oil that works well under temperatures from -19°C to 55°C. The air filter, fuel filter and water cycle filter are all specially designed for the desert, while the radiators of the power units and the motor can also adapt to the hot and stormy climate.

In the process of customised R&D,

revolutionary breakthroughs were made in terms of industrial design, reflecting KERUI Group's brand image of "openness, innovation and responsibility". The body of the vehicle is both tough and dynamic; the cab, the engine hoods and the vehicle-mounted equipment adopt a streamlined design to improve the convenience of operation and driving safety; while the colour and design incorporate high-end techniques and quality in every detail.

KERUI Group has set up an industrial design institute, which has teamed up with China University of Petroleum (East China) to organise the Global Petroleum Equipment Design Contest for Post-Graduates, with the aim of accelerating the commercialisation of scientific research findings and identifying and hiring high-level industrial designers. It has also actively collaborated with scientific research institutions and suppliers to enhance industrial design capability and drive the overall upgrade of products in terms of both functionality and performance.

For further information contact Fred Liu, tel: 008615105465268, email: liutf@keruigroup.com.

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Methane gas leakage



SF₆ gas leakage



Insulation problem



Bad high voltage connection

Images for illustrative purposes only.

New high pressure valves for marine sector released

PARKER BESTOBELL MARINE, part of Parker Hannifin – the global leader in motion and control technologies, has developed a range of high pressure cryogenic valves that are fully approved for use in the marine sector.

The valves can withstand pressures of up to 625 bar, with a range from ½" to 3", and are designed specifically for the MEGI Engine fuel gas system.

The range includes manual, gearbox operation, single actuator and tandem actuator valves. In addition, Parker Bestobell Marine also offers high pressure check valves.

Duncan Gaskin, market development manager for Parker Bestobell Marine, said, "We developed these valves in collaboration with a number of shipbuilding companies which required them for the MAN ME-GI fuel gas systems. As worldwide markets look to reduce air pollutants and with the introduction of Emission Control Areas (ECA), we expect to see demand increase for high pressure valves that are marine approved."

Parker Bestobell Marine has previously supplied its high pressure valves for fuel gas systems for a variety of projects.

The new high pressure valve range will be launched in April 2016.



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A 'lifeline' for harsh environments

HONEYWELL HAS INTRODUCED its Miller DuraSeal self-retracting lifeline (SRL), designed to provide greater reliability and safety in the harshest environments – including onshore and offshore oil and gas, mining and petrochemical sites.

The DuraSeal SRL introduces patent-pending sealed technology that prevents contaminants from entering the mechanism – earning the design an IP69K certification, and ensures that the self-retracting lifeline's brake system, power spring and bearings are never exposed to debris, water or chemicals.



The braking system is designed to withstand multiple falls

This SRL includes many other advanced, practical features. The braking system is designed to withstand multiple falls. The unit installs and transports easier – and quick, low-cost lifeline replacements in the field are possible. Engineered to be up to 30 per cent lighter in weight than competitive sealed SRLs, it reduces user fatigue and increases productivity. With a weight capacity of 180 kg, it provides protection for a wider range of workers who often carry heavy tools. The SRL requires no annual recertification, keeping the product in the field longer while increasing the safety of workers.

Emerson upgrades flow meters

THE ABILITY TO efficiently commission field devices reduces startup costs and schedule risk for large projects. Emerson Process Management's line of Rosemount 8800 Vortex flow meters now offers HART® Protocol Revision 7, which allows for easier identification in the field, commissioning and configuration.

"Making it easier to commission and start up a facility accelerates the return on our customers' investment," said Mark Fleigle, vice-president of technology and product development for Emerson Process Management. "The extension of HART 7 to our vortex flow meters simultaneously adds functionality and improves usability."

The Locate Device feature of HART 7 displays a visible code on the device's LCD screen which allows for quick field identification.

Once connected to the device, or while viewing from the control room, Long Tag allows for a detailed device name to be viewed or loaded into the flow meter.

Long Tag support increases the character limit from the current eight character tag to 32 characters, allowing the user to create more accurate descriptions.

HART 7 also offers flexibility for device configuration. For the most up to date process information, it delivers expanded burst mode capabilities to allow the vortex meter to burst up to eight variables and to trigger messages based on process events.

Van Beest introduces new ROV shackles

VAN BEEST HAS expanded its range of 'Green Pin' ROV shackles with the introduction of the Green Pin ROV release and retrieve shackles with tapered pin.

The shackles are available with two types of handles – fishtail or D-handle. They can be manipulated easily by a hydraulically operated ROV arm, without compromising safety. The tapered ending of the pin makes it possible to easily assemble the shackle underwater. While the groove for the wire rope lies in the pin head to let it attach to the shackle body, the thread is completely chambered to protect the sling. The product can be supplied with a works certificate, material certificate, manufacturer test certificate and EC Declaration of Conformity.

The apparatus is suitable for both inline and side loading. The same reduction factors apply for the latter as for the standard shackles.



The P-5463F ROV tapered pin shackle

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Survey highlights global oil workforce outlook

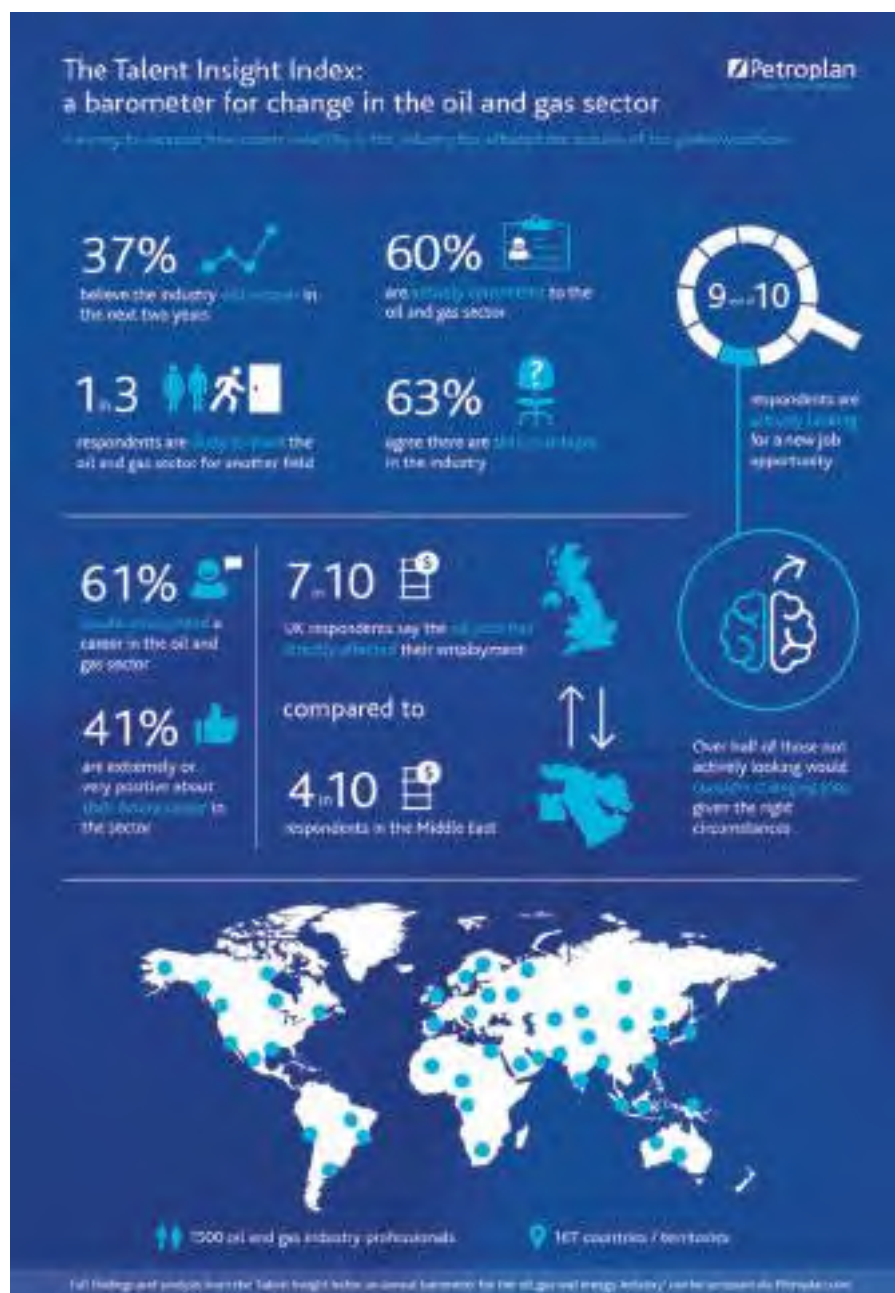
Findings from Petroplan's inaugural *Talent Insight Index* reveal that oil and gas professionals in the Middle East are less affected by the low oil price than those elsewhere in the world, more positive about their future career in the sector and more secure in their jobs.

MORE THAN 1,500 industry professionals took part in the Petroplan survey, which set out to measure how recent volatility and change within the industry has affected the outlook of the global workforce. Respondents included staff, contractors and those out of work but actively looking for roles in the industry, across a range of disciplines from more than 107 countries and territories worldwide.

According to the survey, 42 per cent of respondents in the Middle East say the current oil price has directly affected their employment, compared with a global average of 57 per cent, and 52 per cent are positive about their future career in the sector, compared with a global average of 41 per cent. Security of employment is highest in the Middle East, where 62.1 per cent feel secure or very secure in their jobs, compared with 26.2 per cent in Canada and 18.7 per cent in the UK.

Indeed, industry professionals from other regions of the world are assessing prospects in the Middle East and considering relocating there for job security given the "long-term market opportunities," says Petroplan. "The Middle East is swallowing up a lot of the spare talent in the sector," it comments.

More than 60 per cent of respondents stated that they were actively committed to the oil and gas sector, and 63 per cent would recommend the career to others, despite low oil prices and mass redundancies. However, the vast majority – 88 per cent – also stated that they were on the lookout for new opportunities. Of those



“The Middle East is swallowing up a lot of spare talent in the sector.”

not proactively seeking a new position, 56 per cent said they would consider changing jobs given the right circumstances. One in three respondents are likely to leave the oil and gas sector for another field, and 63 per cent believe there is already a skills shortage in the industry. This provides further evidence that there is a risk for employers, who might struggle to fulfil their workforce requirements in the future, says Petroplan.

Andrew Speers, CEO at Petroplan, said, "The results of the Talent Insight Index show that there needs to be a major shift in employer attitudes to retention and talent management. Although we have a committed workforce, people are weary of the ups and downs of the sector.

"Companies have to balance the risks and rewards of job cuts with retaining key people and skills shortages. While it might seem like a strange time to talk about loyalty and talent retention, we must. The industry has to take a longer-term view of investing in, retaining and developing its people. It's the only way that we can slow down the rollercoaster of boom and bust."

Workers need security in their roles, Petroplan comments. "With security comes engagement. Engagement means higher productivity and greater retention of talent."

“ The industry has to take a longer-term view of investing in, retaining and developing its people.”

The survey findings present a positive view of the future, with more than half of respondents stating that the industry will inevitably recover, and more than a third

believing that recovery will happen in the next two years. The survey also revealed more than 40 per cent of respondents believe that decision-making in their organisation has improved, while nearly one third believe there is increased innovation and productivity in the sector. ■

Full findings and analysis from the Talent Insight Index: an annual barometer for the oil, gas and energy industry can be accessed at www.petroplan.com/talent-insight-index-2016.



The majority of oil and gas workers are committed to the sector despite the downturn (Photo: DHL)



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RIG COUNT ←



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			LASTYEAR		
Country	Land	OffShore	Total	From Last Month	Land	OffShore	Total	Land	OffShore	Total
Middle East										
ABU DHABI	31	17	48	0	30	18	48	25	11	36
DUBAI	0	2	2	0	0	2	2	0	2	2
IRAQ	49	0	49	0	49	0	49	61	0	61
JORDAN	0	0	0	0	0	0	0	0	0	0
KUWAIT	43	0	43	3	40	0	40	45	0	45
OMAN	71	0	71	1	70	0	70	57	0	57
PAKISTAN	21	0	21	-2	23	0	23	19	0	19
QATAR	2	4	6	-3	3	6	9	2	7	9
SAUDI ARABIA	111	17	128	4	106	18	124	97	18	115
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	3	0	3
TOTAL	328	40	368	3	321	44	365	309	38	347

North Africa

ALGERIA	52	0	52	1	51	0	51	49	0	49
EGYPT	25	10	35	-7	31	11	42	46	16	52
LIBYA	0	1	1	0	0	1	1	4	3	7
TUNISIA	0	0	0	-1	1	0	1	0	3	3
TOTAL	77	11	88	-7	83	12	95	102	9	111

Source: Baker Hughes

Project Databank

Compiled by Data Media Systems

OIL, GAS AND PETROCHEMICAL PROJECTS - QATAR

Project	City	Budget (\$ US)	Status	Completion Date
Laffan Refinery Company Limited - Laffan Refinery 2 (LR2)	Ras Laffan	1,500,000,000	Construction	2016-Q3
Occidental Petroleum Corporation (OXY) - Expansion of Idd el-Shargi North Dome (ISND Phase-5) - Package 1	North Dome	5,000,000,000	EPC ITB	2018-Q4
Occidental Petroleum Corporation (OXY) - Expansion of Idd el-Shargi North Dome (ISND Phase-5) - Package 2	North Dome	5,000,000,000	EPC ITB	2018-Q4
Oryx GTL - Expansion of Gas To Liquids Plant	Ras Laffan	1,500,000,000	Feasibility Study	2019-Q4
Qatar Petrochemical Company (QAPCO) - Ethylene Plant Expansion - Phase 3	Mesaieed	300,000,000	EPC ITB	2016-Q4
Qatar Petroleum (QP) - Air Compressor Replacement at Mesaieed Refinery	Mesaieed	50,000,000	Construction	2016-Q4
Qatar Petroleum (QP) - Bi-directional Pipeline Between KM and KS	Doha	80,000,000	Construction	2015-Q3
Qatar Petroleum (QP) - EPS Qatar - Expandable Polystyrene (EPS) Plant	Mesaieed	500,000,000	Design	2017-Q4
Qatar Petroleum (QP) - Hamad International Airport Jet A1 Fuel Pipeline	Various	300,000,000	Engineering & Procurement	2019-Q4
Qatar Petroleum (QP) - Vapour Recovery System at Multi Product Berth	Mesaieed	50,000,000	FEED	2017-Q2
RasGas - Flow Assurance Project (FAP)	Qatar	300,000,000	Construction	2015-Q4
RasGas - Helium 3 Production Plant	Ras Laffan	600,000,000	Engineering & Procurement	2018-Q2
RasGas - Qatar Barzan Gas Field Development Project (Overview)	North Field	10,300,000,000	Construction	2021-Q4
RasGas - Qatar Barzan Gas Field Development Project - Offshore - Phase 2	North Field	700,000,000	Engineering & Procurement	2019-Q4
RasGas - Qatar Barzan Gas Field Development Project - Offshore - Phase 3	North Field	300,000,000	Engineering & Procurement	2023-Q4
RasGas - Qatar Barzan Gas Field Development Project - Onshore - Phase 1	North Field	1,700,000,000	Construction	2016-Q1
RasGas - Qatar Barzan Gas Field Development Project - Onshore - Phase 2	North Field	2,000,000,000	Feasibility Study	2019-Q4
Shell - Pearl GTL Scheme - Onshore & Offshore Facilities	Qatar	20,000,000,000	Construction	2019-Q3

Jimmy Baikovicius / flickr



Project Databank

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Project Focus

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Project Summary

Project Name	QATAR PETROLEUM - AL SHAHEEN OFFSHORE FIELD DEVELOPMENT PLAN
Name of Client	Qatar Petroleum (QP)
Estimated Budget (\$ US)	500,000,000
Facility Type	Oil & Gas Field
Status	Construction
Project Start	Q1-2014
End Date	Q4-2016
FEED	WorleyParsons
Main Contractor	Maersk Oil
Award Date	Q3-2015

Background

Al Shaheen field is located in block 5 offshore northern Qatar and is operated under a production sharing agreement on behalf of Qatar Petroleum. The oilfield concession is currently under open bidding as of Q2 2015.

Project Status

Date	Status
Feb 2016	Maersk Oil reveals the development project at the Al Shaheen field offshore Qatar is progressing as planned with 80 per cent of the drilling programme currently completed.
Jan 2016	ExxonMobil, Royal Dutch Shell, and France's Total are believed to be 3 of the 8 international oil companies in discussion with QP about taking over the field's development. The outcome of the tender process for the new concession holder is expected to be announced in the second half of 2016.
Jul 2015	A recently-built rig housing offshore oil workers for the Al Shaheen field part-collapsed into the sea in a "punch-through" incident and will need months of repairs.
May 2015	In a blow to current concession holder Maersk Oil, Qatar Petroleum invites international oil companies to compete and operate Al Shaheen from mid-2017, when the agreement with Maersk Oil expires, on an open tender basis. No submission deadline set yet.

Project Schedules

Feasibility Study	1Q-2014
FEED	2Q-2014
EPC ITB	2Q-2015
Engineering & Procurement	3Q-2015
Construction	4Q-2015
Completed	4Q-2016

Project Scope

The scope of work comprises:

- Drilling of some 40 new production wells
- 20 new water injection wells
- Conversion of 14 existing wells to water injection
- Construction and installation of new production platforms, interconnected with pipelines
- Facilities for gas compression
- A gas export pipeline to Qatar Petroleum's North Field Alpha platform, offshore Qatar
- A number of appraisal wells will be drilled to evaluate possible further production potential

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برامج التعريب تحتل مركز الأولوية في المنطقة

في هذا المقال، يقول أندي جيبنز، الرئيس التنفيذي لشركة جي إل إيه إس كونسولتنج م.م.ح.، إن تطوير التعليم والمهارات أصبح اليوم أكثر أهمية عن ذي قبل.

قطاع النفط والغاز والبتروكيماويات وجد نفسه يعاني من مرحلة شديدة الاضطراب خلال الأشهر الأولى من عام ٢٠١٦. ودفعنا التراجع في أسعار النفط الخام، وانعدام الاستقرار في سوق الأوراق المالية العالمية، والتباطؤ في النمو الاقتصادي الصيني، نحو المرور بفترة زمنية هي من أصعب الفترات التي عاصرناها، لا سيما في السنوات الأخيرة. وكان لتلك الظروف تأثير كبير على أرباح الشركات العاملة في هذا القطاع، فضلا عن الاستقطاعات الحتمية من الموازنات، وخصوصا في المجالات المرتبطة بالنفقات الاختيارية؛ مثل السفر والمؤتمرات وتطوير المهارات.

وقد ترددت أصدا ذلك لدى بعضنا ممن يعملون في مجال التدريب. وبلا شك، فقد انخفض مقدار الأموال المنفقة على التدريب، وتأخرت كثيرا حجوزات المتدربين. كما شهدت تلك الفترة تحولا من الدورات العامة إلى الدورات المُقامة في الشركات، والتي تسعى نحو تحقيق أقصى استفادة من النقود.

ويمكن القول إن تنمية المهارات في منطقة الشرق الأوسط تشهد، على الأرجح، أهمية كبيرة في الوقت الحالي أكثر من أي وقت مضى. فثمة برامج طموح للتعريب في جميع أنحاء دول مجلس التعاون الخليجي ذات حصص تتسم بالتحدي للوفاء بالنسب المئوية للموظفين اللازم توظيفهم من الدولة. وهذا بالتأكيد الشيء الصحيح الذي يجب فعله. ونظرا للنمو الذي يشهده القطاع، يكون لزاما الابتعاد عن الاعتماد الكبير على العمالة الوافدة، وتحقيق نهج مستدام ذي تكلفة فعالة، فضلا عن وجود إمدادات ثابتة من أصحاب المهارات العالية من المحليين. بالطبع لا يتسم هذا النهج بالسهولة، لا سيما في بدايته، حيث تحاول جميع القطاعات الوصول إلى أفضل الخريجين وذوي المهارات الملهمين. ومع هذا التركيز المتزايد على العمالة المحلية، أصبح تطوير المهارات الحقيقية أمراً أساسياً، مع وضع برامج حافزة على الكفاءة وقابلة للقياس، وذلك من خلال الاستفادة من مقدمي خدمات التدريب عالية الجودة، والمختارين بعناية. وستمثل مفاتيح النجاح في التركيز على النتائج والجودة.

إضافة إلى ذلك، لا بد أن يكون هناك المزيد من

تطبيق الرسائل سالفة الذكر في المنطقة. فقد عملت مؤخراً مع إحدى الشركات الكبرى في مجال البتروكيماويات، وكنت أقدم برنامجاً معداً خصيصاً لقادة فرق النوبات. وقد أجرينا مناقشات مستفيضة حول الاحتياجات المطلوبة قبل الشروع في العمل، بما في ذلك الاجتماعات المنعقدة في الموقع مع القيادة الوظيفية وأصحاب المصالح الرئيسيين الآخرين، مثل الموارد البشرية.

بالطبع مثل هذا النهج يستغرق المزيد من الوقت والجهد (كما أنه في الواقع مكلف بعض الشيء)، لكن التأثير أفضل مما لو كانت الأمور قد سارت بغير هذا النهج. وقد أرسلت الشركة مديرين كباراً لافتح جلسات الدورات التدريبية وشرح الأهداف المرجوة منها. كما حضروا في نهاية الحدث للاستماع إلى العروض التقديمية، وخطط العمل الخاصة بالمتدربين، وتحديد الخطوات القادمة ذات الصلة.

خلاصة القول، ثمة بضع نقاط رئيسية نعرضها. أولاً: يجب ألا يتوقف التدريب والتطوير مطلقاً بسبب الأزمة المالية الحالية. ثانياً: يجب التركيز. بقدر أكبر. على دمج عملية التدريب في خطط التنمية الشاملة للموظفين، مع زيادة إشراك المديرين التنفيذيين، وتوطيد التعاون بينهم وبين قسم التدريب. وأخيراً: لا بد أن تظل الأولوية لبرامج التعريب. هذه هي مفاتيح النجاح المستقبلي المستدام للشركات في المنطقة.

إشراك القادة الوظيفيين في عملية التدريب والتطوير. فمجرد إرسال شخص إلى دورة تدريبية لا يكون كافياً حتى نتوقع أن يتغير سلوكه مباشرة ويصبح أكثر كفاءة في مكان العمل. إذ يجب، في المقابل، التركيز على المهارات المكتسبة حديثاً وكيفية الاستفادة منها. وهذا يتطلب إجراء مناقشات قبل الدورة التدريبية وبعدها مع المدير التنفيذي، فضلاً عن تحديد بعض الأهداف الواضحة والقابلة للقياس ذات الصلة بالتدريب، مما يسمح بتحقيق الاستفادة الفعالة من المهارات الجديدة، وقياس الآثار بطريقة فعالة. وتجب مراجعة تأثير الدورة التدريبية مع الموظف بعد مضي عدة أشهر من تنفيذ الحدث، لضمان تحقيق النتائج المرجوة.

وإذا كان قطاع النفط والغاز قد شهد نمواً في الشرق الأوسط، فقد شهد قطاع التدريب أيضاً نمواً. وقد ازدهرت سوق مقدمي خدمات التدريب. بعضهم يقدم خدمات جيدة للغاية، والبعض الآخر يقدم خدمات، إذا أردنا أن نكون صرحاء، في غاية السوء. إن راغبي الحصول على الدورات التدريبية في حاجة إلى التركيز. بقدر أكبر. على ما يتقدمون للحصول عليه، فضلاً عن التركيز على شهادات مقدمي التدريب وخبراتهم. فالتدريب الجيد هو المحتوى الجيد. ولكن هذا وحده لا يكفي. فتقديم التدريب إن لم يتم بطريقة جذابة ومثيرة للانتباه، سيذهب تأثيره سدى.

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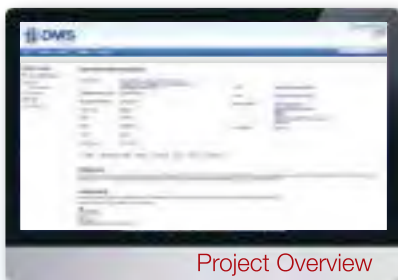
The DNA for Success

KEY FEATURES

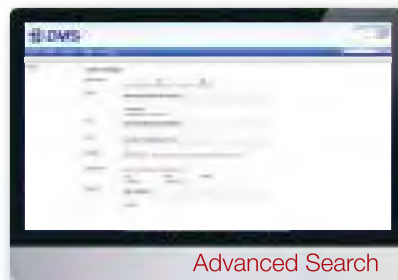
- Project Scope and Background
- Track Project Schedules
- Key Personnel Details
- Track Entire Project Lifecycle
- Access Linked Projects
- Access Project Locations
- Advanced Search Features
- Favourites, Notes, Reminders
- Track Updates
- Customized Email Alerts
- Statistics, Analysis & Forecasting
- Data Download
- Project Values and Financing
- Global Network of Researchers
- Customized Research Modules
- Business Profile of Colleagues

NEW FEATURES

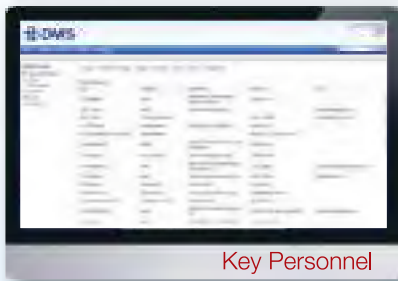
- Customizable Dashboard
- Messaging/Sharing Projects Amongst Your Members Group
- Stream Current Industry News Through Your Dashboard
- Forecast Models by Feasibility & EPC Award Dates
- Compare Contractor Workloads Against Each Other
- 65 Levels of Key Personnel
- Deeper Project Financing Data



Project Overview



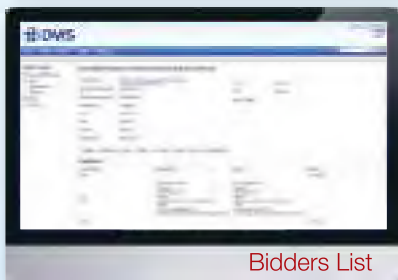
Advanced Search



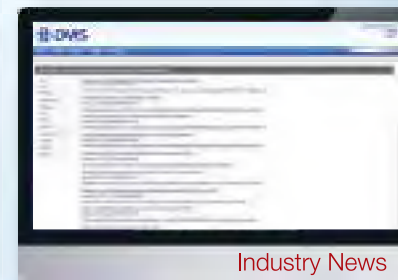
Key Personnel



Market Forecast



Bidders List



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ومع ذلك، يجب على الشركات أيضا بذل العناية الواجبة من أجل استنباط القيمة. وستوفر التدابير، مثل تقاسم المخاطر والمكافآت مع الأطراف الخارجية لمشروعات البحث والتطوير والتحليل الدقيق للجدوى الاقتصادية في ميزانيات الابتكار، مزيداً من الوضوح في عملية الابتكار المفتوح، حيث تكون القيمة قابلة للقياس لجميع أصحاب المصالح.

وراء الإنفاق في مجال الابتكار. واختتم الدكتور/ السعدون كلامه قائلاً: «ثمة أنشطة نوعية وكمية تحقق ثقافة الابتكار المفتوح. وقد أشارت شركات مجلس التعاون الخليجي إلى أنها تواجه بالفعل التحديات المرتبطة بسياسات الابتكار المفتوح الفعالة من خلال تشجيع المبادرات الإدارية التي تركز على القدرات الداخلية، واعتماد ثقافة عمل تشجع على الابتكار وتعزيز تجربة العملاء. وسيساهم ذلك في تعزيز ثقافة الابتكار المفتوح الناشئة في دول مجلس التعاون الخليجي.

وذكر آخرون، بلغت نسبتهم نحو ٢٤ في المائة من العينة، أن هذه السياسات قيد التنفيذ، أو سيتم تنفيذها داخل شركاتهم. وتشمل هذه الأنشطة التعاون في مجال البحث والتطوير مع المؤسسات الأكاديمية، وتكامل شبكات العملاء في دورة الإنتاج، وتوحيد القوى مع المنافسين من خلال التشارك في أفضل الممارسات. ولا بد للشركات، من أجل إنجاح الابتكار المفتوح، تعزيز النوع الصحيح من البيئة التي تناسب تطوير طريقة التفكير هذه، وذلك من خلال دعم الموظفين من أجل تقديم المبرر الدافع

توقعات بإعادة التوازن إلى سوق النفط عام ٢٠١٧

أشارت وكالة الطاقة الدولية، في تقريرها نصف السنوي المتعلق بسوق النفط الصادر في شهر فبراير/شباط، إلى انخفاض نمو الإمدادات العالمية من النفط نتيجة التأثير السلبي لامتداد فترة انخفاض الأسعار. في حين صرحت الولايات المتحدة أن ناتج نفط الصخر الزيتي الخفيف يتراجع بشكل حاد في الوقت الراهن، وأن السوق سوف تبدأ في استعادة توازنها في عام ٢٠١٧. ومن المتوقع. وفقاً للتقرير. أن تقود الولايات المتحدة الأمريكية وإيران، بحلول عام ٢٠٢١، أرباح زيادة الإنتاج بين الدول الأعضاء وغير الأعضاء في منظمة الدول المصدرة للبترول (أوبك)، على التوالي. ويشير التقرير إلى أنه في حين ينبغي أن تبدأ أسعار النفط في الارتقاء تدريجياً بمجرد أن تستعيد السوق توازنها، سيحد توافر الموارد، التي يمكن الاستفادة منها بسهولة وسرعة، من نطاق ارتفاع الأسعار، على الأقل في المدى القريب. ومع ذلك، فإنه يشير إلى خطر حدوث ارتفاع مفاجئ في أسعار النفط في الفترة التالية من فترة التوقعات، والذي ينجم عن عدم كفاية الاستثمار.

وتتوقع وكالة الطاقة الدولية إضافة ١,٤ مليون برميل يومياً إلى إمدادات النفط العالمية بين عامي ٢٠١٥ و٢٠٢١، بانخفاض حاد عن النمو الكلي المقدر بـ ١١ مليون برميل يومياً في الفترة بين عامي ٢٠٠٩ و٢٠١٥. ويأتي هذا التراجع في نمو الإمدادات بسبب تجمد الاستثمار في أعمال التنقيب والإنتاج نتيجة لإغراق السوق حالياً بالسلع التي تؤدي إلى الضغط على الأسعار. ومن المتوقع أن تنخفض النفقات الرأسمالية في مجال التنقيب عن النفط وإنتاجه عالمياً بنسبة ١٧ في المائة في عام ٢٠١٦، بعد ما شهد العالم من انخفاض بنسبة ٢٤ في المائة في عام ٢٠١٥. وهذه هي المرة الأولى، منذ عام ١٩٨٦، التي ينخفض فيها الاستثمار في أعمال التنقيب والإنتاج لمدة سنتين متتاليتين. ومن المتوقع، وفقاً لتقرير وكالة الطاقة الدولية، أن يصل إنتاج الولايات المتحدة إلى أعلى مستوياته على الإطلاق بحلول نهاية فترة التوقعات، حيث يبلغ ١٤,٢ مليون برميل يومياً، ولكن بعد انخفاضه على المدى القصير. وينخفض ناتج نفط الصخر الزيتي الخفيف بمعدل ٠,٦ مليون برميل يومياً هذا العام، علاوة على انخفاضه ٠,٢ مليون برميل يومياً أخرى في ٢٠١٧، وذلك قبل استعادة أسعار النفط لصحتها تدريجياً، فضلاً عن أن إجراء المزيد من التحسينات في الكفاءة التشغيلية وخفض التكاليف، سيسمح للإنتاج باستئناف الصعود. ولا تزال الولايات المتحدة أكبر الدول المساهمة في نمو الإمدادات خلال فترة التوقعات، وهو ما يمثل أكثر من ثلثي الزيادة الصافية في إنتاج الدول غير الأعضاء في (أوبك). وقد تصدرت إيران، بعد تحررها من القيود المفروضة عليها، مكاسب منظمة الدول المصدرة للبترول (أوبك). وسيرتفع إنتاج النفط الإيراني من مليون برميل يومياً ليصل إلى ٣,٩ مليون برميل يومياً بحلول عام ٢٠٢١. ويشير التقرير إلى نمو الطلب العالمي على النفط بمعدل متوسط يبلغ ١,٢ مليون برميل يومياً خلال عام ٢٠٢١، ليصل إلى ١٠١,٦ مليون برميل يومياً. فقد ارتفع معدل الاستهلاك في الهند سريعاً مع ازدياد عدد مستخدمي السيارات، بينما انخفض نمو الطلب الصيني بالتزامن مع الاقتصاد. وتابعت تجارة النفط العالمية توجيه تركيزها نحو آسيا. بينما سوف يرسخ الشرق الأوسط مكانته باعتباره مركزاً رئيسياً للتكرير، وسوف ينمو تصدير منتجاته بمعدل لا يفوقه فيه سوى الولايات المتحدة الأمريكية.



أبريل/نيسان

١٢.١١ - القيمة الكويتية الرابعة للنفط والغاز الكويت

١٢.١٣ - معرض عالم الخزانات دبي

١٩.٢١ - مؤتمر ومعرض أوفشور البحر المتوسط الإسكندرية

٢٤.٢٦ - البيانات الضخمة التحليلية للنفط والغاز أبوظبي

مايو/أيار

٨.١٠ - معرض أبوظبي الدولي للصناعات التحويلية أبوظبي

١٥.١٦ - معرض إيران للنفط والسكك الحديدية والموانئ طهران



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السعودية تستخدم أكبر قوة عاملة لجنرال إلكتريك في الشرق الأوسط

ويتمتع بكفاءة عالية، وهو الأمر الذي يمثل نقطة تحول رئيسية في مبادراتنا التي تتناول برنامج أرامكو السعودية لتعزيز القيمة المضافة الإجمالية (اكتفاء) الذي يهدف إلى إضفاء الطابع المحلي. ويعزز أسلوبنا في تنفيذ هذا المشروع التزامنا بتطوير الاقتصاد السعودي من خلال خلق فرص عمل، ونقل المعرفة، ودعم المصادر المحلية». ومن خلال دعم رؤية المملكة الهادفة لتعزيز التصنيع المحلي والصادرات، تعمل شركة جنرال إلكتريك للنفط والغاز على توسيع مصنعها في «موقع مدن» في المدينة الصناعية الثانية في الدمام لتكون بمثابة مركز لتوريد معدات مراقبة الضغط «المصنعة في السعودية» للمملكة والأسواق الإقليمية. أما المرحلة الأولى من هذا التوسع، والتي أدت إلى زيادة المرافق إلى ١٠٥٠٠ متر مربع، فقد قام بتدشينها، في أواخر ٢٠١٥، رئيس شركة جنرال إلكتريك للنفط والغاز ورئيسها التنفيذي، لورينزو سيمونيلي.

الابتكار المفتوح يجد طريقه إلى شركات الكيماويات الخليجية

وقال الدكتور/ عبد الوهاب السعدون، أمين عام الاتحاد الخليجي للبتر وكيمائيات والكيماويات، في تصريح له: «الابتكارات المفتوحة تلعب دوراً رئيسياً في الحفاظ على القدرة التنافسية العالمية لصناعة الكيماويات في منطقة الخليج العربي. وقد أصبح توسيع نطاق البحث، فيما وراء حدود البحث والتطوير التقليديين والتعاون المتزايد مع الأطراف الخارجية، عنصراً حاسماً في السباق من أجل الوصول إلى التقنيات الجديدة والمبتكرة».

وكان قد تم تقدير قيمة الاستثمار في مجال البحث والتطوير في عام ٢٠١٤، من جانب الاتحاد الخليجي للبتر وكيمائيات والكيماويات، بحوالي ٥٢٩ مليون دولار أمريكي. وهذا الرقم يساوي تقريباً ضعف النفقات المقدرة بمبلغ ٣٦٨ مليون دولار أمريكي في عام ٢٠١٣، والجدير بالذكر أن هذه هي أعلى زيادة في الإنفاق في البحث والتطوير في مجال البتر وكيمائيات على مستوى العالم.



قطاع الكيماويات الخليجي استثمر ٥٢٩ مليون دولار في البحث والتطوير

وقال الدكتور/ السعدون: «يمكّن الابتكار المفتوح منتجي الكيماويات في دول مجلس التعاون الخليجي من الوصول إلى الحلول الخارجية، والخبرات والكفاءات المتعلقة بجدول أعمال الابتكار على نحو أسرع وأرخص، وكثيراً ما تكون على مستوى أعلى من الابتكار». وتابع قائلاً: «ثمة تطورات إيجابية. فأكثر من نصف المشاركين أظهر أن هذا السلوك متبع داخل منظماتهم، كما أن هناك دليلاً على أن هذا الاتجاه سوف يستمر على المدى المتوسط».

علماً بأن ما يقدر بنحو ثلثي العينة قد مارس الابتكار المفتوح خلال السنوات الخمس الماضية،

مجال الصناعة الكيماوية في دول مجلس التعاون الخليجي»، على الاستقصاء الذي أجرته الشركات الأعضاء في الاتحاد الخليجي للبتر وكيمائيات والكيماويات، وقيس التصورات والتحديات والفرص من أجل تعزيز الابتكار المفتوح في صناعة الكيماويات في المنطقة. وتدعم الغالبية المطلقة من الشركات الأعضاء في الاتحاد الخليجي للبتر وكيمائيات والكيماويات، والتي خضعت للاستقصاء، الابتكار المفتوح وتمارسه.

وفقاً للاستقصاء الذي أجره الاتحاد الخليجي للبتر وكيمائيات والكيماويات، تعمل الشركات المنتجة للكيماويات، في دول مجلس التعاون الخليجي، على فتح أبوابها. على نحو متزايد. أمام الأفكار المبتكرة وأفكار المؤسسات البحثية والأكاديمية والعملاء والموردين ومقدمي التكنولوجيا، وذلك من أجل تحديد فرص العمل الجديدة، والحفاظ على قدرتها التنافسية. ويستند التقرير، «إطلاق الابتكارات المفتوحة في

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على حصتها من المدفوعات إلى شركات النفط العالمية، وطلبت منها خفض خطط الإنفاق في حقول النفط الجنوبية في عام ٢٠١٦. وقد حقق العراق (باستثناء حكومة إقليم كردستان)، في عام ٢٠١٥، زيادة طفيفة فيما يتعلق بعائدات تصدير النفط الخام، وقد تجاوز مبلغ ٤٩ مليار دولار أمريكي، في مقابل ٣٥ مليار دولار أمريكي أقل من العام السابق، وذلك على الرغم من الزيادة الكبيرة في حجم الصادرات. وشكّل النقص في الإيرادات تحدياً اقتصادياً كبيراً. ففي عام ٢٠١٤، بلغت عائدات تصدير النفط الخام ٩٣ في المائة من إجمالي الإيرادات الحكومية في العراق، وفقاً لصندوق النقد الدولي. وتتوقع إدارة معلومات الطاقة الأمريكية أن يتباطأ نمو إنتاج العراق في عام ٢٠١٦ بسبب القيود الناجمة عن انخفاض عائدات التصدير.

كذلك تشهد أيضاً حكومة إقليم كردستان العراق قيوداً على الميزانية نتيجة لانخفاض أسعار النفط، وصراعها مع تنظيم الدولة الإسلامية (داعش)، مما تسبب في تأخير السداد لشركات النفط العالمية، وهذا سيساهم - على الأرجح - في تباطؤ نمو الإنتاج هذا العام، على حد قول إدارة معلومات الطاقة الأمريكية. وكان خط الأنابيب، الذي ينقل حوالي ٦٠٠ ألف برميل يومياً من النفط الخام من إقليم كردستان العراق إلى ميناء جيهان التركي للتصدير، قد تعرض للتخريب مراراً وتكراراً. كما أدت الأضرار، التي وقعت في أواخر فبراير/ شباط في الجزء الذي يمر عبر المنطقة الجنوبية الشرقية المضطربة في تركيا، حيث تقاتل الحكومة التركية المسلحين الأكراد، إلى توقف الصادرات عبر خط الأنابيب، مما أدى إلى تفاقم المشكلات الاقتصادية في حكومة إقليم كردستان العراق.



توقع تباطؤ في إنتاج النفط العراقي هذا العام

العراق ثاني أكبر المساهمين في نمو إمدادات النفط

قليلاً، مما نتج عنه تصدير ما شهده إنتاجه من النفط الخام من زيادة إلى الأسواق الدولية. وقد ساهم، في زيادة الإنتاج، تطوير البنية التحتية للنقل وخطوط الأنابيب، وأيضاً التحسينات التي شهدتها جودة النفط الخام في جنوب العراق، الذي شهد إنتاج نحو ٩٠ في المائة من النفط في البلاد عام ٢٠١٥. وفي يونيو/ حزيران من عام ٢٠١٥، بدأ العراق في تسويق النفط الخام الثقيل الذي تنتجه مدينة البصرة، لتفرق بينه وبين النفط الخام في البصرة الذي اعتاد العراق على تسويقه باعتباره نفطاً خاماً خفيفاً، وتمكن من زيادة الإنتاج في الحقول المنتجة للنفط الأثقل، وكذلك تحسين جودة نفط البصرة الخفيف.

ومع ذلك، ونتيجة لانخفاض أسعار النفط وقيود الموازنة، سعت الحكومة العراقية جاهدة نحو الحفاظ

جاء العراق في المركز الثاني ضمن أكبر المساهمين في نمو إمدادات النفط العالمية في عام ٢٠١٥، بعد الولايات المتحدة الأمريكية، وذلك وفقاً لتقرير إدارة معلومات الطاقة الأمريكية (EIA). وكان قد بلغ متوسط إنتاج النفط الخام في العراق، بما في ذلك إنتاج حقول إقليم كردستان العراق، ٤ ملايين برميل يومياً في عام ٢٠١٥، بزيادة يبلغ مقدارها نحو ٧٠٠ ألف برميل يومياً عن متوسط الإنتاج في عام ٢٠١٤، وفقاً لما ذكرته إدارة معلومات الطاقة الأمريكية في تقريرها. علماً بأن العراق، الذي يُعد ثاني أكبر الدول المنتجة للنفط في منظمة الدول المصدرة للبترول (أوبك)، يمثل - بعد المملكة العربية السعودية - حوالي ٧٥ في المائة من إجمالي النمو الذي شهده إنتاج منظمة الدول المصدرة للبترول (أوبك) في عام ٢٠١٥. ومع ذلك، فقد انخفض استهلاكه من النفط

جنرال إلكتريك للنفط والغاز تنشئ أول خط لضغط النفط في السعودية

تصنيع جنرال إلكتريك. وجاء تصميم مكونات التوربينات الغازية (PGT25) مع الوضع في الاعتبار سنوات الخبرة العديدة التي اكتسبتها شركة جنرال إلكتريك في هذا المجال من خلال التوربينات الغازية الثقيلة والضاغطة المحوري/بالمطرز المركزي. وكان الهدف الأساسي من التحريف الديناميكي الهوائي هو الحصول على كفاءة عالية في التصميم والسرعات المخفضة على حد سواء. وقال رامي قاسم، الرئيس التنفيذي لشركة جنرال إلكتريك للنفط والغاز في الشرق الأوسط وشمال إفريقيا وتركيا: «جنرال إلكتريك للنفط والغاز تركّز تركيزاً قوياً على الطابع المحلي. فاليوم نحتفل بأول خط ضغط تم تجميعه محلياً

أكملت شركة جنرال إلكتريك للنفط والغاز، في المملكة العربية السعودية، تصنيع خطوط ضغط النفط الستة الأولى ذات الكفاءة العالية، والتي سوف تمهد للمرحلة الأولى من مشروع توسعة شبكة الغاز الرئيسية لشركة أرامكو السعودية. وتعتبر خطوط الضغط، التي صُنعت محلياً للمرة الأولى في مركز تكنولوجيا تصنيع جنرال إلكتريك بالدمام، جزءاً من عقد تبلغ تكلفته عدة ملايين من الدولارات لتوفير ١٨ خطاً من خطوط ضغط نفط ذات الكفاءة العالية. ويتكون كل خط من توربين غازي لإدارة ضاغط بطرد مركزي. وسوف يتم، خلال هذا العام وكجزء من المرحلة الثانية، تصنيع ستة خطوط أخرى في مركز تكنولوجيا



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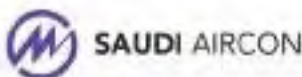
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