

Oil Review

Oil · Gas · Petrochemicals

Middle East

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ADNOC's new expanded
**partnership
model**

- The UAE's energy dilemma
- Serving the Iraq market
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- Improving margins through operational excellence
- Powering onshore oil and gas installations
- Advances in drilling mud fluid measurement

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→ Editor's note

ADIPEC GETS BIGGER and bigger every year! This year's event will feature more than 2,000 exhibiting companies and is expected to attract more than 100,000 visitors. It sees the addition of a downstream programme to drive the conversation on investment, integration, expansion, diversification and collaboration. This reflects the growing focus in the region on adding value through refining and petrochemicals. We bring you all the event and exhibitor news in advance of the show – see p74.

With a focus on the UAE, we report the recent remarks of ADNOC's CEO on the new expanded partnership model which is at the heart of its 2030 smart growth strategy (p16), and examine the role of oil in funding the UAE's transition to clean energy (p18). Meanwhile, our technology section covers subjects ranging from wireless intelligent well completion to corrosion protection and satellite communications.

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Cover pic courtesy of ADNOC

→ Executives' Calendar 2017-18

NOVEMBER

13-16	ADIPEC	ABU DHABI	www.adipec.com
27-29	12th Annual GPCA Forum	DUBAI	www.gpca.org.ae

DECEMBER

3-5	Solar-Tec	CAIRO	www.solartecegypt.com
5-7	Iraq Oil & Gas Show, Basra	BASRA	www.basraoilgas.com
4-5	Bottom of the Barrel Technology Conference	MANAMA	www.europetro.com
11-13	Kurdistan-Iraq Oil & Gas	LONDON	www.cwcklog.com

JANUARY 2018

15-18	World Future Energy Summit	ABU DHABI	www.worldfutureenergysummit.com
21-23	Intersec	DUBAI	www.intersecexpo.com
22-24	Homeland Security Masterclass	MUSCAT	www.homelandsecurityseries.com

FEBRUARY 2018

12-14	Egypt Petroleum Show	CAIRO	www.egyps.com
19-21	ME-TECH 2018	DUBAI	www.europetro.com/events

MARCH 2018

5-8	GEO 2018	MANAMA	www.geo2018.com
6-8	Middle East Electricity (MEE) 2018	DUBAI	www.middleeastelectricity.com
26-28	Oman Oil & Gas Exhibition & Conference (OGWA)	MUSCAT	www.ogwaexpo.com
26-27	OpEx MENA 2018	MANAMA	www.europetro.com

APRIL 2018

17-18	Kuwait Oil & Gas Summit	KUWAIT	www.cwckuwait.com
29-3 May	SOGAT 2018	ABU DHABI	www.sogat.org

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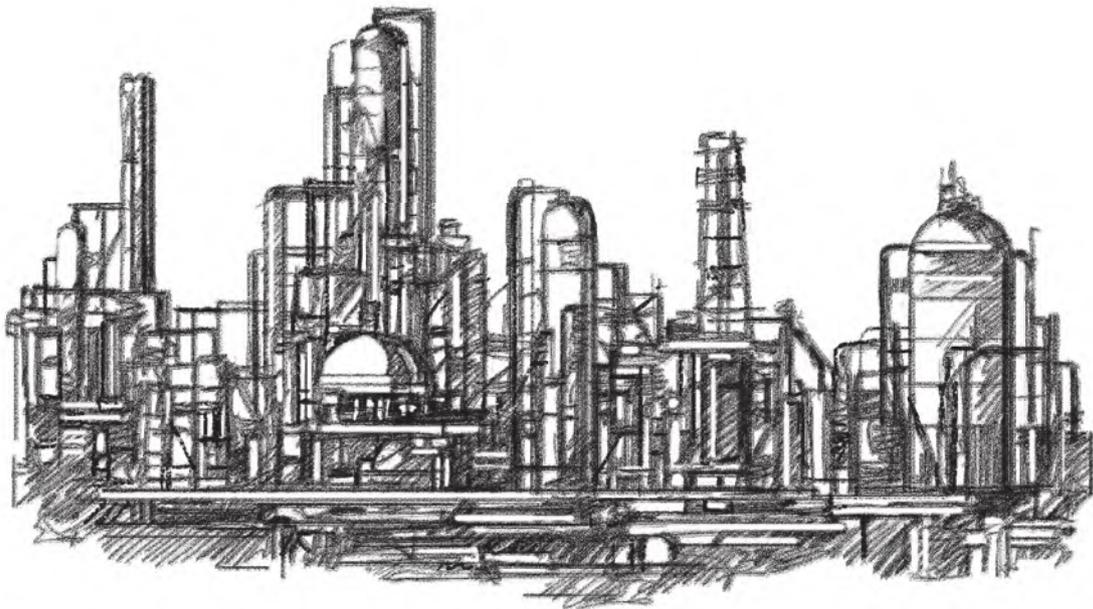
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Crown Prince says Saudi Arabia will support extension of oil production cut agreement

CROWN PRINCE MOHAMMED bin Salman has reiterated that the Kingdom of Saudi Arabia is ready to support the extension of an oil production cut agreement led by OPEC in order to balance global crude oil supply and demand.

"The Kingdom affirms its readiness to extend the production cut agreement, which proved its feasibility by rebalancing supply and demand," the Crown Prince said in a statement.

Crown Prince Mohammed bin Salman said that "the high demand for oil has absorbed the increase in shale oil production."

"The journey towards restoring balance to markets, led by the Kingdom, is proving successful despite the challenges," he added.

The Crown Prince affirmed during the 24-26 October Future Investment Initiative (FII) conference in Riyadh that demand for oil will increase in the future, which has restored trust to oil markets. He added that the future of energy, both conventional and renewable, will be promising, and the Kingdom will lead in both sectors.

OPEC holds its next ministerial meeting in Vienna at the end of November. OPEC and some non-OPEC countries, including Russia, have agreed to lower their output by a total of about 1.8mn bpd to the end of March 2018 to help curb a glut in global petroleum supplies.

Recruitment on an upward trend

NEW RESEARCH BY recruiter NES Global Talent and oilandgasjobsearch.com shows that for the first time since 2014 the oil and gas industry expects more new jobs to be created than lost over the next 12 months.

Since the price of oil crashed in 2014 it is estimated that more than 440,000 jobs have been cut in the sector worldwide. However, with the price of oil having stabilised since July this year, new research shows that almost 90 per cent of employers expect staffing levels to either increase or remain the same in 2018.

The survey of more than 3,000 employers and almost 7,000 workers shows that in total almost 60 per cent of employers expect to recruit significantly over the next 12 months. Of those almost a quarter (23 per cent) expect to increase their workforce by five per cent; almost a fifth, (19 per cent) expect to increase staffing by between five and 10 per cent; and more than a sixth (17 per cent) by more than 10 per cent.

Almost a third (30 per cent) of employers expect staffing levels to remain the same, and just 11 per cent of employers expect to cut jobs.

Tig Gilliam, CEO of NES Global Talent, said: "Globally we are now increasingly confident that the market supports increased investment in the energy sector. Energy companies, with the support of their partners, have right-sized their organisations for the current levels of activity. With a stabilised price environment and lower cost profile more and more assets offer attractive returns on investment and operations. This increasing activity is leading the higher performing companies to refocus on recruiting quality people

Almost 60 per cent of employers expect to recruit significantly over the next 12 months, according to the survey. (Photo: NES Global Talent)



to lead and deliver value."

"While this activity is being led by a sharp increase in investment in US shale, there has also been an uptick in capital projects being approved which will positively impact the industry across all regions. With our own staff operating in over 60 countries, the increasingly positive tone of our clients and contractors is a welcome signal of the turnaround in the market and the participants in this survey echo that sentiment."

Alex Fourlis, managing director of Oilandgasjobsearch.com, said, "There is a sense of positivity throughout the guide the likes of which we haven't seen since 2013 and can be read as an indication of a potential stabilisation of the oil market. This is key to kick-start projects that haven't been viable for a while and will have a positive effect on job volume and salaries across the industry. Comparing the number of jobs posted throughout the industry YTD to the end of July vs the same period in 2016, there has been a two per cent increase year on year with jobs from corporates up by eight per cent."

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Kuwait's largest oil and gas show KOGS 2017 strengthens its international presence



(Centre) HE Issam A. Almarzooq, Kuwait's minister of oil and minister of electricity and water, at KOGS 2017

MORE THAN 5,000 world energy leaders, stakeholders and executives converged in Kuwait for the 3rd Society of Petroleum Engineers Kuwait Oil & Gas Show and Conference (KOGS 2017) in October for four days of strategic dialogue and business opportunities.

The event took place from 15 - 18 October 2017 at the Sheikh Jaber Al-Ahmad Cultural Centre and the Kuwait International Fair in Mishref, under the patronage of His Highness Sheikh Jaber Al-Mubarak Al-Hamad Al-Sabah, Prime Minister of Kuwait, with official support from Kuwait Petroleum Corporation (KPC) and the Organization of the Petroleum Exporting Countries (OPEC).

Convening under the theme 'Shaping the Energy Future: Integration and Diversification,' the conference programme featured over 200 expert speakers and covers topics across the full value chain focusing on today's industry trends and challenges. Key features included a minister-to-minister panel session, an executive plenary session led by chief executives, four panel sessions and over 100 technical presentations.

More than 100 companies attended a

parallel exhibition that took place from 16-18 October 2017. The 14,000 sqm international showcase featured flagship participation from NOCs and IOCs, state-of-the-art equipment, machinery, technological advancements and innovative services in the oil, gas, refining and petrochemical sectors.

"The stature of this major international oil and gas exhibition and conference befits Kuwait's international standing as one of the world's leading oil producing nations, and mirrors the great strides we have made both upstream, downstream and in our overseas activities," said HE Issam A. Almarzooq, Kuwait's minister of oil and minister of electricity and water and chairman of the KPC, at the opening ceremony.

"The current growth witnessed in Kuwait's oil and gas industry holds much promise for domestic and foreign oil and gas companies. KOGS 2017 will facilitate an important technological exchange between industry leaders, professionals and government officials," he added.

Hosnia Hashim, deputy CEO Olefins & Aromatics, Petrochemical Industries Company, said, "This is the second time that Kuwait hosts a conference and exhibition of this scale,

size, and outreach, to cover upstream and downstream technical topics of our main industry — the oil and gas industry, which grounds our bright present and enables the sustainability of our production for decades to come, sustaining a bright future for our country."

Principal regional exhibitors included KPC and subsidiaries, Bapco, Sabic, Saudi Aramco and EQUATE. Complementing these regional giants is a host of international powerhouses including Amec Foster Wheeler, Baker Hughes, a GE Company, BP, the Egyptian General Petroleum Corporation, Halliburton, Schlumberger, Shell, Total and Weatherford amongst others, who exhibited alongside independent specialist suppliers and distributors from Kuwait and across the world. The exhibition also featured large national groups from France and Egypt.

KOGS 2017 is organised by SPE in conjunction with UBM AEM. The event is held under the patronage of the Prime Minister of Kuwait His Highness Sheikh Jaber Al-Mubarak Al-Hamad Al-Sabah, with official support from the Kuwait Ministry of Oil, Organization of the Petroleum Exporting Countries (OPEC), and Kuwait Petroleum Corporation (KPC). ■

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Saudi Aramco CEO says energy sector is facing record fall in investment

AS MUCH AS US\$1 trillion of investments has either been deferred or cancelled with the lower-for-longer oil prices, and this under-investment will impact the future of energy, according to Amin Nasser, chief executive of Saudi Aramco.

Of the US\$1 trillion investment, US\$300bn was earmarked for oil exploration and another US\$700bn for project developments, according to him.

"This will have an impact on the future of energy if nothing happens," Nasser noted, adding

that investments are necessary because of natural depreciation of fields and normal rise in demand.

"We are witnessing a transformation. But it will be decades before renewable energy takes a major share in the energy mix," he added.

In July 2017, Nasser said that if the oil and gas industry didn't start investing again, the global oil supply and demand curve will reach a turning point in next few years.

"The US\$1 trillion in investments have already been lost since the current downturn began," he

said while addressing a speech at the World Petroleum Congress in Istanbul in July 2017.

According to the International Energy Agency (IEA), upstream oil and gas investment is set to rebound modestly this year, following a 44 per cent plunge between 2014 and 2016. The IEA expects that oil and gas upstream investment will rise by three per cent in 2017, particularly due to a 53 per cent surge in the US shale investment and resilient spending in big producing regions such as the Middle East and Russia.

Sparrows Group awarded crane contracts by Dubai Petroleum

SPARROWS GROUP HAS secured two crane contracts with Dubai Petroleum, one for maintenance services and the other for the delivery of rental cranes.

The first contract is for five-years crane maintenance services and covers 76 cranes across all of Dubai Petroleum's offshore fields. The contract has been re-awarded to Sparrows, who previously held it for 14 years.

It will provide maintenance and engineering support for all cranes and associated systems and deliver a maintenance strategy, with technical personnel working on-site including a dedicated crane operator instructor.

The second contract is a new three-year agreement and is for the provision of rental cranes to support Dubai Petroleum's well intervention activities. Sparrows will deliver modular temporary cranes and all associated equipment, including skidding systems.

As part of the scope, Sparrow Group's specialist engineering personnel will support the commissioning, operations and decommissioning of the cranes. This also includes the delivery of installation plans and post set-up structural assessments.

A Sparrows ECR20 crane on rental in the Middle East.
(Photo: Sparrows Group)



SIPCHEM partners with DuPont to enhance process safety performance



The signing of the partnership deal between the companies. (Photo: DuPont)

SAUDI INTERNATIONAL PETROCHEMICAL Company (SIPCHEM) has partnered with DuPont Sustainable Solutions (DSS) to accelerate progress in improving process safety management.

In line with SIPCHEM's decision to optimise and increase resilience of its operations, the project aims to utilise DuPont's owner-operator experience and success in implementing similar process safety transformation programmes in the region.

Ibrahim A Al-Rushoud, vice-president of operations of SIPCHEM, said, "This effort is extremely important for us. Based on DuPont's reputation and success in the Saudi Arabian market, we have selected them as the partner to support SIPCHEM on this transformational journey."

Johan van der Westhuyzen, managing director for DuPont Sustainable Solutions, said, "We look forward to partnering with SIPCHEM and sharing the DSS risk-based approach and learning from similar projects in the region."

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Tendeka to boost production and improve reservoir performance in the Middle East

TENDEKA, A GLOBAL provider in advanced completions and production optimisation, has been awarded two new contracts in the Middle East from Abu Dhabi Onshore Operations Company (ADCO) and Petroleum Development Oman (PDO).

ADCO's three-year contract, with a one-year extension, involves Tendeka's zonal isolation products and full range of inflow control technologies, including their market-leading FloSure Autonomous ICD to be installed across all ADCO fields.

PDO has awarded Tendeka a multi-well trial and one-year deployment contract for the application of FloSure Autonomous ICD across Oman.

Scott Watters, CEO at Tendeka, said, "These two awards from ADCO and PDO, following on from our entry in to Kuwait, have firmly established Tendeka in the GCC."

Recently, the company has signed a multi-million-pound deal with Kuwait Oil Company (KOC), which involves Tendeka installing advanced ICD equipment in 55 horizontal wells for two years in Northern Kuwait.



Scott Watters is the chief operating officer at Tendeka. (Photo: Tendeka)

JMMC reports highest conformity level ever

OPEC AND PARTICIPATING Non-OPEC producing countries have achieved a high conformity level with the voluntary production adjustments, reaching 120 per cent, according to the OPEC and Non-OPEC producing countries' Joint Ministerial Monitoring Committee's (JMMC) report for the month of September 2017.

The JMMC expressed satisfaction with the overall results and encouraged all participating countries to continue on the path towards conformity, for the benefit of producers and consumers alike.

It further noted that while some participating producing countries have consistently performed beyond their voluntary production adjustments, others are yet to achieve 100 per cent conformity.

The JMMC has taken note of the recent developments in the market and has expressed confidence that the oil market is moving in the right direction towards the objectives of the Declaration of Cooperation.

Indicative of these positive developments are the recent upward revisions for global oil demand growth in both 2017 and 2018, as described in the report.

Commercial oil stocks in the OECD fell further in September and the difference to the latest five-year average has been reduced by 178 mmbbl since the beginning of this year. However, there remains another 159 mmbbl of stock overhang to be depleted, said the report.

The JMMC said that it will continue to monitor other factors in the oil market and their influence on the ongoing market rebalancing process. All options are left open aiming to ensure that every effort is made to rebalance the market for the benefit of all.

The JMMC was established following OPEC's 171st Ministerial Conference Decision of 30 November 2016, and the subsequent Declaration of Cooperation made at the joint OPEC-Non-OPEC Producing Countries' Ministerial Meeting held on 10 December 2016 participating countries agreed to accelerate the stabilisation of the global oil market through voluntary adjustments in total production of around 1.8 mmbbl per day. The resulting Declaration, which came into effect on 1 January 2017, was for six months. The second joint OPEC-Non-OPEC Producing Countries' Ministerial Meeting, held on 25 May 2017, decided to extend the voluntary production adjustments for another nine months, commencing 1 July 2017.

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PDO sources well construction parts in Oman

PETROLEUM DEVELOPMENT OMAN (PDO) has announced it will start sourcing important well construction parts for its oilfields from Oman with the opening of a new US\$20m factory in Sohar.

Every year, the company spends approximately US\$100 million on importing casing and tubing from China.

However, PDO has worked with Chinese manufacturer Changbao to set up a new tubing threading and finishing plant where plain tubing will be sourced from China and then threaded and finished in the new facility in the Sohar Free Zone.

The move is expected to commence the process of localising seamless oil country tubular goods (OCTG) technology.

The Changbao Oman Oil Pipe Company LLC facility is envisaged to provide 30 jobs when it runs at maximum capacity. The aim is to Omanise all positions in the coming years.

Said Al Mahrooqi, wells operations manager at PDO, said, "The new plant will not only reduce the cost of tubing and casing for PDO wells, but also shorten delivery times to our fields."



The facility will have a threading capacity of 50,000 MT a year along with storage and repair services. (Photo: PDO)

Zamil and UTEC announce strategic partnership for offshore survey in Saudi Arabia

ZAMIL OFFSHORE SERVICES and UTEC, an Acetec company, have formed a strategic partnership where both companies will work together to execute offshore survey projects in the Kingdom of Saudi Arabia.

Stuart Cameron, CEO at UTEC, said, "We have seen an increase in potential work opportunities in the Kingdom of Saudi Arabia and we expect this to continue going forward. The partnership is the first step in our strategy to increase our presence and contribution in the Kingdom of Saudi Arabia."

Sufyan Al Zamil, president of Zamil Offshore, said, "The partnership is strategic to Zamil Offshore as we continue to diversify our service offerings to our clients."

"We foresee a great opportunity in this growing market and we plan on investing in its localisation," he added.



The companies look forward to create a strong client proposition in the Kingdom. (Photo: UTEC)

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RSK's environmental work In Iraq accredited by the Iraq Ministry of Health and Environment

THE UK'S LARGEST privately-owned multi-disciplinary environmental consultancy group RSK has been awarded accreditation by the Iraq Ministry of Health and Environment as a certified firm for undertaking environmental protection work in Iraq.

The three-year licence awarded under Iraq's Regulation No 3 of 2014, grants RSK's environmental office in Al Majal Business Park in Berjessah.

RSK is one of the first non-governmental environmental bureaus to be approved by the Ministry of Health and Environment for these studies. The company also received accreditation to ISO/IEC 17025:2005, the main International Organisation for Standardisation standard used by testing and calibration laboratories in 2015.

In Iraq, RSK undertakes a broad range of environmental consultancy and technical services operations, which include oilfield cleanup and land remediation operations, environmental impact assessments and baseline monitoring, waste management services and facilities, soil and groundwater investigations and geotechnical analyses on major infrastructure projects and oil and gas sites.

Commenting on the award, Fergus Collie, regional managing director of RSK, added, "The award of this important licence presents a major milestone for our operations in Iraq and helps in fulfilling our ambitions as a local business delivering high-quality accredited services to our Iraqi and international clients."

Collie further said that the accreditation will help to underpin the company's environmental work for its broad range of existing clients, including all the leading international oil and gas companies operating in the region.

RSK has conducted numerous geotechnical and geoenvironmental investigations across major oilfield sites in Iraq and has developed a training academy service line for oilfield personnel.

The on-site team has grown rapidly, the emphasis being on employing and developing local content, said the company.



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A new approach to partnerships

HE Dr Sultan Ahmed Al Jaber, UAE Minister of State and CEO of ADNOC Group, outlined ADNOC's new, expanded approach to partnerships at the 38th Oil & Money Conference.

CREATIVE STRATEGIC PARTNERSHIPS hold the key to the continuing success and resilience of the oil and gas industry, HE Dr Sultan Ahmed Al Jaber told the conference, held in London on 17 October.

Delivering the Ministerial keynote address, HE Dr Al Jaber said by working together in "smarter, more cohesive ways", the global oil and gas industry "can weather any challenge the future brings, reinforce our resilience and continue to drive our industry's growth."

"Energy market trends have refocused our approach to partnerships as the key to maximising capital efficiency, optimising our entire value chain and growing market share," said HE Dr Al Jaber. "We have capitalised on the future by building bridges to other countries and forging business partnerships beyond our borders."

"To deliver the next wave of our growth we are actively seeking fast acting partners who can deliver access to high growth economies; forward looking partners, who can apply the latest technology to our upstream, midstream and downstream operations and financially savvy partners, including private equity and institutional investors, who can deploy long-term capital for attractive, sustainable returns. As a globally connected energy hub, we provide our partners with a stable, progressive and opportunity-rich business environment that will become even more rewarding in the months and years to follow."

HE Dr Al Jaber also noted ADNOC is exploring the IPO of minority stakes in some of its services units, stressing that ADNOC, at the holding company level, will remain wholly owned by the Abu Dhabi Government. In addition, he described how ADNOC is revisiting its capital structure to accelerate delivery on its smart growth 2030 strategy.

"As part of the active management of our portfolio of assets we are looking to optimise our balance sheet to both free up capital for re-investment and enhance returns. ADNOC is therefore considering various options with regards to its future financing strategy," he



HE Dr Sultan Ahmed Al Jaber,
UAE Minister of State and
CEO of ADNOC Group.
(Photo: Oil & Money Conference)

said. "We believe this new approach to partnership and our capital structure will enhance performance across our businesses and accelerate progress towards our 2030 smart growth strategy."

Expanding on ADNOC's future plans, the Minister said, "In upstream, we will increase our crude capacity output to 3.5mn bpd by expanding and optimising production of our existing operations. We are also reshaping our offshore sector to bring in more value-add partners who can further enhance recovery and unlock additional barrels. Downstream, we are actively seeking strategic partners to exploit opportunities across our refining operations, while we also aim to triple production of our petrochemicals projects, capturing growth in the highest value segments of the energy sector. In gas, we are tapping into our undeveloped gas reservoirs, expanding production in our sour gas facilities, already the largest of their kind in the world."

"Our strategy represents our plan for the future, to ensure we remain resilient and competitive in today's evolving energy landscape," he went on. "As we adapt to the new normal, perhaps the biggest variable will continue to be the price of oil. By focusing our

efforts on what we can control, such as enhancing our capital efficiencies, optimising our resources, and driving and ensuring value creation, we will be able to manage risk, drive unit costs down and maximise returns."

HE Dr Al Jaber expressed confidence that hydrocarbons would continue to be the bedrock of economic growth for decades to come, with world energy demand forecast to rise by 35 per cent by 2040. By then, he said, oil and gas would still supply over half of the world's energy needs, while petrochemicals would grow 150 per cent by 2040.

The speech was made in the wake of the announcement of ADNOC's new unified brand, bringing its subsidiary companies under one common identity. This will help create a more integrated, dynamic and progressive corporate culture, with a centralised governance model, while maintaining the operational autonomy of each company, according to ADNOC.

The introduction of the revitalised brand is the latest step in ADNOC's 2030 smart growth strategy, which focuses on maximising value and increasing profitability, as it delivers a more profitable upstream business, a more valuable and diversified downstream business and a more sustainable and economic gas supply. ■

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The UAE's energy dilemma

Dr Carole Nakhle, CEO, Crystol Energy and director, Access for Women in Energy, examines the role of oil in financing the UAE's transition to clean energy.

TYPICALLY, WHEN ONE thinks of the UAE, it is the association with oil and its vast wealth that dominates the attention. The skyscrapers crowding the small land, the golden gates to lavish palaces, the endless alleys of trees erected in the middle of the desert, and the private helicopters circling the skies, are just some examples of what oil has brought to this relatively young nation.

Increasingly, clean sources of energy have to be added to this picture. The UAE is undertaking huge efforts to switch its own energy supply away from oil and gas and towards a cleaner mix of renewables, nuclear and clean coal. Like everywhere else in the world, this is an expensive undertaking, requiring government support. Oil and gas, on the other hand, are available domestically and are relatively cheap. This poses an interesting dilemma.

Today, oil is facing mounting pressure as the world tries hard to move towards a greener, cleaner future and vows to end the age of fossil fuels. At their annual summit in 2015, the G7 leaders agreed to phase out fossil fuel use by the end of the century. This year, countries including France and the UK announced they were banning the sales of petrol and diesel engines as early as 2040, while China, with the fastest growing demand for oil in the world, is racing ahead with the expansion of renewable and nuclear energy. Concerns about peak oil supply only a few years ago have been replaced by talks about peak oil demand – which, as many experts are arguing, is not far away. But if hydrocarbon revenues will really come under threat, how will petrostates, including the UAE, finance their energy transition?

“An impressively long list of green initiatives distinguishes the UAE from its Arab peers”

A modern state

The Emiratis are portraying the image of a modern nation that is increasingly more vocal about its investment in alternative sources of energy and its efforts to minimise its carbon footprint, currently among the highest in the world on a per capita basis.

The UAE was the first country in the Middle East to ratify the Paris climate change agreement – it pledged to increase the share of clean energy to a staggering 24 per cent of its total energy mix by 2021, from a tiny share of less than 0.1 per cent today. In its Energy Plan 2050, announced in January 2017, the UAE also committed to generate 50 per cent of its electricity from clean energy (including nuclear) by 2050. Some 44 per cent is due to come from solar energy and six per cent from nuclear plants. The remaining 50 per cent will come from gas (38 per cent) and clean coal (12 per cent). Today, 100 per cent of its electricity is generated using gas. It is argued that such a mix will allow the UAE to reduce carbon emissions by 70 per cent.

An impressively long list of green initiatives distinguishes the UAE from its Arab peers, boosting its international stance as a modern, environmentally conscious state. There we find the headquarters of the International Renewable Energy Agency (IRENA), an intergovernmental organisation that promotes the adoption and sustainable use of renewable energy. We also find Masdar, “the Middle East’s largest exporter of renewable energy”, and Masdar City – the world’s earliest attempt at building a sustainable eco-city; the Barakah plant, the first nuclear power plant in the Arab world, and Al Reyadah, the Middle East’s first specialised company focusing on commercial-scale Carbon Capture, Utilisation and Storage (CCUS) projects, to name but a few.

The role of oil

A lot is happening on the green front in the UAE – but different from most other countries, the boom in clean energy technologies is directly financed from hydrocarbon revenues. And these projects are expensive. The



Dr Carole Nakhle, CEO, Crystol Energy and director, Access for Women in Energy

Barakah nuclear power plant, for instance, has an estimated price tag of more than US\$20bn. Similarly, to achieve its 2050 renewable energy target, the UAE will need to invest more than US\$163bn.

Compared with other oil-rich Arab countries, the UAE’s economy is undoubtedly more diversified. Still, the oil sector continues to account for more than a third of real economic output (compared to 60 per cent in Kuwait), nearly half of export earnings (in Saudi Arabia it is more than 80 per cent) and around 80 per cent of total budget revenues, according to the Central Bank of the UAE.

The regional and global influence of the UAE has also been facilitated by oil, whether directly as one of the world’s largest oil producers and an influential member of OPEC, or indirectly through international investments carried out by its various petroleum funds, led by the Abu Dhabi Investment Authority (ADIA), the world’s second largest such fund, after Norway’s Government Pension Fund Global. According to the Sovereign Wealth Fund (SWF) Institute, ADIA holds around US\$792bn – more than twice the size of the UAE’s entire economy. In this respect, the Emiratis should not be – nor are they – apologetic about their oil.

Dilemma

However, the transition from a petroleum-based to a green economy is more



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challenging than elsewhere. Investment in alternative sources of energy has a very long payback period and will continue to require strong government support for the foreseeable future. The problem is that this financial support has to be funded by oil revenues. Even when money comes from private investment, it is typically triggered by explicit or implicit government backing. So long as government revenues are dominated by hydrocarbon exports, a vicious cycle results: to sustain a clean energy transition requires more – not less – oil investment and production, to sustain public finances – for as long as clean energy is not cost competitive.

Should the dire predictions of those experts forecasting the end of the oil (and gas) age materialise, and the current dominance of oil in the global primary energy



Alternative energy sources will require strong government support for the foreseeable future. (Image credit: philipus/Adobe Stock)

“ The transition from a petroleum-based to a green economy is more challenging than elsewhere”

mix gradually dwindle, producers will suffer. The UAE, which is sitting on some of the lowest cost oil reserves, will not be among the first countries to feel the pain. This, however, cannot be a reason for complacency if the Emirates want to preserve and expand their ambitious green agenda.

In a case where green energy finance depends on petroleum exports, questions arise which are different from countries where such finance comes from sustainable, non-energy sectors of the economy. The core

questions that need to be thoroughly assessed are: first, whether and when investment in greener sources of energy can become independent of state support (or even start to generate revenues to the government); and second, whether the UAE will be able to diversify its economy rapidly enough to create a sustainable source of income beyond petroleum exports, to sustain those green energy projects before suffering from lower hydrocarbon export revenues. The race is on. ■

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Seizing opportunities in the Middle East

Andrea Palmieri, Saipem branch manager Kuwait, Oman, Sharjah and Qatar, discusses the company's operations in the Middle East, following the recent award of a major contract in Kuwait.

What is the scope of work of your new contract in Kuwait?

The scope of work comprises the construction of a system of pipelines of various diameter, approximately 450 km in length, for the transportation of crude oil and gas from various KOC South Tank Farm manifolds to the new Al Zour refinery. The project also includes the realisation of a network for the transportation of the refined products to the storage areas present in the refinery of Mina Al Ahmadi. These products will also be used to feed the Northern Power Station owned by the ministerial body for water and electricity.

What is the significance of the contract win for Saipem?

The project marks a new milestone for Saipem onshore E&C activities in Kuwait, reinforcing and consolidating our presence in a market where we have been operating continuously for the last 30 years. It also strengthens our cooperation with such an important client as KOC, the state-owned upstream operator of Kuwait, with whom Saipem has a long history of complex project execution. Kuwait is a country in which we have built solid and lasting relations that reflect our sustainable business model and is a strategic country for Saipem, both for ongoing contracts and in the short-term outlook.

“The project marks a new milestone for Saipem's onshore E&C activities in Kuwait”

How do you view prospects for Kuwait's oil and gas industry?

The Kuwait market is a well-defined one thanks to the clear planning and strong implementations made by KPC, the state holding company, and its subsidiaries. There



The Middle East has historically been a key region for Saipem onshore E&C activities

has been substantial growth in the recent years, both in the oil gas sector and in the infrastructure, and the country has geared up to this challenge. Both government agencies and local stakeholders have a key role in the implementation of these projects, well beyond the EPC role for which Saipem and other international contractors are responsible. The whole chain of services is tested and stressed when it comes to the delivery of multi-billion dollar projects. We are talking about mobilisation of thousands of skilled personnel, material and all ancillary services. The entire system has responded satisfactorily so far, and this will remain the main challenge in the months ahead.

How important is the Middle East to your global operations, and what are your views on prospects for Saipem in the region?

Historically, the Middle East has always been a key region for Saipem onshore E&C activities and it will remain such, especially Saudi Arabia and, recently, Kuwait. Expectations remain very high, and we are working to position ourselves strategically in order to seize every valuable opportunity and make them profitable for our company. Saipem boasts a track record marked by distinctive engineering capabilities and an inherent attitude for innovation and challenge that have remained unchanged, where they



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“ We are working to position ourselves strategically to seize every valuable opportunity”

have not in fact increased, in all these years. This is the result of a combination of performances often beyond client expectations, together with a talent for interacting and relating with a multiplicity of local stakeholders in the region, since every country is organised according to the specific needs and characteristics of each market in a distinctly heterogeneous territory. Among the areas of improvement we are working on are the efficiency of our project solutions and the reinforcement of our unique brand positioning, thanks to the excellent government to government relationships Italy enjoys with all Gulf countries.

Are there any other projects in the Middle East you would like to highlight?

Apart from Saudi Arabia opportunities, in Kuwait we are going to participate in the bid



The Saipem headquarters in San Donato Milanese, Italy

for the giant Jurassic gas field development expected to tender in Q3 2017. We are also looking with interest at the next phase of development of the Azur complex with the KIPIC petrochemical plant, to be launched in 2018. In Oman, we will participate in the

execution phase of the Duqm Refinery project in Q4 2017, and we will dedicate particular attention to any additional opportunities arising in the Duqm district. Finally, several downstream opportunities are expected in Abu Dhabi as well. ■



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Preparing for the un known

Disruptive innovation is changing the face of the oil and gas industry at an unprecedented pace and scale, say Eduard Gracia, principal, A.T. Kearney and Sean Wheeler, partner, A.T. Kearney.

OVER THE LAST decade, innovation has dramatically changed the nature of both supply and demand forces shaping the oil and gas sector.

On the supply side, after more than a century during which every innovation in oil and gas would improve production at the expense of higher capital expenditures and longer lead times, shale technology has transformed the business into a faster cycle one. Shale operators can rapidly scale production to market conditions while keeping costs per barrel low enough to compete even at low market prices. As a result, North America has regained its rank as leading oil and gas producer, and is now posing the biggest challenge to OPEC since its inception.

“All these technology developments translate into change, and uncertainty”

On the demand side, the pressure to reduce carbon emissions is changing the energy value chain. Gas, as a clean fuel, is increasing its market share at the expense of oil and coal, substantially supported by the development of LNG shipping technologies. At the same time, cost-competitive renewable energy technologies (e.g. wind or solar) are rapidly expanding their footprint, albeit from a very low starting point, and aiming to partially replace hydrocarbon-based power sources. Furthermore, electric cars, while remaining a small factor in today's market, are also becoming increasingly competitive, and may threaten to dent the share of oil in the transportation sector in the long run.

All these technology developments translate into change, and uncertainty – which means opportunities for those who adapt, as well as risks for those who do not. This is precisely the type of environment scenario planning was originally designed for, as it enables oil and gas



Shale technology has developed rapidly to become a game-changing force. (Photo: denismax/Adobe Stock)

firms to better prepare future-proof strategies maximising value generation.

Scenario planning

Scenario planning is still a poorly understood tool, particularly when it comes to addressing disruptive and unpredictable opportunities and risks. All too often it is approached as an “anything goes” brainstorm leading to an unmanageably large number of scenarios purportedly aiming to cover every single conceivable future development, but which altogether add precious little insight. Conversely, a good understanding of the mechanisms that drive innovation in the real world allows the weeding out of the most unlikely scenarios and a focus on a small set of plausible, consistent ones that provide real insight into what risks and opportunities deserve to be addressed through a comprehensive strategic plan.

Indeed, history teaches us that three key drivers underpin the process of innovation: **Time to develop:** Invention may well start with a flash of inspiration, but its translation into applied innovation takes time and,

particularly in long-cycle industries such as energy, this can be a long time indeed. A good example is shale. The roots of shale technology go back to US-government sponsored research on unconventional hydrocarbon sources back in the 1980s, followed by horizontal drilling techniques developed in the early 1990s. From this starting point shale technology developed, first slowly and then at a more rapid pace, until, in the high oil price years of the early 21st century, it grew to become the game-changing force it is today.

Economic case: No innovation succeeds without a clear economic case, and the energy industry, with its huge risks and massive investment projects, is a perfect example. From the introduction of steam-powered drills in the 1870s to the fast development of shale and ultra-deep water drilling technologies in the 2000s, oil and gas innovation has always picked up when the prevalent oil prices were at a high. Sometimes, of course, the economic case is not purely market-driven but government-induced: for example, the rapid development

of cost-competitive renewable energy sources in the last couple of decades has owed a lot to environmental regulation and subsidies, which have stimulated innovation in this area with remarkable success. Either way, bright ideas alone do not suffice to trigger the (often large and risky) investments that enable innovation in the energy sector: a strong economic case is a must.

Favourable environment: Last but not least, innovation can only flourish in a favourable environment. It is no coincidence that shale technology was first developed in the USA (and ultra-deep water technology in the Gulf of Mexico), spurred by favourable regulatory frameworks, availability of venture capital sources and a pervasive entrepreneurial spirit.

History tells us these three drivers are key to disruptive innovation, and thus limit substantially the range of plausible future scenarios, particularly in an oil and gas context where long cycle times and large capital investments are the norm. Understanding them well naturally leads to planning against a small, manageable number of realistic scenarios, which is the main condition for scenario planning to be useful.



The rapid development of renewable energy sources has owed a lot to environmental regulation and subsidies. (Photo: WDG Photo/Adobe Stock)

At the end of the day, disruptive innovation is an organic process, and its seeds need time, plenty of water and a fertile ground to germinate. One should never forget this when

scenario planning, for it is the key to developing scenarios that are realistic, insightful and, ultimately, useful to prepare for the risks and opportunities to come. ■



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Iraq's oil revenue conundrum

A NEW REPORT from APICORP Energy Research entitled 'Iraq's oil revenue conundrum: challenges and opportunities of the upstream sector' discusses whether Iraq is on track to strategically drive its oil revenues and shape the future of the sector.

The report concludes that while production has remained resilient in the face of budgetary pressures arising from lower oil revenues and the war against ISIS, the country faces substantial challenges going forward if it is to meet its production target. Iraq has made some progress in de-bottlenecking infrastructure and expanding export capacity, but stronger efforts will be needed to support future output growth. This includes constructing new pipelines and utilising existing outlets as well as the possibility of exporting through neighbouring countries. Achieving production targets will also require substantial increases in both natural gas and water injection to increase recovery rates and boost production. Despite having made steps towards reducing gas flaring, Iraq remains the second largest gas flaring country in the world.

Going forward, there are four key success factors for Iraq. Firstly, the country should reform the existing contracts to ensure IOCs have the right incentives as well as the right operational environment to increase output capacity.

Two, Iraq should prioritise the capture of natural gas for reinjection in the process of crude production. In this regard, water injection will also be a priority.

The third success factor is thus for Iraq to attract foreign investment. Securing financing will help the country develop projects across the oil supply chain and ramp up refining capacity, which will reduce the import bill and enable Iraq to export products alongside crude. In the meantime, the proactive approach adopted by SOMO (State Organisation for Marketing Oil) as well as the formation of two new joint ventures with the aim of maximising revenue and diversifying exports, signal a step in the right direction.



Iraq's crude oil production, mn bpd. (Source: EIA/APICORP)

Finally, Iraq has made remarkable progress on security, but the country has to prove that it is able to maintain and intensify these efforts in the long term. There is further risk of political instability following the Kurdish referendum in September 2017 and potentially following the Iraqi general election in early 2018. Steering the course that achieves both security and stability will be crucial in creating a competitive market environment. This will be done through the implementation of effective policies, thus enabling the government to control oil revenues and carry out the necessary work in developing the crude oil supply chain.

To see the full report see www.apicorp-arabia.com/research

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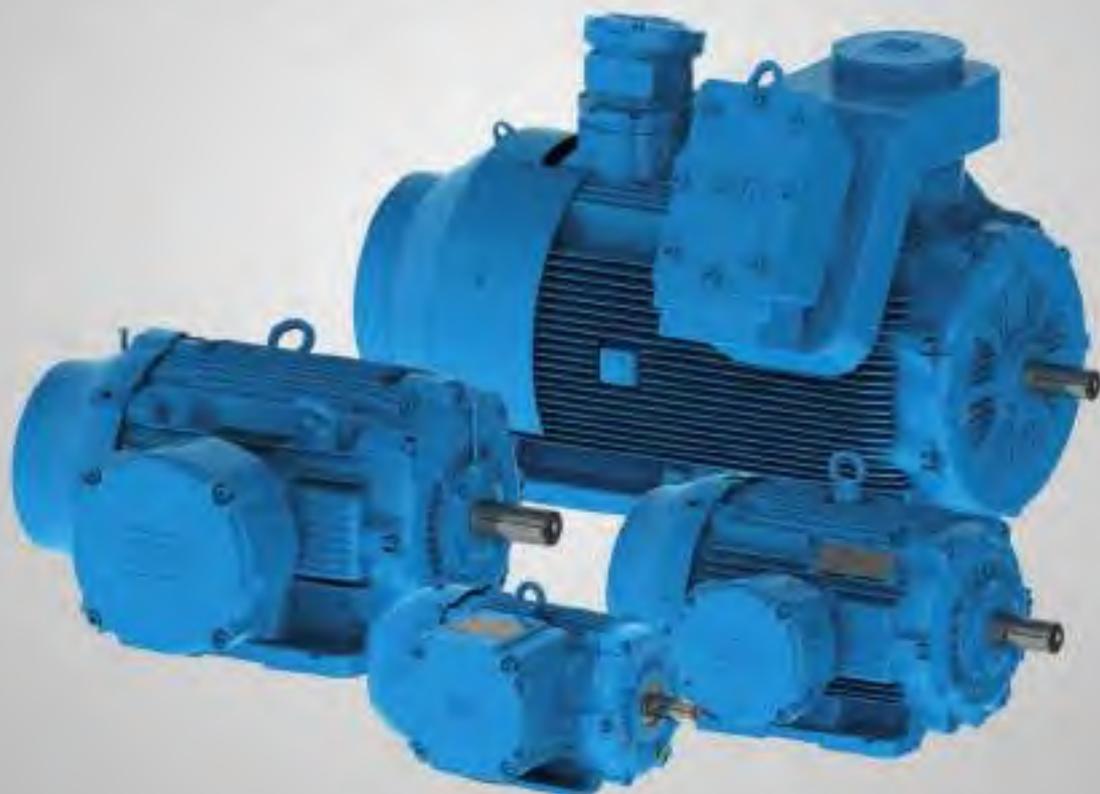




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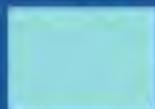
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Improving margins through improved operational excellence

Colin Chapman, president, and Ekaterina Kalinenko, project manager of Euro Petroleum Consultants (EPC) discuss measures for improving efficiencies in oil refineries and facilities.

*Achieving high levels of efficiency could increase profit growth significantly in refineries.
(Photo: Golf_chalermchai/Shutterstock)*

IN THE CURRENT environment, it has become increasingly important for companies to operate existing assets in the most efficient manner possible – this in order to sustain and improve margins. It is also important to design revamped or new facilities with advanced solutions for the same reason. To manage assets efficiently, companies should develop a strategy or roadmap for operational excellence, which will help save on costs and lead to higher margins.

Achieving high levels of efficiency and reaching world-class level in specific areas of activity could enable net profit growth between US\$2 and US\$3 per barrel. For large refineries these amounts can be significant.

“ The roadmap for operations improvement should cover all four essential components of the operational system ”

Key areas of operational excellence include technical systems; competency and skills development of staff; efficiency management; and mindset and behavioral stereotypes.

When we look how refineries or facilities operate they usually fall into four principal categories depending on their level of operational excellence:

- Survival mode – company tries to operate normally but frequently uses inadequate and inefficient trouble-shooting methods due to lack of personnel competency; results are: high costs, unstable operations and low level of process safety
- A path to stability – the focus is on improving occupational safety

and key technical aspects of operations system; results are: stable operations coupled with comprehensive level of safety

- Aiming first quartile OpEx levels – efficient operational system which covers all four major elements of Operational Excellence; results are: in some areas companies can achieve top industry levels
- Leadership pace setters – all aspects of operations (including contractors' activities) are executed within the framework of company's unified operational system, personnel involvement and compliance with system's principles are ensured via continuous training and leadership from the management side; results are: efficiency levels within global standards, personnel are actively involved in the process and makes effort to increase created value.

The roadmap for operations improvement should cover all four essential components of the operational system, enabling companies to achieve high results:

Technical systems

- Ensure maximum efficiency of implementing 'lean production' methods
- Develop & introduce the most advanced technical system via pilot projects implementation at process facilities

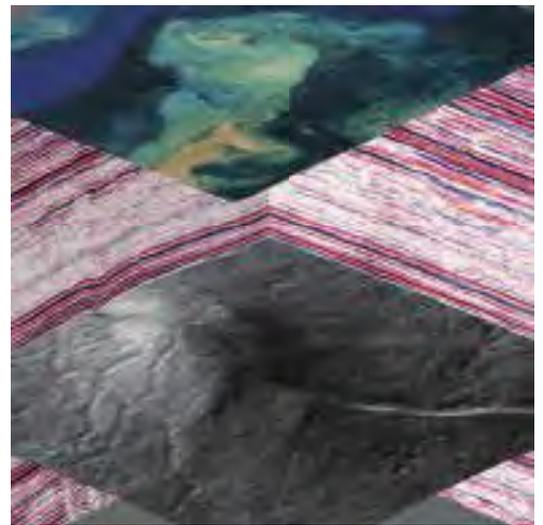
Competence/skills development

- Define on a company scale and delegate needed authority to work group, the goal is to plan sustainable transformational changes
- Create special corporate academy for training in-house experts

Efficiency management

- Set high-scale goals for the company and define a set of KPIs that

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would range according to different organisational levels

- Adopt a routine of regular meetings to discuss efficiency issues at all levels of management

Mindset and behavioural stereotypes

- Understand the mentality and attitude of employees that are present to date
- Develop a structured plan and/or ready-to-implement scheme of a future operational system
- Ensure personnel's commitment in achieving targets. Important to address motivation issues.

Technical system

The technical system at any refinery embodies a large number of components, so to understand and measure them efficiently a variety of analytic methods is needed – usually they include comparative analysis with the use of industry benchmarks as well as global standards compliance indexes analysis.

When looking to meet the future challenges facing the refining industry, companies tend to invest in Increasing level of conversion, and yielding world-class quality products.

It remains very important to incorporate best practices into the design to enable meeting future targets of operational excellence.

Deeper conversion is a way of resource-saving for companies that allows production of approximately 1.5 times more valuable oil products out of one ton of crude cutting.

The refining industry is one of the most capital-, material- and energy-intensive industries, hence it is important to optimise refinery

operations and to obtain maximum benefit from assets.

Possible ways of raw material optimisation include:

- Increasing conversion per ton of crude oil processed
- Improved productivity of process units (higher yields of main products)
- Crude and oil products loss control and minimisation
- Lower fuel consumption
- Process configuration optimisation.

Refineries with higher levels of conversion will be better placed to adapt to the changing market situations.

Focus on efficiency improvement

To advance technical aspects of refinery operations it is vital to assess process optimisation efficiency: analyse the current LP model, blending recipes and procedures, and decisions for buying/trading products.

Energy consumption (electricity, fuel and steam consumption) is one of the largest refinery cost items. To improve total company efficiency, usually the refiner has to implement numerous middle- and small-scale improvement programmes. With a relatively modest level of investment, a company can eventually save millions of dollars a year by substantially reducing energy consumption. Another area needing attention is environment protection. This factor affects costs, product quality, process safety and company image more and more every year. Plants may lose their license to operate if they do not comply with the increasingly stringent environmental requirements. That supports the message that development of environment policy, along with energy-



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and resource-saving, is an important factor for the future financial state of the company.

The maintenance process and its organisation at refineries are important elements of technical system, and also key to facilitating improvements. Incorporating 'lean production' principles is going to also have a tremendously beneficial effect, for example one refinery implemented methods of quick setup and maintenance, which allowed maintenance staff to shorten the compressor valve turnaround period by 75 per cent.

The figure below illustrates the comprehensive approach taken by the service company TP Engineering, which shows the necessary building blocks for improved asset management.

Personnel assessment and organisational setup efficiency evaluation often enables the discovery of valuable opportunities for improvement. The main reasons for inefficient organisational structure are an

excessive number of hierarchy levels and an inadequate approach to defining responsibility.

Implementation of an integrated refinery operational improvement roadmap/programme may become a source of additional profit – EBITDA per barrel of processed oil (one of the main financial and operational indexes that indicates plant efficiency) could be increased by US\$2-\$3; for a refinery with a capacity of around 10mn tpa it would mean some extra US\$150-200mn per annum in revenue. In this era of increasing pressure on refining margins it is imperative to improve refinery operational efficiency to maintain competitive advantage in the coming years.

Conclusions

An important benefit of an integrated approach is the sustainability of the transformation. Once real results are achieved this will give motivation to staff to identify further improvements on a continual basis.

Implementing an energy-efficient scenario in the oil and gas industry will substantially increase operational and financial efficiency.

Medium-sized oil companies would be able save up to US\$50-70mn per annum through resource-saving technologies and create a full database from benchmarking and case study experience, and can then use such experiences at other company assets

Improving efficiency should be viewed as an ongoing task, and by implementing such an approach companies can sustain and improve their position in the markets. ■

Euro Petroleum Consultants (EPC) is a technical oil and gas consultancy with offices in Dubai, London, Moscow, Sofia and Kuala Lumpur.



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Efficient gas treatment and processing

Adriano Gentilucci, commercial director – IMEA for Dow Oil, Gas & Mining, discusses the company's AMINE MANAGEMENTSM PROGRAM.

What is the Dow AMINE MANAGEMENTSM Program?

The Dow AMINE MANAGEMENTSM Program is a comprehensive gas sweetening service programme tailored to each customer's performance objectives, to help them optimise their total system costs. The programme is designed to achieve environmental compliance while improving reliability, reducing energy costs and preserving the integrity of assets. The service programme uses Dow's proprietary state-of-the-art simulation software, which offers customers best-in-class performance prediction technology.

Why is there a need for an AMINE MANAGEMENTSM Program?

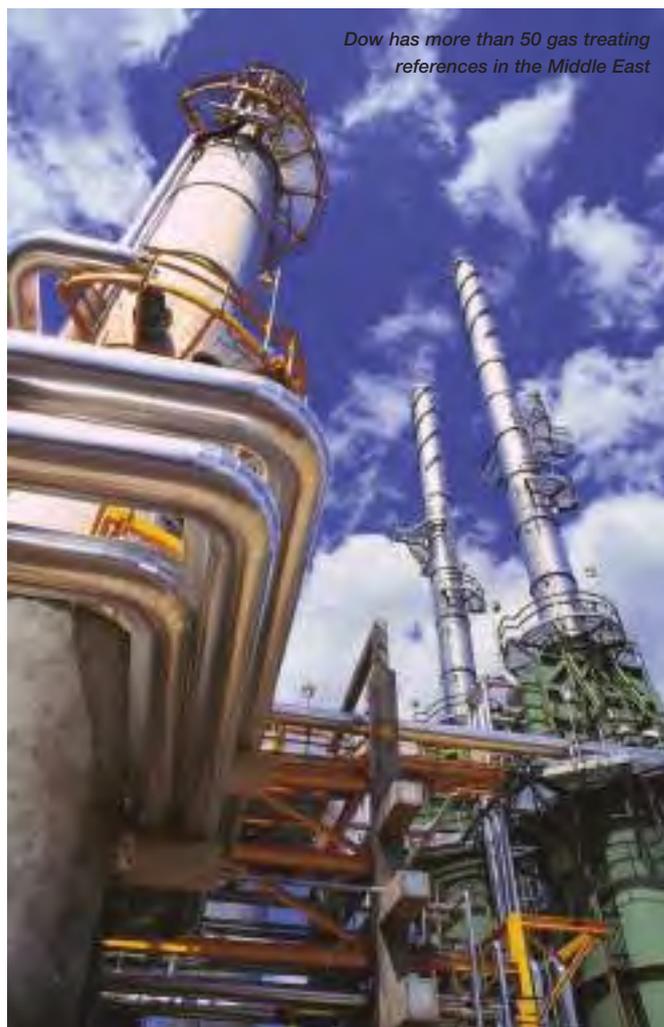
One of the main challenges facing sour gas processors in the Middle East today is that of efficient amine management. Amines, a chemical compound used to treat sour gas and liquids by removing harmful hydrogen sulphide (H₂S) from the useable gas, works best in cool conditions, which means the added costs of thin fan coolers or chillers to the sweetening process. Our amine management technology works by allowing the amines to operate efficiently for H₂S removal even at relatively high temperatures. This eliminates the cost for cooling the amines. In addition, energy savings can be reached through reduced reboiler duty and decreased pumping requirements due to lower solvent circulation.

Heat Stable Amine Salts (HSAS) can adversely impact amine-based gas treating systems by causing corrosion, reduced amine capacity, poor unit operations, reduced solvent life and solvent disposal problems. Dow has developed a programme that minimises the problems associated with HSAS, maximises solvent life, and restores operational reliability. Dow's Heat Stable Salt Management Program, a part of Dow's AMINE MANAGEMENTSM Program, is based on a low total cost approach to treat HSAS, reduce HSAS contamination, and minimise the corrosion from HSAS.

How does the Dow AMINE MANAGEMENTSM Program work?

The starting point of the AMINE MANAGEMENTSM Program is an on-site visit from Dow's amine experts. Experienced technical service engineers perform an initial survey of the amine system, including sample and data collection. These are analysed and evaluated via a proprietary simulation tool, which identifies and quantifies opportunities for system optimisation. Customised recommendations may include improving amine efficiency through the use of UCARSOLTM Specialty Solvents, a proven line of specialty amines that allow for tailored contaminant removal and reduced energy consumption. They may also identify opportunities to extend solvent life and reduce corrosion potential through the use of Dow's UCARSEPTM Process for heat stable salt management.

In addition to analytical services, the AMINE MANAGEMENTSM Program also offers training and start-up support, as well as continuous system support, including on-call and periodic planned site



Dow has more than 50 gas treating references in the Middle East

visits to review process data and provide additional optimisation recommendations. The programme is flexible and customers can pick and choose the services that they wish to subscribe to, whether it's strictly analytical, a combination of analytical and technical support, or the full spectrum of initial analysis and ongoing process support. Typically there is no interruption to production and no capital investment required to achieve significant improvements in energy savings, capacity increases, reduction in solvent usage and more stable operations.

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What are the benefits of the Dow AMINE MANAGEMENTSM Program?

Dow collaborates with customers to improve amine plant performance and help sustain performance gains over the long term. We work closely with a facility's operational team to help ensure that the gas treating facility is operating at optimal performance. The Dow AMINE MANAGEMENTSM Program is implemented as a comprehensive monitoring and maintenance service programme designed to help optimise amine usage, reduce energy use, maximise solvent life, and minimise contaminants and corrosion.

Moreover, the increased demand for energy worldwide has pushed refiners to increase crude processing flexibility to tolerate heavier, sourer crudes. At the same time, environmental regulations require refiners to emit less sulfur. Under the Dow AMINE MANAGEMENTSM Program, UCARSOLTM Specialty Solvents have become an industry standard for the most complete removal of H₂S and trace sulfur. Dow works with customers to help their facilities meet stricter environmental regulations, while also helping operations run more efficiently – resulting in an environmentally compliant, cost-effective solution.

What makes the Dow AMINE MANAGEMENTSM Program a competitive solution for the market?

Dow combines in-depth industry knowledge, chemistry expertise and advanced innovation capabilities with deep application expertise in solvents for superior acid gas removal and amine system operation. Our technicians utilise a proprietary simulation tool backed by data collected from more than 1,200 gas-treating plants worldwide. Through this, they are equipped to assist in optimising gas treating systems,

“Dow solvents are used to treat the majority of the region's liquid natural gas”

thus providing great value to a facility. The programme also offers a best-in-class analytical lab that performs thousands of customer analyses annually, while providing a remarkable turnaround time versus the industry average. And finally, the programme offers an in-depth selection of UCARSOLTM Specialty Solvents that provide superior performance, allowing for tailored contaminant removal and reduced energy consumption.

Where in the region is it being deployed?

It is estimated that Dow solvents are used to treat the majority of the region's liquid natural gas. Our AMINE MANAGEMENTSM Program is employed worldwide to upgrade existing plants and design new plants for optimum gas processing efficiency and output. Dow has more than 50 gas treating references in the Middle East, including plants in Kuwait, Qatar, Oman, Saudi Arabia and the UAE. These references include the use of Dow UCARSOLTM and SELEXOLTM solvents in five world-scale LNG plants in Ras Laffan, Qatar.

In Africa as well, our locally based technical experts are actively engaged with the major operators to provide Dow's solutions in helping treat sour gas in the key markets of Egypt, Libya, Tunisia and Nigeria. For example, Dow's UCARSOLTM AP 810 solvents are used in the gas fields at Nalut, Libya. ■

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Playing a pioneering role in Oman's HSE development

Mohamed Al Salmani, corporate health, safety & environment manager at Petroleum Development Oman (PDO), discusses the company's HSE challenges and initiatives.

What are PDO's core HSE values and goals?

In PDO, HSE is an overarching priority across the whole business. We strongly believe that a safe culture means a good and productive working environment. Our most important core values are the protection of the health and safety of our stakeholders, as well as the environment we operate in. Our ultimate goal is to reach what we refer to as 'Goal Zero' which is simply no harm to people and the environment.

However, we do not only strive to create a working environment where our staff and affiliated contractors can perform their daily duties and go home healthy and safe at the end of each day; we go that extra mile, where our personnel are actually looking forward to coming to work the next day.

What are the main HSE issues and challenges you face in embedding an effective HSE culture?

There are many challenges we encounter in our pursuit of embedding an effective HSE culture, not the least communication. We have more than 60 different nationalities within our workforce and contracting community and many different languages.

It is always a challenge to get the right message to the right people at the right time in a way they understand. We always need to keep in mind so many elements for each message we intend to cascade such as the age, background, gender, location, seniority level, literacy and so on of our stakeholders.

Additionally, the oil and gas industry is complex by nature. The complexity increases as the easily extractable hydrocarbon depletes, so we are continuously on the look out for new hazards and risks.

Our operations are widely spread, geographically. This means we have to travel for long distances and our people are exposed to road hazards. Cumulatively, the number of kilometres we drive is equivalent to a return trip to the moon every day. Road conditions are not always optimum, hence the need to ensure the competency of our drivers is maintained at all times.

“ Our ultimate aim is to reach what we refer to as 'Goal Zero' ”

What measures and initiatives have you introduced at PDO to raise HSE standards and embed best practice?

It would take me a long time to list all the measures and initiatives we have in PDO, but I will mention a few examples to give a flavour.



Mohamed Al Salmani, PDO's corporate health, safety & environment manager. (Photo: PDO)

HSE is a permanent topic in our meetings; before any job is undertaken a toolbox talk must take place to discuss hazards and risks. Certain forms and templates are made available to prompt the discussion and stimulate thoughts of what needs to be done and what could go wrong.

We have established a road safety standard that is being used across the industry worldwide. The standard covers drivers, vehicles and loads. We also introduced an In-Vehicle Monitoring System (IVMS) to track movements of our vehicles and driver behaviours. What IVMS does is monitor the way a vehicle is being driven, picking up instances of speeding, heavy acceleration, harsh braking and failure to use the driver's seat belt. The idea is that by reviewing IVMS data, these negative driver behaviours can be spotted and rectified. There's a huge safety benefit to this, since human error is a major cause of road accidents, and bad behaviour behind the wheel becomes ingrained if it's not dealt with.

We recently launched a centralised Journey Management Control Centre to monitor all vehicles under PDO operations including those owned by our contractors. This gives a real time, bird's eye view of the vast majority of vehicle movements across our concession area. Now, if a driver commits an IVMS violation, it triggers an alert in the control centre. This enables a member of the centre's team to contact the driver's journey manager, who in turn can follow it up. In practice, it means drivers are now facing the consequences of breaching the rules, while also having the opportunity to be rewarded for good practice behind the wheel.

We are currently busy piloting an in-house developed behaviour-based safety programme called 'IHTIMAM' (care) that is designed to cater for our requirements. Early indications look very promising and we plan to roll it out across the organisation in a phased manner to maximise and unleash its full potential.

We are also working on simplifying, but without losing the essence of, our HSE requirements so that they become easier for staff to understand and comply with.

How is PDO serving as an example to other companies and organisations in Oman in terms of HSE?

I would say by being transparent on our HSE performance and sharing our learning from incidents with others. We work with an open-minded approach and are in constant dialogue with our peers nationally, regionally and internationally. We always look for innovative, but practical, solutions to help enhance our performance. We reach out to our stakeholders to offer our experience and



The well-being and safety of its staff are a priority for PDO

knowledge, which has been built up over the past 80 years of our operation in Oman.

To what extent do you think the need for an effective HSE culture is acknowledged in Oman, and how much progress do you think has been made in this regard?

I can proudly say that we, in PDO, are the pioneers of HSE in Oman and possibly the region. Over the years, I have seen a tremendous shift and a step-change when it comes to HSE, both in PDO and beyond. Organisations in the Sultanate recognise and acknowledge the importance of having an effective HSE culture. This is underpinned by the rigorous legal framework developed and enforced by the government. ■

“ We work with an open-minded approach and are in constant dialogue with our peers ”

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No worker left alone

Edmond Mikhael, general manager of Honeywell Safety and Productivity Solutions (SPS), Middle East, Turkey and Africa (META), explains how IIoT solutions are helping to protect lone workers in the oil and gas industry.

*Lone workers face a host of occupational hazards.
(Photo: Tom Wang/Adobe Stock)*

THE MIDDLE EAST'S oil and gas sector employs tens of thousands of remote workers who are manning compressor stations, pipelines and pump jacks. It is paramount that these workers have the highest standards of safety available to them during operations. Because they work remotely, it is difficult for employers to continuously monitor their safety and take appropriate action if necessary. They face a host of occupational hazards such as slips and falls, electrocution, falling objects, cuts and burns and toxic and flammable gas exposure, any of which could cause serious injuries, or worse.

“Safety managers can receive a constant stream of real-time data on a lone worker's exact location”

When it comes to monitoring and ensuring the safety of remote lone workers, safety managers have in the past had very few options. They could equip workers with GPS tracking devices and panic buttons, or they can assign a wireless personal gas detector that sends alarm data to a controller.

However, a panic button is of limited use if a worker already is down due to gas exposure, a fall or other safety incident and is unconscious or unable to move to activate the alarm. Personal gas detectors will warn of a gas emergency but not other hazards. They also only alert the worker, meaning that managers remain unaware of the emergency.

These individual personal solutions are usually installed, maintained and monitored as separate components, increasing the management problem for safety managers and potentially increasing the safety risk for remote workers.

Industrial Internet of Things (IIoT) technology is helping to change all of this. Honeywell's cloud-based computing and wireless, mobile technology is creating a new era of safety for lone workers, going beyond current safety standards. With today's connected technology, safety managers can now receive a constant stream of real-time data on a lone worker's exact location, as well as their biophysical and atmospheric conditions. They can monitor their safety and initiate or assist with decisive or pre-emptive safety actions like never before, from any location.

Remote workers may continue to work remotely, but they are no longer alone. Cloud-based, mobile, wireless monitoring solutions can relay essential information about a worker's location, the presence of dangerous gases and biometric data about the employee

back to the employer so they can monitor their worker's safety.

With a connected solution, managers can locate workers on demand, check near real-time readings of gas monitors, receive automatic alerts of gas alarms and man-down incidents, perform site check-in/check-out, send two-way text messages and track vehicle maintenance, fuel usage and driving habits. As such, conveying safety and location data from remote lone workers to safety managers via GPS in real or near-real time can increase the safety and productivity of workers in distant locations.

Through adopting connected solutions, each worker and his or her vehicle comprise a portable, wireless network. Each worker should be equipped with a gas portable monitor that functions on its own WiFi network. The unit features a gas sensor, an onboard man-down inertial sensor, panic button and two-way texting. A router located in the worker's vehicle provides connectivity and visibility of the worker and the vehicle to the cloud-based platform, enabling managers to view the gas readings on a remote worker's detector at any time, from any place.

The result is faster, smarter response planning that provides responders with a live update of the situation and hazards present.

Now, with the application of IIoT and cloud-based technology, even for remote lone workers, no one should be left behind. ■



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Serving the Iraq market

With container volumes in Iraq buoyant and an upturn in economic prospects forecast, leading port operator Gulftainer is looking forward to increased growth in its Iraq business.

GULFTAINER IS A privately-owned enterprise which was established in 1976 in the Emirate of Sharjah, with the primary role of managing and operating container terminals on behalf of, and in close cooperation with, the Sharjah Port Authority in the United Arab Emirates (UAE).

Today, more than four decades later, Gulftainer has established itself as a leading regional and international port operator with active roles in several countries, including Iraq, Saudi Arabia, Lebanon, south Asia, and north and south America. It has close to 4,000 employees working across its terminal and logistics facilities worldwide.

Gulftainer expanded its operations to Iraq in 2008. Today, it has three facilities – Iraq Projects Terminal (IPT), the Iraq Container Terminal (ICT) and the Umm Qasr Logistics Centre (UQLC). IPT has seen sustained investments developing into a first-class facility for general break bulk and project cargo segments. The ICT is one of the country's most prominent container hubs and is the only terminal in Umm Qasr Port with a separate gate in and gate out of the port, and separate scanner, providing an improved and professional handling of trucks to and from the terminal. Recently, Iraq Container Terminal (ICT) received the largest container vessel to call at Iraqi ports on its maiden call.

UQLC, a fully integrated logistics services bonded facility, is one of Gulftainer's flagship projects in Iraq. Located close to the Umm Qasr Port, the centre covers an area of 750,000 sq. m and acts as a one-stop-shop for supply chain needs. UQLC is a prime example of Gulftainer's ability to combine its ports and logistics offering through its subsidiary company Momentum Logistics, a third-party logistics (3PL) provider, which has significantly expanded its operations in Iraq and is one of the country's leading 3PL players today. Momentum's presence in Iraq has enabled Gulftainer to add considerable value to its customers through integrated supply chain management solutions. For instance, cargo can move directly from ICT into UQLC without the need for port side



The Gulftainer yard

customs clearance. Momentum has operations across the country, from Zakhō in the north to Umm Qasr in the south as well as support staff in Erbil and Basrah.

“Gulftainer continues to view the market in Iraq as one with immense potential”

UQLC offers significant logistics support to the oil and gas projects sector, as well as a wide range of value added services to customers in the port including: land transportation; bonded and non-bonded storage areas; warehousing; cold storage; LCL services; container stripping; cargo handling; land rental; equipment rental; repair workshops; rental offices and accommodation. The Iraq Port Authority (IPA)

and Customs have offices within UQLC providing a swift and complete customs inspection and clearance process away from the crowds on the terminals.

Expansion strategy

Gulftainer is committed to providing Iraq with the best port, transport and logistics links that are necessary for its redevelopment. It continues to view the market in Iraq as one with immense potential, where it can leverage its global capabilities to develop the industry. This is supported by the Iraqi Government's commitment to investing in the transport sector, particularly in cargo transport.

Following the agreement on oil output cuts by OPEC members, Iraq's GDP growth is expected to finish 2017 at 3.4 per cent. While a relatively small number compared to the country's growth in recent years, it still reflects strong growth in the region. In the transportation sector, the growth has been evident by the double-digit container volume growth in Iraq. Container volumes at

Gulfair's terminals at Umm Qasr alone increased by 13 per cent year on year – growth unheard of in the Middle East region this year. Gulfair has been able to achieve this growth by attracting new shipping lines to its facilities, enabling it to serve the Iraqi

market and increase market share.

The recovery of global oil prices, increased oil exports, reduced government expenditure and increased security are expected to support a positive outlook in 2018. Planned development of the southern oilfields and

measures to boost the non-oil economy are expected to raise GDP growth rate to 4.2 per cent in 2018. At Gulfair, we are cautiously optimistic about the market, and are continuing to review new opportunities for growth in 2018. ■

Harlow International and its security companies achieve ISO 9001:2015 accreditation for meeting international quality standards

HARLOW INTERNATIONAL AND its two security service companies, Al Murabit Security Services (“AMS-91”) and Al Thaware Security Services (“ATS-109”), have been awarded the ISO 9001:2015 accreditation. They are the first and only Iraqi security companies to be awarded this standard by a UKAS accredited body.

The globally recognised benchmark is the highest accreditation for quality management systems (QMS), and Harlow International endeavours to continue delivering exceptional client service through best practise across its group of companies. Raymond Macfarlane, QHSE manager at Harlow International said, “Our award of the ISO 9001:2015 accreditation shows our commitment to the consistent and continuous improvement of our standards in terms of our internal processes, sustainable practices and operational efficiencies in order to provide the best service there is in Iraq.”

The ISO 9001 is only awarded to organisations who reach the highest quality and management standards, and as the international benchmark for a quality management system enables Harlow International to demonstrate its

consistent ability to provide high quality services that meet client needs.

“Harlow International and its security companies have come a long way in the last three years. We have built the business into a company that international corporations and governments can turn to as their sole supplier of in-country turnkey services. We are extremely proud to have gained the next step on the international standards ladder; this is a clear testament to our dedication to quality,” commented Simon Barry, managing director of security services.

Harlow International is an Iraqi-owned business working across security, manpower, life support, defence, construction, government services and the media. Harlow operates primarily in Iraq with business development offices in London, Dubai, and Korea. ATS and AMS are notable among security providers in Iraq for being entirely Iraqi owned with 95 per cent of their workforce being local staff, with experienced international management. This integrates local knowledge with international standards at all levels; the key to future development.



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Corrosion protection for ball valves: increasing demands

Stauff has already converted many series of tube connector components to higher-grade corrosion protection with a zinc/nickel surface coating. This year, it will be gradually converting its ball valve range to have this coating as well, says Andreas Heinzen, valves product manager, Walter Stauffenberg GmbH & Co. KG.

UNTIL JUST A few years ago, 96 hours was a key benchmark for the corrosion protection of hydraulic components. Both system suppliers, as well as the users of mobile hydraulics drives, were satisfied if the connection technology components used achieved this service life in the salt spray test in accordance with DIN EN ISO 9227.

Today the bar is significantly higher. This applies to the exposure of components under corrosive conditions – service lives of over 1,000 hours in the salt spray test are now called for. However, this also applies to the environmental and health friendliness of the coatings used.

Stauff reacted early to these technical trends and, several years ago, converted key products in its range from the used coatings to a significantly higher-quality and more corrosion-resistant zinc/nickel finish. This surface coating offers over 1,200 hours of resistance to red rust/base metal corrosion under practical test conditions in the salt spray chamber in line with DIN EN ISO 9227. It thus exceeds the most exacting standards in terms of durability, as are defined in the VDMA standard sheet 24576 and called for in mobile hydraulics above all. Practical experience to date shows that the lifetime values obtained in the laboratory are achieved and/or exceeded under adverse conditions (e.g. in the hydraulics of construction or agricultural machinery).

At first glance, the new coating differs significantly from the existing zinc/iron finish and has a high quality appearance similar to the appearance of stainless steel. It achieves this without the addition of chromium IV and complies with all ELV, REACH and RoHS regulations.

The future zinc/nickel finish of valves has a similar appearance to stainless steel.



Image Credit : Walter Stauffenberg GmbH & Co. KG

“ At first glance, the new coating differs significantly from the existing zinc/iron finish ”

Popular ball valve ranges given a new coating

Stauff has begun the gradual changeover of its ball valve ranges to this corrosion-protection finish, which is both high-grade and harmless to the environment and health. It affects product ranges primarily used as manually operated shut-off valves in mobile and stationary hydraulics: two-way ball valves from the BBV-2 range and the most popular three-way ball valves from the CBVL-3 and CBVSL-3 range (with L-bore in the ball) and CBVT-3 and CBVST-3 (with T-bore in the ball).

All Stauff valves are made from European quality steel with the option of full material traceability. The balls with hard chromium plating, which reduce friction and wear, usually have a full through hole corresponding to the nominal diameter of the line, so that there is no detrimental reduction in the diameter of the hydraulic line. Uninterrupted flow is also supported by the fact that no exposed threads are located in the medium passage, which reduces vibration, noise and heat generation in the system, ensuring that the machine can operate at full capacity. ■



Image Credit : Walter Stauffenberg GmbH & Co. KG

The final installation of two-way valves takes place in the Stauff Logistics Centre.



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Increase output, reduce costs with coating solutions

Aleksei Tokarev, CEO MAOK LLC and Pavel Tokarev, BDD MAOK LLC, discuss the benefits of using MAOK coatings to prolong the life of oil-well tubing.

FROM THE BEGINNING of commercial oil production, oil companies have been keen to use up-to-date technologies and equipment to increase oil output and reduce operating costs for well operation.

An important factor in oil production is oil-well tubing (lifting pipes), by which the oil moves up from the earth's depths to oil and gas transport lines. The life expectancy of oil-well tubing hangers depends on their resistance to aggressive media, gases and paraffin settling rate. At the present time tubing life expectancy in Russia's regions is from one month to a year, depending on the quality of oil deposits.

The suggested solution allowing considerable increase of life expectancy of oil-well tubing is a complex mix of actions to protect all factors that have effect on the operation life of tubing. It allows an increase tubing life expectancy by more than two to three times; an increase in the run period of oil-well tubing and reduction of costs for tubing maintenance; and improvement in efficiency of tubing use.

As a complex solution for the protection of oil-well tubing from negative effects (corrosion processes, paraffin settling, aggressive medium, etc.) the use of MAOK coatings is suggested.

1. Oil-well tubing. The pipe's inner surface (it can also be the outer surface) is covered with MAOK-GT® material of 120-150 micron thickness. That coating is corrosion-resistant to acids (fluoric, hydrochloric, sulphuric etc.), to alkalis and does not pass through hydrogen sulphide or carbon dioxide. These properties allow to safely protect a pipe's wall from corrosion processes. Due to the hydrophobic characteristic and glossy surface of the coating, the paraffin settling rate significantly decreases, which results in the increase of the continuous well operation period and reduction of well operation costs. The coating is flexible, therefore mechanical effects to a pipe (tensile, compression) and thermal influence (rapid temperature change) do not affect the operation properties of the coating – it is not flaked off, cracked or decayed. One more very important feature of MAOK-GT® coating is that



Aleksei Tokarev, CEO MAOK LLC (left) and Pavel Tokarev, BDD MAOK LLC

it is successfully applied on to pipes having been in use with oil traces in the pipe's body. Adhesion of the coating on such pipe makes up not over one point. The coating is easy to maintain, so the pipe can be used many times.

2. Coupling. The threaded part of a coupling is covered with self-lubricated and corrosion-resistant MAOK-PLAUN® coating protecting threaded connections of a coupling and pipe's pin-end from corrosion and providing complete leak tightness of threaded connection. Due to the coating's flexibility there is a compensation of forces occurring from increased make-up torque of connections (tightened connections). The coating allows to make-up Cr13 pipe with steel coupling without pin-end's thread deformation and electromotive force occurrence, as the coating is a dielectric material. Such a combination (Cr13 pipe + «K» steel coupling with MAOK-PLAUN® coating) was successful during pilot tests in RN-Purneftegas, a subsidiary company of PAO NK Rosneft. After a double operation period of a tubing's hanger, no defects of pipe's pin-end thread and coupling were found. MAOK-PLAUN® coating is maintainable.

3. The threaded part of tubing's pin-end is protected by MAOK-N® coating that guarantees protection from effects of external

factors and corrosion during storage and transportation of a pipe. The use together of MAOK-PLAUN® (coupling) and MAOK-N® (pipe's pin-end) coatings allows a reduction of make-up torque by 10-15 per cent and guarantees the break-out torque of the connection is not higher than the make-up torque. Joint use of these coatings allows material and financial costs for conserving and sealing dopes to be excluded and thus excludes their negative influence on the environment and operating personnel.

Costs when applying the above specified coatings are as follows:

1. Cost of all-around (internal and external) application of MAOK-GT® coating on a pipe makes up 12-15 per cent of cost per one ton of pipe.
2. Cost of application of MAOK-PLAUN® coating is 2 -2.5 per cent per one ton of pipe.
3. Cost of application of MAOK-N® coating on a pipe's pin-end makes up 0.2-0.3 per cent per ton of pipe.

This shows that the use of MAOK coatings on tubings allows a substantial increase in the run period of oil-well tubing that results in an increase in oil output, rise in income and reduction in well operation costs. ■

To find more about MAOK coatings contact office@maok.spb.ru.



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OCTG automation and inventory optimisation

The transition to reach optimum levels of inventory management in Oil Country Tubular Goods (OCTG) in the Middle East is only just beginning, but the potential gains in efficiencies are genuine, says Rob O'Neill, business development director, Ramco.

WEATHER AND ENVIRONMENTAL conditions in the Arabian Peninsula create unique challenges for specialists in charge of pipe inspection, care and maintenance for the oil and gas industry. The combinations of heat, salt and water significantly speed up corrosion of OCTG products. These can be dealt with by putting corrosion controls in place and implementing efficiencies that come from process automation.

A greater challenge being overcome in the region is a change of thinking when it comes to OCTG. Operators, including many of the national oil companies (NOCs), have started to explore opportunities for efficiencies in the purchasing, use and inventory management/control of tubulars. They are arriving at this change of mind-set as global operators show the value of using only necessary resources in the face of downturn in key markets.

The Middle East has been in a position of its own in recent years, with drilling activity consistently high when compared to other oil and gas hubs. Whenever business is going well, there isn't a necessity to change techniques or technologies. However, operators are realising there are lessons to be learned from other regions where drilling demand has been lower. More than that, some global partners are expecting certain behaviours in a lower for longer environment.

“By improved inventory and asset management of OCTG millions of dollars can be saved annually”

Improved management of drill pipe, casing and tubulars

Operators in the Middle East and North Africa (MENA) region have many choices of where they purchase their OCTG products and



The Ramco pipe care unit 3 (PCU3) inspection area

services. Steel mills are producing across the region while the import market is strong for the major international manufacturers. Once the joints are supplied by the thousands, typically on a projected annual demand basis, that's where the relationship between the supplier and the customer often ends. The pipe is delivered to the client, passes an initial receipt inspection and from there becomes the ownership and responsibility of the NOC, who have until recently viewed OCTG as a consumable, not a valuable asset.

There is a different approach that is filtering into MENA, which comes from examples of best practice and lessons learned globally. Technologies are enabling better inspection, refurbishment and inventory management, allowing companies to control OCTG as an asset and remove the consumable tag, therefore reducing waste.

Ramco is using its 40 years' experience in the Total Tubular Management™, inspection, care and maintenance of OCTG in mapping out the tubular process and current inefficiencies on behalf of several Middle East NOCs. This involves adapting the lifecycle philosophy of OCTG away from a disposable product that ends up as scrap, to a commodity with an asset value. This approach has the potential to

reduce the cost base of drilling operations.

By improved inventory and asset management of OCTG, managing the lifecycle from manufacture to well site including the rig returns, rejects, and damaged joints, millions of dollars can be saved annually. Reduced inventory levels can be held, reducing capital or operational expenditure, smaller storage facilities are needed, less pipe handling occurs and most importantly, every joint is an asset to be treated as such and used, repaired, inspected and cleaned rather than thrown away.

Technology-led savings

Ramco has proven that launching a Total Tubular Management programme is relatively low-cost in comparison to the complexity of an operator shipping, storing and deploying tubulars only for a percentage to remain unused. It can avoid excess handling and extensive corrosion, while lowering logistics costs and improving safety due to a reduction in manpower or movements.

A technological advancement within Ramco, enabling speed of operations, corrosion control and flexibility near drilling sites, is the pipe care unit 3 (PCU3). It is a mobile pipe care unit, self-contained in two

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40' containers, which can be transported by vessel and truck. The PCU3 technology is designed to offer operational efficiency for internal and external cleaning and treatment of OCTG. It can be commissioned by customers and set-up anywhere in the world within seven to 10 days. Each unit is designed to be operated with minimal local labour due to automated functions.

It can process from 2 3/8" to 20" OCTG, using a multi-stage cleaning and inspection system. Designed by the in-house engineering team at Ramco, the entry, processing and inspection racks aid manpower with gravity-fed loading, selection and loading arms, and safety bullets to stop uncontrolled movements. Automation includes a spring-deployed internal steam cleaning lance which washes at 300 psi. All water is then automatically channelled into a filter system for re-use, a vital aspect in remote and desert conditions. A further technology assisted step is a laser tally system during the inspection stage which also includes an automated drift system, stencilling capability and protector cleaning station. Ramco has consistently delivered using the latest technologies and will continue to drive safety and process improvements with the continued use of R&D and investing in the latest and safest technology.



The Ramco PCU3 entry rack

“NOCs are listening to these types of findings”

Encouraging signs

Driving greater efficiencies across the supply chain in every region is vital. Relationships based on mutual gains have produced significant benefits for Ramco and its customers. The company has ensured it has the people and technologies to manage the whole process from the moment OCTG leave the steel mill to the time they are ready for use

at the drilling site.

NOCs are listening to these types of findings and it is becoming clear that a Total Tubular Management, care and maintenance approach makes business, environmental and logistical sense. Importantly, this change of mind-set can support the drive for greater efficiencies across the supply chain, and we're working with partners on further new ideas.

Total Tubular Management based on much more accurate data than was previously possible is becoming a reality. Teams of inventory specialists are using digital resources as tools to allow customers to know where their tubular is at all stages of the process and lifecycle. At Ramco, we have introduced our new operational management system (ROMS) which allows us to build a picture of customers' activities from beginning to end, with real-time figures on tubular usage within an inventory, stock rotation and cleaning and refurbishment schedules.

Making the future happen

There are regions of the world where inventory management makes sense in financial and logistics terms. At Ramco, we have shown it is possible to drive efficiencies in remote locations, such as Western Australia, through inventory optimisation and automated technologies deployed closer to drill sites. This approach can make a difference in the Middle East too.

Ramco has embedded itself in five global regions and remains determined to fully understand the unique challenges of each, while using the experience of lean principles and development of technologies to make differences that make financial, logistical and environmental sense. The OCTG market has always been driven by basic demand for products, but now customers want greater efficiencies during the supply and storage stages. We're confident as a supply chain partner that we have the correct tools and relationships in place to offer sound advice and provide the answers. ■



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Wireless intelligent completion technology

Tendeka, a leading provider of completion systems and production optimisation technologies, discusses the benefits of its PulseEight intelligent well technology for the digital oilfield.

INTELLIGENT WELLS USE valves or chokes in the reservoir section that can be operated from the surface. For more than 15 years, they have been used in fields across the world for the more effective exploitation of resources through shut-off of unwanted production, improved water injection placement, and modification to hydrocarbon inflow profiles to increase recovery factors.

Currently available intelligent completion technology is controlled from the surface using multiple hydraulic and / or electric control lines which must pass through the wellhead into the completion annulus, along the length of the completion, through any packers and into the reservoir section where the monitoring and control devices are located. While this technology has been successfully implemented in low complexity wells, there are some limitations associated with the use of control lines. Such examples include the compatibility with complex well architectures, potential well integrity issues due to feedthrough connections, and the significant amount of hardware required which can make it uneconomical for marginal fields.

“Wireless completions equipment is becoming more common”

Shift from conventional technologies

Wireless completions equipment is becoming more common, from DST testing to multi-node intelligent completions. The move from conventional equipment with no communication mechanism, and more modern control line based systems, to a wireless system is ongoing and presents several key advantages in efficiency, performance and safety.

All completions incur significant costs, but one of the key items, when used, is the



Tendeka's PulseEight device

control line for downhole communication and actuation. Even single control line strings can add significant cost to the project, while triple or more bundles for hydraulic control can add over US\$1 million to the project cost once the additional hardware, man power and rig time are included.

While control line systems typically require increased CAPEX, the alternative of a conventional completion system can often see the savings on equipment nullified due to increases in OPEX and deferred production through increased intervention and poor reservoir performance.

Wireless intelligent well technology will extend the operating envelope for the advanced completion to allow interval control where currently this cannot be achieved. Independent valve assemblies without control

lines can be rotated in the well during deployment and function without physical connection to the surface. Single critical point failure modes are eliminated and inflow control can be achieved in the laterals of multilateral wells or at the furthest extent of a long openhole lateral. Well construction costs are reduced as cost savings in control lines, downhole connection and completion times are made, and basic top hole workovers can be performed more simply and cheaply without affecting the advanced completion functionality. The addition of real-time data can lead to informed decision making, while the ability to act immediately and without intervention leads to an optimal production environment.

Wireless systems can help to provide a hybrid of the key features, whereby the

completion is kept simple allowing a quick and safe installation, but offers the communication mechanism required to monitor and control wells effectively.

PulseEight technology

Tendeka's PulseEight intelligent well technology provides cable-free control and monitoring solutions for a wide range of applications. Each independently acting device provides an infinitely variable choke and seal with pressure and temperature measurements for optimum control.

The all-electric system is microprocessor driven and can be programmed to function based on wirelessly transmitted instructions from surface or to respond autonomously to the well environment, for example detecting well shut-ins, changes in well pressure or metering mass flow rates.

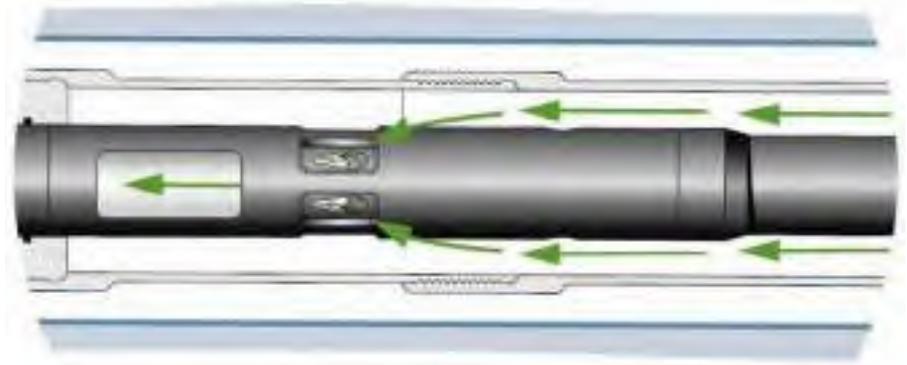
The wireless communication uses a unique semi-duplex pressure pulse telemetry suitable for multi-phase fluid environments that utilises the existing wellhead equipment to interface with the downhole valve.

Once in the well, the PulseEight device can be actuated from surface using pressure pulse commands. These commands are typically generated using the surface choke, and the size of pressure change required can be established prior to deployment using well modelling.

Flow from the reservoir enters ports in the tool and flows to surface. The device creates a downhole pressure response by briefly choking the flow, with the response being viewed at surface.

Six pressure pulses are identified on the surface recorder. The time between the pulses is analysed to give a unique binary code that is decoded to provide pressure and temperature readings as well as tool status information.

To communicate from surface down the



Flow from the reservoir enters ports in the tool and flows to surface

“ The long-term aim for the technology is to form part of a fully digital oilfield”

well to a PulseEight device, a number of pulses are created at the wellhead. Each device responds to a unique pulse sequence and takes action to open, close or choke or to amend any variable.

In addition to this direct surface controlled operating mechanism, PulseEight can be configured to work autonomously based on changes in downhole conditions. Computer models can be used to build the optimal inflow profile, and the PulseEight device can be programmed to target a fixed dP through the valve. This computer model can be kept updated with the downhole pressure data sent from the valve, and the valve's programmed parameters can be adjusted while in hole to suit the update output from the model. This offers an additional benefit over hydraulic control line valves as autonomy

leads to faster decision making and implementation of optimisation techniques.

Example application areas

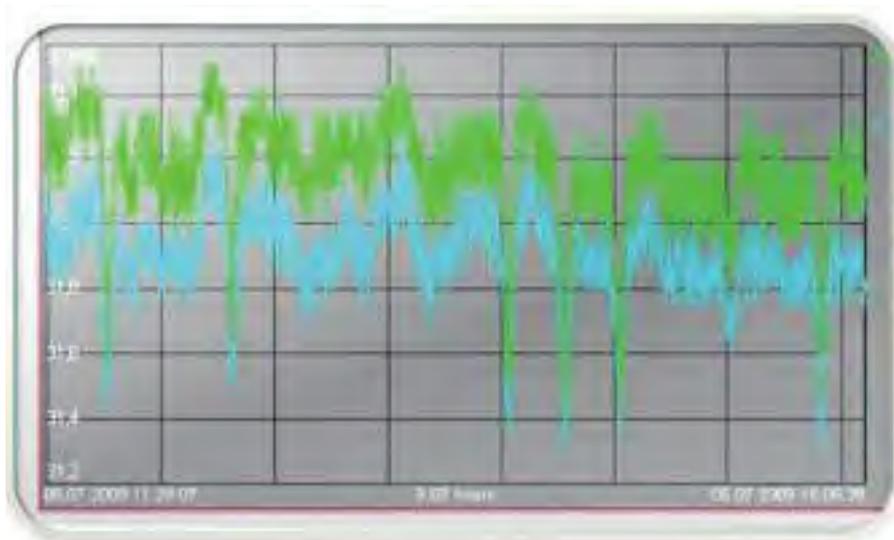
PulseEight can be used for various applications, such as pressure/temperature profiling for improved reservoir understanding; variable interval control for reduced water cut and improved recovery factors; multilateral control for efficient well construction and performance; water and gas shut-off for rapid control of high WC/GOR zones; remote barrier for management of Frac hits; autonomous gas lift for optimal well performance; downhole regulator for optimal gas hydrate prevention; and autonomous crossflow prevention during well shut-ins.

Delivering a robust and reliable solution to market

The uptake of new technology in the oilfield tends to be slow due to the significant perceived risks with new technology and the financial cost of equipment failing downhole. To minimise the risks and deliver a reliable system to market, PulseEight has gone through a robust and staged qualification program including component testing, system testing, and field testing.

Reliability of the design was ensured by using internal components common to previous system offerings, while testing sequences were designed in accordance with appropriate industry standard and regular input from operating companies along the way. The ability to test the system in live well scenarios has been invaluable in proving the communication mechanism over long distances, and under flow regimes that would have been impossible to recreate in a lab environment.

While the immediate future for this technology will be to extend the operating envelope for intelligent completion technology and address some of the applications mentioned in this article, the long-term aim for the technology is to form part of a fully digital oilfield. This would involve a set of 'goal-seeking' devices being installed in a well and communicate with each other, as well as with surface, to provide a fully autonomous, optimal production environment. ■



Six pressure pulses are identified on the surface recorder

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Coelmo constantly invests in industrial and technological R&D to combine reliability of traditional energy sources with innovative green technologies. The company provides generating sets in sectors ranging from telecommunications to oil and gas, military to humanitarian organisations, from leisure to commercial marine.

However, some applications require customised technical solutions that can withstand harsh conditions: adverse environmental and weather conditions, special working modes, remote and isolated places, or conditions that require dedicated solutions.

The Oil & Gas team of engineers guarantees service and support during all phases: from design to production and up to the testing phase, from installation to commissioning. The team also provides support to the project over time through operations of scheduled maintenance and technical assistance all over the world.

Once the customer's expectations have been identified, the Oil & Gas team aim is to go beyond these expectations by creating innovative and efficient solutions. Production takes place in Italy using high-standard methods and superior-quality parts. Moreover, the tests are performed in specialised laboratories where each single part undergoes stringent operating and performance tests.

The accurate engineering setting during the designing phases and the application of the solution, make it possible to perform all steps with high precision. Each step is accurately studied, analysed and presented in detail to the customer. During the design phase, maximum attention is dedicated to the understanding of the customer's needs.

Coelmo control systems are designed to

Coelmo manufactures generating sets for applications ranging from oil and gas to telecommunications



guarantee high reliability over time and ensure precise detection, with a clear and intuitive interface that allows immediate detection and quick solution to any malfunction or breakdown.

At the end of the assembly process and before the delivery to the customer, all Coelmo generating sets undergo a strict testing operation in order to check and certify their operating and performance level. Each operating mode is simulated to verify the reliability of the system and the parts.

At installation and start-up, Coelmo Oil & Gas engineers check the system performance to make sure that it meets the pre-established targets and building criteria. They support the customer in connecting the generating sets to the existing control and distribution systems and provide him with a detailed manual containing the operating and maintenance instructions for the maintenance of the system efficiency.

Abu Dhabi project

One of the most recent Coelmo projects for the oil and gas sector consists of two generating sets rated 2,800 kVA each at site condition, 3.3 kV three phase and 50 Hz frequency, to be installed as emergency back-up in oil processing plants in Abu Dhabi, UAE.

Each generating set is equipped with an engine of 2,590 kWm with oil prelubrication pump; alternator IP55 CACA cooling IC6A1A1 (Ref. IEC 60034-6), oil lubricated, double support with sliding bearings, OLCMS monitoring system, dual NiCd batteries with ATS and earthing resistor.

The generating sets are installed in IP56 with a C5-M marine paint cycle suitable for particularly aggressive environments. Inside the containers is installed a fire detection and fire-fighting system with inter-gas clean agent extinguishing system (IG-541) in compliance with NFPA standards.

The generating sets are suitable for unattended operation and automatic black-starting on external mains failure START signal or on detection of failure of the two Mains supply. The two generating sets work in parallel with each other and in emergency to the two Mains with reverse resynchronisation on mains return.

With 70 years of experience and several projects successfully completed, Coelmo is able to design and manufacture generating sets also for ATEX Classified Area Zone 2 Temperature class T3 or Class II division 2, either in enhanced safety and weatherproof enclosures according to EN 50019, or in pressurised enclosures according to EN 50016. ■

Fast and accurate measurement with guided wave radar

Magnetrol's guided wave radar technology is being used to improve the performance of a customer's oil well cementing trucks.

MIXING AND PUMPING cement into a drilled borehole is one of the most critical steps in oil and gas well production. The injected slurry hardens to form a strong, protective sheath around the drilling string and isolates it from surrounding geologic features. Cementing is typically among the first operations to prepare a well for production and one of the last operations to plug a well prior to its abandonment.

The cement sheath creates a smooth internal bore for operating well-drilling equipment. It fortifies drill pipe strength, protects the casing from shock loads during operation, and wards off contamination and corrosion. Through zonal isolation, cementing segregates the various zones that may have different pressures or fluids. By sealing off high-pressure zones from the surface, cementing curbs blowout potential.

Cementing also stabilises surrounding geology and prevents unstable formations from caving in and bogging down the drill string to bring production to a halt. Cement's impermeable seal prevents water, soil, and sand from contaminating the well flow.

the slurry down the casing. The mixing system blends portland cement, water, and various additives that affect the weight, density, behavior, and setting time of the slurry. Control systems typically include automatic density control and data recording systems with user-friendly interfaces, serial data output, and manual backup controls. Essential to the control system is level control.

Accurate mixing and storage tank levels are key parameters. Measurement must be precise and responsive since sluggish level response can lead to delayed control reactions that damage cementing systems and shut down operations when tanks exceed high or low level limits. The level control's ability to deliver consistently uniform, blended slurries that meet performance criteria is vital throughout the life of the equipment. In addition to accuracy, responsiveness, user-friendliness, and reliability, the mobile level controls must be extremely robust to tolerate the day-in, day-out concussions of oilfield travel.

A leading manufacturer of cementing equipment in China wanted the above attributes in level controls for the cementing trucks it manufactures. The measured slurry medium is a complex mix: an agitated slurry with foam, solids, and changing density. Operation is under atmospheric pressure with a typical temperature of around +95oF (+35o C). Liquid additives mixed into the slurry reduce viscosity to about 60 centipoise (cP), which is similar in viscosity to corn oil.

Given the nature of this application, the petroleum machinery manufacturing company selected Magnetrol® International's ECLIPSE® Guided Wave Radar (GWR) level transmitter with an overfill-capable probe installed in an external cage with a 31 inch (800 mm) centre-to-centre measurement range. The closed coaxial design tends to reject the false target that foam is known to produce, and the probe's high accuracy ensures safe and efficient operation. The convenient user interface makes field adjustment and configuration quick and easy.

Magnetrol secured the business after the



Magnetrol's ECLIPSE® Guided Wave Radar technology

ECLIPSE guided wave radar unit was tested against competitive GWR instrumentation. Two advantages gave ECLIPSE transmitters the edge. First, the response time was quick – within one second – and thus showed operators real-time level. Competitors' units required a full 10 seconds to respond. Second, the overfill safe probe delivered outstanding performance, giving accurate level readings to the top of the probe and close to the very top of the tank. By demonstrating best-in-class transmitter response time and full probe measurement range, more than 100 ECLIPSE GWR transmitters were used for upgrades to the customer's oil well cementing trucks. ■

For more information email: info@magnetrol.com

“More than 100 ECLIPSE GWR transmitters were used for upgrades to the oil well cementing trucks”

Mixing and injecting the cement into a well is accomplished by truck-mounted, trailer-mounted and skid-mounted equipment configurations. The mobile cementing truck, with its integrated mixing, pumping, and control systems, is the preferred choice among oilfield professionals. Trucks feature bulk transport or batch mixing units and an accompanying high-pressure pump to force

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Aggreko's temporary power solutions for oil and gas installations rule the roost in the Middle East and across the globe.

AMONG THE END-USERS, the construction sector has been leading the power rental market due to growth of infrastructural development in the emerging economies. However, the oil and gas segment is also expected to exhibit substantial demand as there is huge power requirement in onshore and offshore oil and gas fields. Most of the drilling sites and oil rigs are located in remote areas where there is limited access to grid power.

According to the research analysis Technavio, the global backup power systems market for the oil and gas industry is highly fragmented with the presence of numerous vendors worldwide, offering a wide variety of products. The products are non-differentiated, and with a horde of vendors, the switching costs are low. The oil and gas industry requires a continuous and reliable supply of power. The backup power systems for the oil and gas industry are designed with the intent to ensure continuous supply of power in the event of a power outage.

"With the rise in refinery greenfield and brownfield projects, the backup power requirements are likely to go up. Environmental reforms and stringent emission regulations to reduce emissions have led to a new technology being developed where generators produce increased power output while consuming less fuel. A recent trend has seen a shift towards gas-powered generators. The use of gas for generators produces cleaner power with reduced emissions than diesel generators," says Thanikachalam Chandrasekaran, oil and gas research analyst from Technavio.

Speaking to *Oil Review Middle East* at the Kuwait Oil & Gas Show (KOGS) about the market for generators, Kuwait's country manager for Aggreko Patrick Haberthuer states that Aggreko has been in the power rental business for oil and gas and other industries for more than twenty five years in the Middle East. He adds that the business for Aggreko has been better in Kuwait since there has been increased production in oil and gas and thus the demand for rental solutions onshore.



Aggreko at the Kuwait Oil and Gas Show in October (Photo: Aggreko)

Providing a comprehensive range from 30kVA to 1250kVA, Aggreko offers multiple solutions for the oil and gas companies in Kuwait.

“ A recent trend has seen a shift towards gas-powered generators. The use of gas for generators produces cleaner power with reduced emissions than diesel generators.”

Within this segment, gas generators are finding huge applications in the oil and gas industry due to the high availability of natural gas as a fuel at drilling locations, especially in the upstream sector, in remote onshore fields as well as offshore fields, where main grid connectivity is not possible, gas generators are the ideal source for power generation.

To this Haberthuer adds that Aggreko has launched its first gas genset in Kuwait and is in talks with multiple companies to start operations. The advantages are numerous, he

maintains. Firstly, the Kuwaiti companies are producing gas so it is cheaper to run such gensets. Secondly, many of Aggreko's gas generators are dual fuel capable, so they have the ability to switch between gas sources seamlessly. The generator engines come with proven 'lean burn' technology, spark-arrested silencing and are turbo-charged with after-cooling. They are heavy-duty, with a purpose-built alternator making them reliable in continuous operations – even in the harshest environments.

Aggreko also recently has launched a diesel power generator certified for rental use in hazardous areas. The 750kVA unit is fully ATEX approved and has full safety features that allow it to be used in hazardous zones both on and offshore, and is believed to be a world-first for generating electricity in areas at risk of explosion.

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Optimising production with multiphase pumping

Leistritz has successfully installed a multiphase pump to lower field pressure, allowing low energy wells to come back into production. Sven Olsen, senior consultant, Leistritz Advanced Technologies, shares the story of how the project has been completed.

OUR CUSTOMER HAS oilfields which are relatively old and have produced oil and gas for many years. Over time, the natural reservoir pressure has dropped off to a point where some wells are no longer able to overcome the back pressure generated by the surface flow lines and the first stage separator of the process facility.

The conventional alternatives considered by the operator would be increasing the flow line size and install a low pressure first stage separator which would be significantly larger. These alternatives were carefully reviewed, however, it turned out that the costs and necessary permissions by the appropriate authorities would have been significant and not economical.

Then in early 2015, the company heard about multiphase pumping. This more economic alternative caught the interest of the management as the production was expected to remain interesting for years to come.

A contact was established with Leistritz and a project study was initialised. The target of the study was to draw down the back pressure on the producing wells with the help of a multiphase wellhead pumping system to about 200 PSIG, which would allow all the wells to produce at an acceptable rate. To overcome the flow line pressure including some reserve, the pressure boosting of the multiphase pump had to be around 500 PSIG in order to reach the line back pressure of 700 PSIG. The Multiphase Wellhead System (Model L300) based on the Leistritz twin-screw pump was selected, proposed and purchased in the summer of 2015.

The system had to be designed for remote unmanned operation, and outside of power supply had to be completely self-supporting. Remote access of the operating parameters was achieved over the Internet by a secure access for the operator as well as for Leistritz.

The liquid rates could vary between 300 to 1,000 BLPD and gas rates between 0.5 and one million SCFD. The combined flow rate at pump inlet conditions would be between 6,000 and 14,000 BPDe



The Leistritz multiphase pump has helped to boost production in ageing and low energy wells

(barrels per day equivalent) corresponding to a GVF (gas void fraction) around 95 per cent. The flow regime was expected to be slug flow, and heavy slugs could affect the multiphase pump unit. In order to seal and protect the pump and remove the heat of compression from the pump a recirculation system was included, designed to gather liquids in a knock-out boot or separator downstream of the pump and circulate some of the liquids back to the pump suction. This system would assist the pump and provide the liquids necessary to maintain compression even during longer gas slugs.

Other design features included a VFD controlled 400 HP 1,800 RPM electric motor and a double mechanical seal system with the API Plan 54 seal flush. The complete unit with piping, valves, instrumentation and controls was designed and manufactured in the Leistritz facilities. Installation and commissioning took place in Q2 of 2016. The unit has performed as expected and adding significant production for the operator.

This case study points to the opportunities for using multiphase pumping in lieu of other back pressure reducing alternatives. The multiphase pump together with VFD speed control has shown its flexibility in instantly adopting to actual field conditions and optimising production with lower flowing wellhead pressure. One of the great features with the twin-screw multiphase pump is that pressure boosting is independent of inlet pressure, giving the operator the best possible tools to produce ageing and low energy reservoirs. ■

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“ This case study points to the opportunities for using multiphase pumping in lieu of other back pressure reducing alternatives ”



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Safety by design

Reflex Marine, a leader in marine personnel transfer solutions, describes how going back to basics redefined safe and efficient offshore crew transfer.

WHEN WE TALK about offshore crew transfer, it is often an “either / or” situation – either you use helicopters, or you use crane transfer; either you use crane transfer, or you use gangway. In practice, in real life situations, things are never that black or white. Commuting to work onshore looks simple in comparison. Every morning we make a choice how to get to work – walking, cycling, taking the metro, or a bus, or driving a car. Going to work offshore does not give us that many options, and the way of commuting is predefined by the operator.

Helicopters are good for getting people from the port to remote installations in deep water; gangways are useful when we need to get large number of crew from a vessel to the platform; and then there is transfer by crane, which gives flexibility and cost effectiveness.

“Crane personnel transfers are carried out for a wide variety of reasons”

Thirty years ago, transferring people by crane had its challenges – people were transferred in net “baskets”, unprotected and exposed. “How can we keep the cost effectiveness and flexibility offered by crane transfer while ensuring people are safe and protected from impacts and harsh weather?” was the question Philip Strong, Reflex Marine’s CEO and the person behind the FROG personnel transfer idea, kept asking himself as he embarked on a journey of improving the safety of offshore crew transfer. Several years later, the first FROG was sold. The original FROG range was launched in 1999 and 15 years later the re-designed and re-engineered FROG-XT range was introduced to the global market.

The FROG-XT Personnel Transfer Carriers (PTCs) are personnel transfer devices designed to provide increased passenger protection

when carrying out the transfer of personnel between vessels and installations. Crane personnel transfers are carried out for a wide variety of reasons including routine, urgent operational and emergency reasons. The FROG-XT can accommodate a stretcher to transfer injured personnel in a protected environment. The FROG-XT comprises the following two main assemblies: firstly, the stainless steel outer framework containing polyethylene buoyancy panels; secondly, a spring-dampened seating assembly mounted on a central column. All materials have been selected specifically to minimise corrosion in the marine environment. The outer framework protects passengers from impacts and contains the buoyant elements which ensure the FROG-XT floats and is self-righting in water. The outer shell lands on four feet that provide shock absorption and ensure that the FROG-XT is stable on uneven surfaces or when landing on a heaving vessel. The outer shell also has four large open accesses that allow rapid unimpeded entry and exit. During transit, passengers are seated and secured with full harnesses to protect them against whiplash and falling. Seating is mounted on a sprung carriage to provide protection against heavy landings. The lifting assembly is of a special design to prevent rotation.

Each Reflex Marine personnel transfer product is specified within the following controlled documents:

- **Build Manual** – A controlled document with all relevant manufacture and assembly instructions and quality and documentation requirements;
- **Drawing Package** – A complete listing of all pertinent drawings (in all pertinent to the model and revision);
- **Design Dossier** – A controlled document with all relevant design calculations and standards, risk assessments and compliance testing data;
- **User Manual** – A controlled document with the required end-user information and maintenance and inspection requirements for use throughout the product life.



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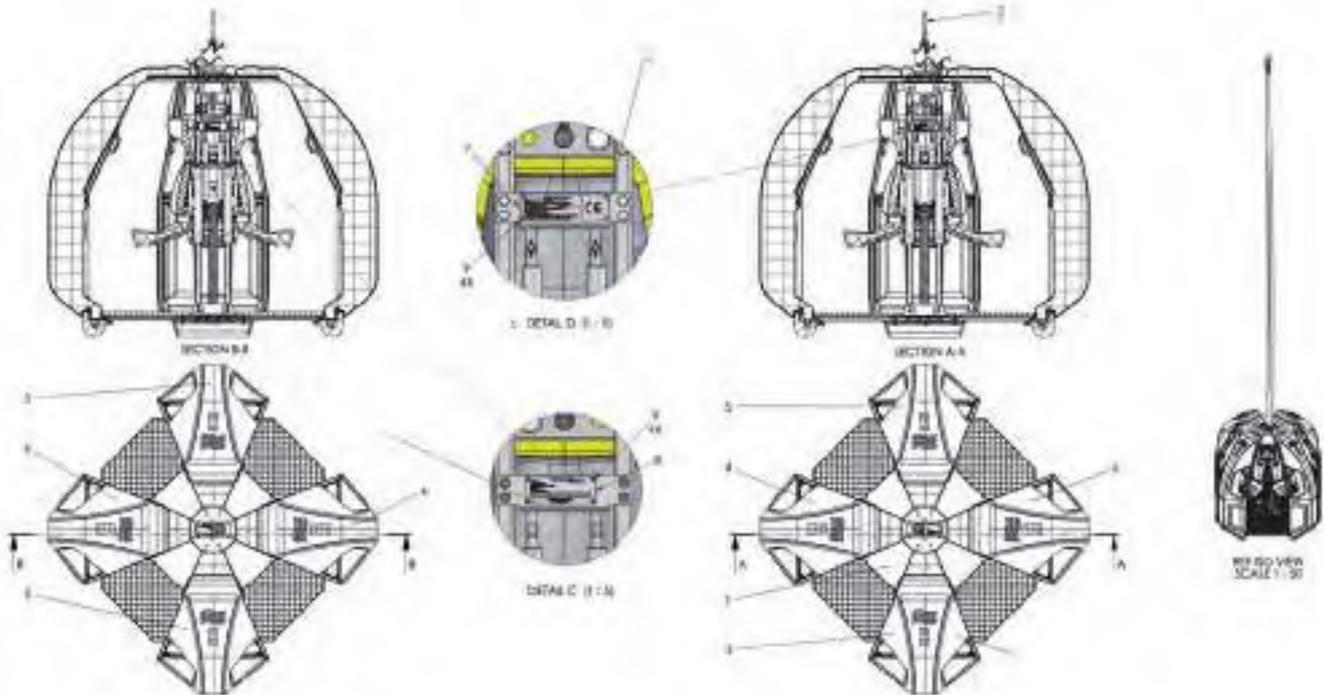


The safety of the transfer operation is a function both of the design and of the operation of the FROG-XT unit. The FROG-XT Design Dossier sets out to establish the performance expectations and define the safe operating envelop of the design, and to understand the risks of operation and how these might be operationally mitigated and controlled.

Operational performance for the FROG-XT can be described in terms of the following factors:

- Passenger protection against vertical impacts;
- Passenger protection against horizontal impacts;
- Stability of device (on pitching deck surface);
- Upright flotation level of device (for maximum load and in stretcher configuration);
- Self-righting of device from inverted water immersion.

The engineering principles of design



As with the vertical impact, the procedure to establish operational guidance to mitigate passenger injury risk from horizontal impacts is as follows:

- Define passenger biomechanical limits for vertical impact;
- Assess damping performance through engineering model;
- Damping system limits;
- Passenger deceleration;
- Translate results into operational guidance.

“The safety of the transfer operation is a function both of the design and of the operation of the FROG-XT unit”

Modelling the deceleration of passenger in a horizontal impact is made highly complex by the multitude of factors involved. These factors include:

- The number of components within the assembly: buoyancy panels, external frame, central column assembly, seat assembly, and seat harness;
- The angle or orientation of impact, where different combined stiffness may arise from different impact angles;
- The response of the passenger within the seat assembly for any

given orientation to the impact and tension of the seat harness. A previous (FROG-3) assessment of horizontal impact deceleration was made from observing the deflection of the central column during a full-scale impact test. On this methodology, the Motor Industry Research Association (MIRA) report went into the biomechanical effects and risk of injury from vertical and side impacts of a seated passenger (in a FROG). Reflex Marine Ltd. commissioned a detailed report from Motor Industry Research Association (MIRA) in 2003 to investigate and advise on recommended deceleration limits linked to the prevention of injury which notes: “...this assessment is likely to over-estimate the neck forces to and even greater extent than for the vertical forces. This is because it considers that the lateral acceleration of the head is the same as that of the seat, and ignores the additional torso deflection permitted by the seat belts, as well as the relative head movement permitted by the flexibility of the neck.”

Performance testing

The following tests were conducted on a production unit to verify the performance claims made for FROG-XT:

Parameter	Recommendation
Wind Speed	40 knot / 20 m/s (The Frog-XT is very stable in high winds. However crane limits must be observed)
Visibility	Crane Operator should have a clear view of the pickup and set down areas
Vessel Motion	Pitch 10° Roll 10°
Vessel Station-Keeping	Able to maintain position within a 5m (16ft) radius. If a high risk of the vessel losing position exists, disconnect the carrier for passenger embarkation.
Landing Area	Must be clear of obstructions, protrusions, and fire and fall hazards.
Landing Area - Ice / Spills	Ice and spills must be cleared from landing area prior to transfer.
Landing Area on Vessel	6 m x 6 m (20 ft x 20 ft) landing area is recommended, equivalent to 2m (6.5 ft) clearance all round. Smaller landing areas may be used provided a risk assessment of factors such as deck hazards, weather, sea state, vessel size, station-keeping is carried out.
Landing Area on Installation	4m x 4m (13 ft x 13ft) clear landing area is recommended based on additional 1m entry and exit path on all sides.
Crane Requirements	Crane must be suitable for lifting personnel and properly maintained.
Communications	Radio communication must be established between the Crane Operator and the vessel Deck Crew and Master.

FROG-XT4 recommended operating parameters

- Vertical impact tests to verify the structural integrity and damping system performance for impacts caused by heavy landings and snatch lifts;
- Horizontal impact tests to verify the structural integrity and damping performance of dynamic impacts caused by off-lead or relative motions in offshore lifting operations;
- Immersion testing of the flotation level, stability and self-righting of unit properties of the unit.

There are a large number of factors that affect the safe conduct of marine personnel transfers. These include crew skill and experience, met-ocean conditions, landing areas, vessel station keeping capability and response to sea conditions, visibility and line of sight. A combination of many factors will determine the risk involved.

“The research showed that the pivotal risk factors in transfers are equipment design and crane operating error”

Focused on safety

Before Reflex Marine's work began, there was no central database for marine transfer incidents. By collecting and analysing data spanning a

20-year period, the company has been able to isolate when and where these incidents happen. Crucially, this allows us to consider how best to protect personnel with the carriers we create. As expected, the study showed that most incidents happen on the vessel itself. Less predictable was the high level taking place during pick-up, which can result in serious injuries or fatalities, compared to those caused by heavy landing, which are more likely to result in minor injuries. From detailed analysis, it was found that many incidents are caused by the pendulum 'swing factor': an often unavoidable misalignment between the crane line and the transfer device.

The research showed that the pivotal risk factors in transfers are equipment design and crane operating error. Very few incidents relate directly to the condition of the transfer device or crane; instead, the design of the equipment often has a powerful effect on its safety. A lack of training, planning and preparation was also a concern in a considerable number of the incidents studied.

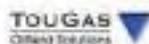
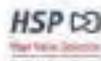
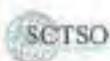
Using these findings, Reflex Marine has tailored their carriers to address the specific risks crews face. With falls during pick-up causing serious injuries or even fatalities, Reflex Marine has developed devices that offer additional safety measures. Passenger fall restraints are a design essential in all of their carriers, preventing loss of grip or dislodging. A protective outer frame and buoyancy panels reduce the dangerous effects of side impact, which frequently results from the pendulum 'swing factor'. Reflex Marine has also put in place comprehensive training programmes to encourage safe practice. ■

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Corrosion basics: stress corrosion cracking

STRESS CORROSION CRACKING (SCC) is a mechanical-chemical process leading to the cracking of certain alloys at stresses below their tensile strength.

The required elements are a susceptible alloy, the proper chemical environment, and an enduring tensile stress. Usually there is an induction period, during which cracking nucleates at a microscopic level, followed by actual propagation.

SCC is an anodic process, a fact that can be verified by the applicability of cathodic protection (CP) as an effective remedial measure. SCC can sometimes lead to fatigue, or vice versa. Usually, the true nature of the cracking can be identified by the morphology of the cracks. Typically, SCC occurs under only very mildly corrosive conditions, although there are exceptions, as in the cracking of UNS N04400 in aerated hydrogen fluoride (HF) vapours.

There are two distinct types of SCC that affect pipeline steels in soils: high-pH SCC and near-neutral SCC. Table 1 summarises a comparison of guidelines for relevant factors.

Because the other factors are essentially fixed at susceptible locations, the primary approach to the control of SCC is the maintenance of potentials outside the specified ranges.

There is usually little metal loss or general corrosion associated with a failure by SCC. If there is severe general corrosion, SCC usually will not occur. Thus, the failure of a stressed bolt rusted away until it eventually cannot sustain the applied load is not classified as SCC, but as the result of a simple stress corrosion cell. However, if products from general corrosion are trapped so as to exert stress in a structure, they can cause SCC.

While the traditional belief that only alloys and not pure metals are susceptible to SCC may be correct, truly pure metals have few practical applications. Cracking has been observed in materials that would be considered commercially pure, such as copper containing 0.004 per cent phosphorous or 0.01 per cent antimony in environments containing ammonia (NH₃) or ammonium ions; steel containing <0.01 per cent carbon along with small amounts of manganese, sulfur, and silicon in a boiling ammonium nitrate solution; or commercial titanium containing 600 ppm of oxygen and 100 ppm of hydrogen.

This article is adapted by MP technical editor Norm Moriber from *Corrosion Basics: An Introduction, Second Edition*, Pierre R. Roberge. It originally appeared in Materials Performance Magazine, www.materialsperformance.com, the flagship magazine of NACE International, the worldwide corrosion authority.

Table 1 - Factors involved in SCC of pipelines

Factor	Hight-pH SCC	Near-Neutral SCC
pH range	9 to 13	5 to 7
Location	Usually gas transmission piping within 20 km of a compressor station and >60% SMYS	Locations of cyclic stress
Temperature	>40°C	No apparent correlation
Soil chemistry	Concentrated carbonate/bicarbonate solution	Dilute bicarbonates intensified by sulfate-reducing bacteria
Potential range (to copper/copper sulfate [Cu/CuSO ₄] electrode)	-600 to -750 mV with generally effective CP	-760 to -790mV with locally ineffective CP
Crack morphology	Intergranular-narrow	Transgranular-wide



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Advances in drilling mud fluid measurement

Alan Finlay, managing director of industrial monitoring manufacturer Salunda Ltd, considers the importance of effective measurement and testing of drilling muds, and how a new analyser technology is driving advances in drilling mud fluid measurement.

OIL AND GAS field drilling fluids perform a number of critical functions and, as such, their composition must be closely monitored and analysed throughout drilling operations. The muds used to undertake these actions are produced from either aqueous or oil-based suspensions, enabling important functions to be undertaken during the oil and gas extraction process.

Careful preparation is required in their development to provide optimum performance to cool and lubricate the drill bit, increasing the rate of penetration during drilling and offering sufficient hydrostatic pressure to minimise the escape of gas and oil.

Water-based fluids are often considered as the more environmentally friendly, low cost option but can be difficult to formulate and due to the presence of salt and other additives, perhaps costly to maintain. While generally easier to maintain in terms of formulation and maintenance, oil-based mud fluids can be a pollution risk and generally are more expensive to manufacture.

Regardless of whichever type is specified, there are components that will be common to both: a mineral to control the weight/density of the mud, a bridging solid to encourage the formation of a filter cake within the well, and wetting and thickening agents to tailor the rheology (deformation and flow of matter) of the mud. Salts also feature in both types of fluid, providing an aid to well stabilisation – for oil based muds, these salts are contained in aqueous emulsion droplets.

Drilling fluids perform a number of other functions in addition to limiting the potential escape of oil and gas. They ensure that the well remains clear of any debris by expediently moving the drill bit cuttings quickly to the surface as well as preventing rock dispersion, stopping invasive fluids and solids seeping back into the rock formation. Mud also stabilise the well during the drilling process, limiting the potential for any collateral damage to the production zone.

“The properties of the drilling mud require careful formulation and control”

Formulation and control

To achieve this, the properties of the drilling mud require careful formulation and control. For instance, the concentration and density of suspended particles can be manipulated to provide a fluid density and viscosity that ensures effective debris removal while maintaining the hydrostatic head to prevent oil and gas escape as the drill cuts through the rock formation.



Alan Finlay, managing director,
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Particles smaller than the pore size of the surrounding geological formation in the drilling fluid lead to the formation of a filter cake that prevents egress of fluids from the well during drilling. However, careful determination of the optimum particle size is important because those that are too small can themselves penetrate and block the surrounding rock formation, hampering operations.

When it comes to measuring water-based muds, the most common correlations between mud performance and particle size measurements are achieved by adjusting the ionic strength of the dispersant used in analysis to that of the mud system. This ensures that mud dispersion is maintained during dilution, preventing the dissolution of any silt-based compounds. For oil-based muds, dispersant viscosity and surface tension are key measurements.

Controlling mud fluid parameters is important to achieve proper drilling performance and requires that properties are measured with sufficient accuracy – optimum drilling fluid performance is strongly dependent on knowing the formation properties so that correct selections of additives can be made. Likewise, it is important to know if the solids that are separated at the shakers are drill cuttings or pieces of rock from unstable holes.



*Drilling fluids perform a number of functions in drilling operations.
(Photo: pavantt/Adobe Stock)*

“ The trial revealed that the MudChecker could provide fluid analysis up to six times faster than traditional methods”

Particle size also needs careful examination and has to be closely matched to local conditions for optimal drilling performance. This in turn requires reliable analysis and measurement during operations to facilitate the development of accurate drilling formulations. This capacity to model fluid characteristics and drilling activity across a range of variables helps operators identify the best potential path to drill and complete a well safely and efficiently. It is critical that accurate drilling fluid data is available to help determine appropriate action plans for the success of drilling programmes.

The onsite drilling fluid contractor has multiple responsibilities and may not have the opportunity or time to conduct repeated, consecutive tests on the fluid. Data can potentially be up to 24 hours old and may not accurately reflect current fluid conditions in the wellbore, so having precise and reliable drilling fluid property data available in real-time can be beneficial, effective and time-saving.

Monitoring and control

All of these considerations are driving the development of ever more efficient and effective ways to analyse and measure drilling fluids, including new handheld monitoring technology, and one operator

that has examined the benefits is IGas Energy plc.

The independent oil and gas exploration and production company develops onshore oil and gas fields and produces more than 2,500 barrels of oil equivalent per day from more than 100 sites across the UK, with other potential sites regularly coming under its control and management.

The company decided to enhance the production on Stockbridge oilfield and to drill three side-tracks from existing wells. This involved new reservoir development work, which saw the re-entry of existing wells to develop new areas in the field and boost production. The side-tracks were drilled directionally and entered the formations horizontally and completed between 700 and 1,500 metres of new hole from the kick off point in the original wellbores.

An important element of the drilling covered the management and control of the mud fluids, which are designed to fulfil several critical functions including pressure control, lubrication of the wellbore, cuttings removal and hole stability.

The most fluid sensitive rock formations at the Hampshire site were the clays, which were drilled using an oil-based drilling fluid (OBM) requiring measurement at regular intervals for oil, water, solids and chloride content – regular analysis of fluid composition is a pivotal task for mud engineers during any exploration work.

To meet this need, IGas trialled the MudChecker drilling mud analyser from Salunda as a potentially beneficial alternative to the onerous and time consuming retort and titration analysis method. The analyser is the first electronic diagnostic device of its type for the fast and accurate measurement of several critical parameters of oil-based drilling fluids.

The Stockbridge trial involved the evaluation of an early MudChecker prototype during several test sessions as an effective way to check the drilling fluids, assessing the hand-held analyser's capacity to provide rapid and consistent measurement of percentage oil, solid and water volumes when compared to results gained through initial retort analysis.

The trial revealed that the MudChecker, which is also simple and easy to operate, could provide fluid analysis up to six times faster than traditional methods, producing consistently accurate measurement data.

Although its early days, according to Bob Sharp, IGas mud engineer, who oversaw the project as an independent consultant, the trial has confirmed the potential of MudChecker's capability in oil and gas exploration and production, as a viable, reliable and cost effective



The Salunda MudChecker

method, with 'significant potential' to effectively become a long-term test replacement to retort.

He said, "After some fine tuning, the MudChecker started to produce comparable results to that of the retort method, but far more quickly and consistently. Indeed, I would estimate that usable measurements were provided within 15 minutes when compared to the 90 minutes it took using retort analysis.

"Moreover, the analyser is much simpler to use, which will be of benefit to mud engineers and operators. The trial revealed that it could significantly cut testing times and improve the efficiency of measuring fluid characteristics, both in the field and in mud plant activities.

"Using the data MudChecker provides will undoubtedly improve fluids maintenance and checking during drilling activity, enabling changes in content to be made quickly and more accurately. It will also enable companies to perform tests easier and more conveniently; so potentially it should be well received by the global oil and gas industry."

It is clear that removing cuttings as quickly and effectively as possible from the well and controlling formation pressures among other factors are prime requirements for drilling fluids; so it follows that the rapid and consistent analysis and measurement of these fluids – and technologies that improve facilitate this – has to be seen as a priority for those in the oil and gas exploration and production sector striving for improvements and operational time and cost savings. ■

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Low latency at a high cost?

The continuing weakness in the price of oil is making many companies wary about investing in improved satellite communications, even as revolutionary new systems are about to arrive. But, asks Vaughan O'Grady, will major upgrading ever be affordable?



Satellite communication is the only option for FPSO vessels. (Photo: Bob Adams/Flickr)

“AT US\$100 A barrel, oil and gas companies could pretty much afford anything. If they just needed decent communications coverage and a reliable flexible supplier they would pay for it.”

However, adds Susan Bull, senior consultant at VSAT and satellite consultancy COMSYS, things have now changed. “Today,” she says, “price makes a difference.”

Judson Jacobs, a senior director with IHS Energy's Upstream group notes that upfront costs are now holding back communications investment in general, even where oil and gas fields are close enough to shore for fibre to be a logical option. “The guidance I've been giving is that over the lifetime of a field fibre will be less expensive – but it's just justifying that upfront cost. Right now the idea of spending tens of millions of dollars to do anything is a big constraint.” He adds, “A lot of companies are continuing to use satellite and they've made a decision, even in the last few years, not to run fibre out to their platforms.”

Is that a bonus for satellite operators? Not if companies won't buy into new services. However, there is a sort of silver lining, suggests Brad Grady, senior analyst at

Northern Sky Research, which provides strategic consulting for the satellite communications industry. He points out: “Every dollar has a much higher meaning in this constrained capital environment than it did before. That means [oil and gas companies] are looking to get a higher return on all of their investments: communications and IT infrastructure, drilling, extraction, production, health and safety operations. They're looking to improve those efficiencies across everywhere they operate, which means the demands for connectivity are as high as they've ever been.”

One obvious efficiency could be in staff deployment. Jacobs says, “They're not looking to de-man their platforms. It's more about using data to improve performance.” Thus, for example, if communications technology permits it, instead of three control room operators offshore, one can be onshore liaising directly with his or her office-based colleagues. “There's a business case for having someone onshore that goes beyond cost reduction,” Jacobs says.

He adds, however, “That said, there are companies that are looking to design their platforms completely differently and either go to completely unmanned or to what we call

extreme demanning. In that case, the communications infrastructure is going to be absolutely critical.”

Can communications make this happen? Where fibre can be laid alongside pipelines to and from a rig, it can, although, as we have noted, the outlay is high. If the rig is too far out to sea, or operating with FPSO vessels, satellite is the only option, and is also useful for backing up fibre services. However, right now, it's not as efficient as fibre.

One beneficiary of the need for better communications at a reasonable cost has been the new HTS (high throughput satellite) services “because,” says Grady, “they offer greater throughput at a better price point than a traditional FSS [fixed-satellite service] technology”. Thus if you're on a traditional FSSC-band or Ku-band link and you're switching to an Intelsat Epic-based HTS system, the cost of doing so may be acceptable.

Also, HTS is not necessarily a major change for ground infrastructure – antennas in particular – as far as oil rigs are concerned. On the other hand, it's usually a GEO [geostationary earth orbit] service. GEO constellations are high enough in space to cover the earth with only a few satellites. If



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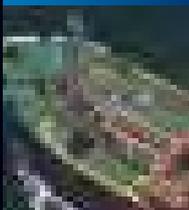
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your requirement is not time-sensitive, that's fine. As Bull says, "The only area where GEO has a problem is latency."

Bringing satellites closer [MEO – medium earth orbit] and closer still [LEO – low earth orbit] can help to solve the latency problem, which is a real issue for certain applications. As Grady points out, moving from traditional GEO architecture to closer-in orbits allows you to consider cloud applications and real-time communications, where latency matters more.

The latency question also applies to oil service companies. Grady mentions Oceaneering, a company that provides engineered services and products primarily to the offshore oil and gas industry, with a focus on deepwater applications.

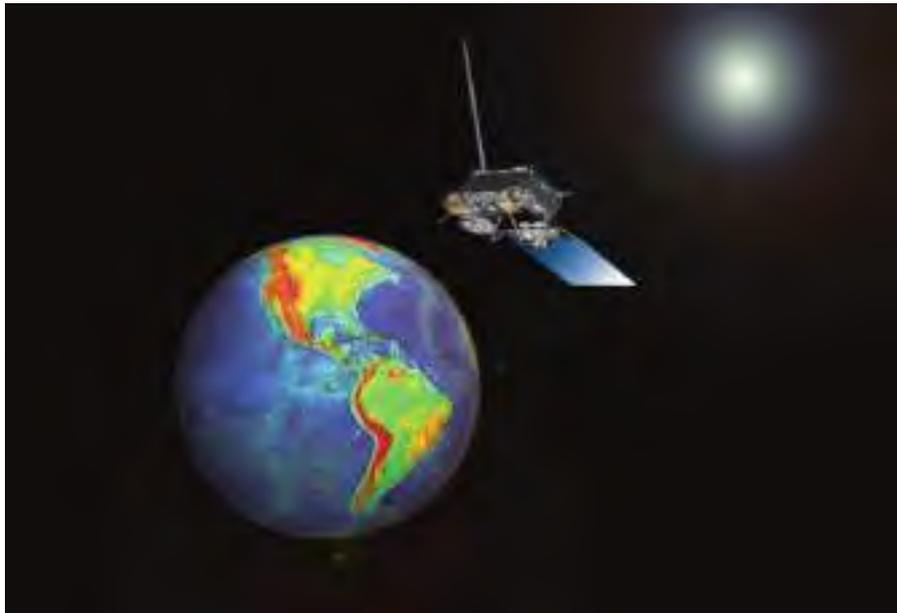
"They'll do real-time video links in HD where they're pushing massive amounts of data over satellite," he says. "There's something like 700 milliseconds of delay between the ROV operators in HQ and the ROV off, say, the coast of Ghana. But every time you can lower latency it enables better efficiency." In addition, he points out that reducing antenna footprints while keeping higher throughputs allows smaller vessels and the extension of technology into more places.

He continues, "There's also the benefit of even greater throughput, so if you're comparing a MEO deployment on satellite operator SES's O3b constellation versus a traditional GEO deployment today, O3b is going to be able to provide much higher throughput to that site – but it's also going to bring a lot less latency, which means you can deploy a lot more remote applications; you can have an Office 365 deployment across your entire enterprise without worrying about extensive customisation or deployment issues."

Using a LEO satellite service would reduce the latency even more but there are some challenges. The main one is that, while Iridium and Globalstar offer LEO services, higher throughput versions are limited – or possibly even non-existent – at the moment.

And there's another issue: ground infrastructure, and in particular antennas. As Bull explains, "The closer to earth you get the faster those satellites are moving over your head." The O3b MEO service covers most of the earth with eight satellites. As for LEO, "OneWeb [whose launch schedule starts next year] is talking about 800 satellites. SpaceX [2019], an even lower constellation, is talking about 1,600 satellites. Closer to earth, the more satellites the more you have to switch because you have less coverage area."

That brings up the question of the antenna that LEO services will use. "Satellites aren't always going to be in the same place, and particularly when you start talking about mobility – sticking antennas on top of cars or planes or ships or aircraft – there are going to be times when those things are going to move and therefore the look angle is going to



A rendering of a GEO satellite. These are most useful for operators when latency is not an issue. (Photo: Wikimedia Commons/National Oceanic and Atmospheric Administration)

change."

Grady agrees. "The scan rate is a really limiting factor of the antennas. You can imagine a lot of these satellites going overhead and moving very quickly; there's a lot that needs to move in a stabilised antenna to keep tracking."

If money is no object you can just buy antennas and put them everywhere. Otherwise you are going to need what Bull calls a CESPAA, "a conformable, electronically steerable – because it needs to be able to jump from satellite to satellite – phase array antenna".

However, she says, "Do we have antennas that can switch and be conformable and efficient enough at a reasonable price point? Right now, no. And that's just on the technology side before we get on to the ecosystems, and the business strategies and everything else."

Above all, the price of such antennas needs to fall. "A lot of people are saying today if you want one of those [CESPAA] antennas, or something like it, it's going to cost in the region of US\$150,000 to US\$250,000 for a one to two metre equivalent antenna. Some people are saying it's only going to be US\$50,000." She suggests that once antennas dip below US\$1,000 LEO systems are more likely to be game-changers.

But MEO services are already available and getting cheaper, says Grady, and, despite the cost-consciousness of today's industry, would-be LEO constellation operators are still interested in oil and gas. "When the oil price was collapsing, even though it was pretty high at US\$70-\$80 a barrel, oil and gas was very much top of the list. Everyone wanted to go after oil and gas because they were still expanding. Now it's cruise ships – and

passenger connectivity for those sorts of vessels – but oil and gas is still in the top five markets for them to look at."

Even now, says Bull, "There's a lot more capacity and it's cheaper. Volume is not the issue." More likely questions are whether LEO can actually offer high-quality real time connectivity for things like video-conferencing.

And there's another problem. "The LEO system", says Bull, "is somewhat challenged on the amount of bandwidth it delivers." This isn't a major drawback, but it implies the need for an affordable antenna than can not only track LEO satellites but switch to GEOs when latency is not an issue.

Of course as we don't yet have an affordable, effective antenna for LEO satellites, let alone the satellites themselves, that may be a moot point. Nevertheless, Bull is optimistic.

She says, "If all this stuff comes together satellite is going to have a major advantage over terrestrial, as it did 20 years ago." In places without a reliable public cellular or fibre service a low latency LEO service with the option of more bandwidth through GEO would be ideal.

Beyond all that, suggests Bull, we can one day expect global automation: software that intelligently chooses a route – cellular, fibre, satellite, microwave – based on price and availability. However, that's even further off.

For now the expectation seems to be that LEO and MEO could play a big part in the ongoing offshore oil and gas efficiency drive. However, LEO in particular implies a lot of additional costs, notably very expensive antennas. Prices will go down, of course, but until that happens the oil and gas industry will remain cautious about investing in the revolutionary satellite systems of the future. ■

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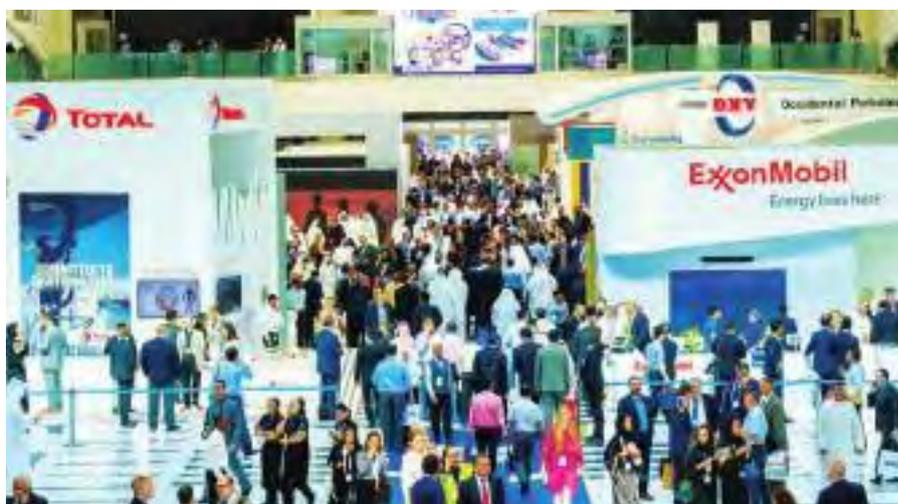
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Date: 13-16 November 2017
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ADIPEC
The Abu Dhabi International Petroleum
Exhibition & Conference
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Driving the strategic evolution of the oil and gas industry

Held under the patronage of HH Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE, and hosted by Abu Dhabi National Oil Company (ADNOC), the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC), takes place from 13-16 November at the Abu Dhabi National Exhibition Centre.



ADIPEC expects to welcome more than 100,000 visitors this year

ONE OF THE world's leading oil and gas events, and the largest in Africa and the Middle East, ADIPEC will feature more than 2,000 exhibiting companies, including 57 leading NOCs and IOCs, and is expected to welcome more than 100,000 visitors.

An expanded and restructured strategic conference programme will play a vital role in driving strategic investment decisions across the industry's full value chain, organisers have said.

Investment in refining and selling the oil and gas industry's end products, such as fuel, plastics, and petrochemicals, is emerging as a core business strategy among Middle East national oil companies (NOCs) wanting to capture more of the processed value of their natural resource.

ADIPEC's 2017 strategic programme is being expanded and restructured to reflect this change. An expanded programme recognises the conference's high-level participants – who include some of the world's most powerful oil and gas CEOs – command businesses that cover the full scope of upstream, midstream, and downstream operations.

“ADIPEC's guiding purpose is to be the convening power for the global industry”

“ADIPEC's guiding purpose is to be the convening power for the global industry, a platform where the industry's leading CEOs define and refine their strategic direction,” said Ali Khalifa Al Shamsi, Al Yasat CEO and ADIPEC 2017 chairman. “Although exploration, production and export of crude oil remain the foundation of the region's NOCs, today's business models increasingly look beyond this, making downstream investments that accumulate benefits through each value-added process. ADIPEC is committed to acting as a driving force in support of this evolution.”

ADIPEC's strategic conference programme will include several ministerial sessions and four global business leader sessions, offering panel discussions and interviews with some of the senior government and industry decision makers who are shaping the future of oil and gas. An additional four downstream global business leader sessions will focus exclusively on value-added processes. Specialised sessions within the conference programme will offer knowledge exchange in areas such as security, the offshore and marine sector, and the role of women in the energy industry. For C-level delegates, there will be 10 C-suite dialogues, offering highly exclusive, interactive panel discussions of critical business issues. As well as the strategic conference, ADIPEC offers oil and gas professionals 119 technical sessions catering to all aspects of the industry.

The conference programme sits alongside a world-class commercial exhibition and offers unrivalled one-to-one business networking opportunities, confirming ADIPEC as a deal-making hub where the



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industry's most influential decision makers find connections and forge partnerships that will drive future growth.

As a platform for discussing the industry's most important issues, ADIPEC consistently adapts to meet leadership concerns. From a strong focus on exploration and production during the pre-2014 period of sustained high oil prices, 2015 and 2016 have emphasised innovation and improved efficiency to reduce immediate costs. The latest changes recognise an industry adapting to a new normal. This sees investment returning to exploration and production in anticipation of rising demand, growing interest in natural gas, and a long-term imperative to add value to the resource.

As part of its integrated 2030 Strategy, ADNOC is creating more profitable downstream and more valuable upstream businesses. The strategy will increase production capacity to 3.5mn bpd by 2018; increase gasoline production to 10.2 million tonnes per annum by 2022, and grow petrochemicals production from 4.5 million tonnes in 2016 to 11.4 million tonnes by 2025. It will also diversify its range of high-value innovative plastics solutions. Similar goals are being set by NOCs across the Middle East and beyond.

“The latest changes recognise an industry adapting to a new normal”

The emerging business approach seeks to maximise the value of each barrel that NOCs produce, by generating additional revenue from each layer of processing, distribution and sales. As well as generating more revenue, investments along the value chain can smooth out the impact of fluctuations in oil and gas prices, as rising or falling markets affect each layer of the industry differently.

According to analysis by the Boston Consulting Group, low prices for crude oil will often reduce profits for exploration and production, but at the same time will increase profits downstream as inputs become cheaper and buyer demand rises. When the oil price dropped sharply during 2014, margins at major European and Asian refining hubs went up, rising by around 72 per cent in Rotterdam and 57 per cent in Singapore. High prices for crude shift the balance in the opposite direction.

“With our strategic conference programme for 2017, ADIPEC breaks down the division between upstream and midstream sectors, extracting and transporting the natural resource, and downstream value-adding and manufacturing of products for the end customer,” said Christopher Hudson, President – dmg events, Global Energy, which organises ADIPEC.

“All these elements are one industry, and many of the CEOs who will convene at ADIPEC have a growing portfolio of responsibilities for every layer of a global, vertically integrated business. To fulfil our mission as the convening power for the global oil and gas industry, we must enable dialogue and insight across the full scope of their responsibilities and concerns.”

Confirmed speakers for the ADIPEC conference include H. E. Mohammed Barkindo, secretary general of the Organization of the Petroleum Exporting Countries (OPEC), and H.E. Suhail Mohamed Mazrouei, Minister of Energy of the United Arab Emirates, as well as government ministers from Egypt, Oman, Bahrain, Lebanon, Nigeria and Mexico. They will be joined by CEOs from major NOCs, international oil companies (IOCs) and leading oilfield services firms, as well as top industry experts.

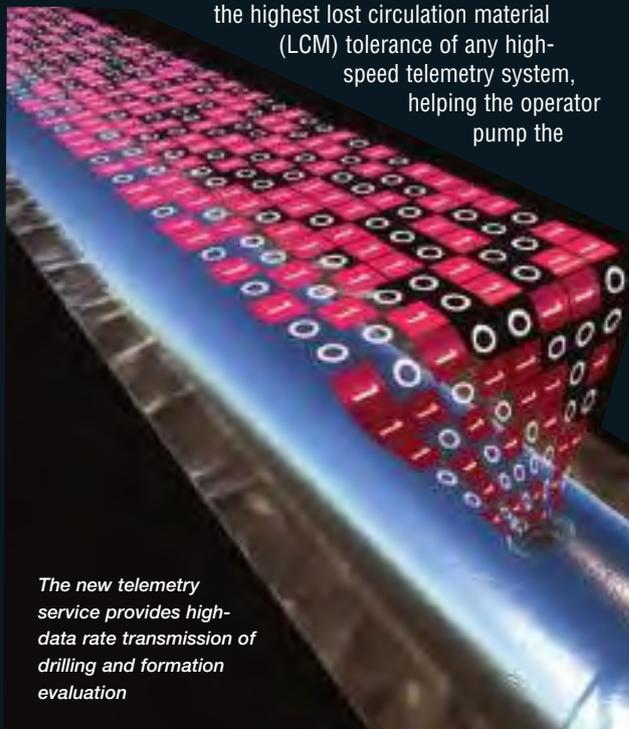
Conference sessions and panel discussions include broad-ranging knowledge exchange on achieving stable and sustainable long-term growth for the industry, including through collaboration and partnerships, innovation and efficiency of operations, enabling smart growth across the value chain, and driving investment into downstream refining and petrochemicals. Change and industry disruption will be important topics, looking at how the petroleum industry can adapt to the changing roles of oil and natural gas in a low-carbon future. ■

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Halliburton launches new high-speed telemetry system

SPERRY DRILLING, A Halliburton business, has announced the release of JetPulse™ high-speed telemetry service, which provides consistent, high-data rate transmission of drilling and formation evaluation measurements. This new telemetry system helps operators make faster decisions to optimise well placement and improve well control while increasing drilling efficiency.

Unlike conventional telemetry systems, the JetPulse service can transmit downhole data to surface up to four times faster and more consistently over wide depth ranges and complex well trajectories. It provides



The new telemetry service provides high-data rate transmission of drilling and formation evaluation

the highest lost circulation material (LCM) tolerance of any high-speed telemetry system, helping the operator pump the

required LCM concentration to cure mud losses without changing or plugging the bottom hole assembly (BHA). The system also reduces flat time on the drilling curve and maximises reservoir contact by combining new telemetry technology with measuring/logging-while-drilling (M/LWD) tools on the BHA so operators can make earlier and effective decisions to drill long sections in a single run.

The introduction also includes the launch of JetPack 3D™ downhole data management service, which compresses and configures multiple data sets in one package, providing operators with the ability to configure required data while drilling to help ensure proper decision-making.

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Russia and Central Asia to increase ADIPEC presence

Leading companies from the largest oil producing region outside OPEC, the Commonwealth of Independent States (CIS), will be increasing their presence at this year's ADIPEC, targeting the event as a hub for global deal-makers while seeking access to international markets.

TWO OF RUSSIA'S biggest oil and gas companies – Lukoil and Gazprom – have confirmed substantial exhibition areas, with CEOs and other top-level decision makers leading their company delegations and taking part in strategic conference panels. More than 30 Russian companies will be attending, many of them hosted at a Russian pavilion covering almost 600 sq m of exhibition floorspace – almost six times the size of last year's pavilion.

They will be joined by companies from other CIS members, including Kazakhstan, Uzbekistan and Azerbaijan.

"Russia is among the top 10 countries of the world in terms of oil reserves, and this has supported the growth of a highly sophisticated petroleum industry, from exploration and production, through to oilfield technology and services, transit, refining, distribution, and sales," said Lukoil president Vagit Alekperov. "Russian companies are now actively expanding their international operations, and ADIPEC offers them access to global partnerships, including for new resources, new markets, and new investment."

Alongside the big oil and gas producers, other well-known industry names attending ADIPEC include SCADTech, Revolve (PKTBA in Russia), Intra, Transneft Diascan, OZNA, GazNefteMash, and PTPA. The Skolkovo innovation, science and technology cluster, based just outside Moscow will also exhibit.

Oil and gas projects in the CIS area have already attracted substantial investment from multinationals. Alongside the Western oil majors and supermajors, the region features a strong presence from other parts of Asia. Companies working in the region include Petronas from Malaysia, China National Petroleum Corporation (CNPC), Korea National Oil Corporation, and ITOCHU and INPEX from Japan.

As the industry moves beyond resource



Vagit Alekperov, president of Lukoil

extraction, local NOCs and private oil companies are using their assets to move deeper into midstream and downstream sectors, as well as expanding beyond their borders.

Russia's three largest operators lead this transformation. Rosneft, Lukoil and Gazprom now hold exploration, production and processing operations across the CIS and beyond. They have made significant

investments in the MENA region, including in Iraq, Egypt and Libya, and are negotiating for projects in other countries. Lukoil has expressed interest in Abu Dhabi's offshore leases when these are extended from 2018.

For companies from the CIS, partnerships to be found in Abu Dhabi can help drive the next evolution of their global business. While mainly driven by economic factors, diplomatic and political concerns are also motivating Russian businesses to look away from the United States or European Union. Cooperation with Asian partners, and with China in particular, is a priority.

China's ambitious 'New Silk Road' project will improve trade links through Central Asia, with massive investment in new East-West land transport corridors passing through China, Mongolia, Russia, Kazakhstan, Uzbekistan, Turkmenistan, and Azerbaijan, as well as Iran, Pakistan, and Turkey. The plan aims to revive the importance of historic overland links between East Asia and Europe, while also improving cross-border trade and investment between countries along the route.

For petroleum industries, new pipelines currently being constructed by CNPC between Russia and China are projected to add an extra 15 million tonnes of oil and 38 billion cubic metres of natural gas into the Chinese market per year.

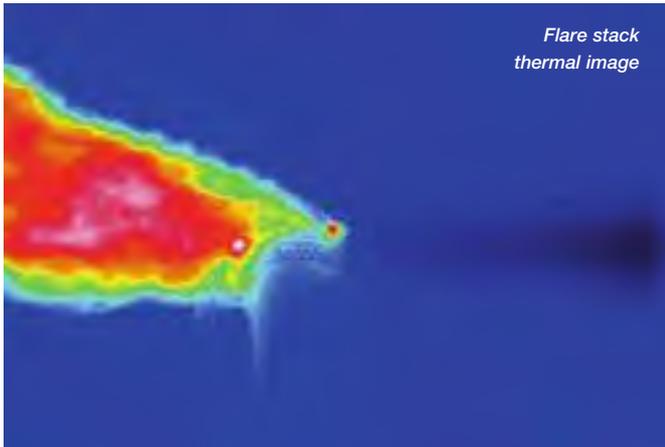
"Business and trade links across the region are extremely dynamic, and oil and gas businesses are highly interconnected," said Christopher Hudson, president – Global Energy at dmg events. "When you look at recent deals, CNPC has signed a group of agreements with both Rosneft and Gazprom this year, covering upstream, midstream, and downstream operations. That's why ADIPEC is so important. It provides a time and place each year where the giants of oil and gas come together, whether they are the established supermajors of the West or the emerging powers of the East." ■

“Russia is among the top 10 countries in the world in terms of oil reserves”

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The growing role of women in oil and gas

More than 200 delegates are expected to attend the ADIPEC Women in Energy conference on 16 November, which offers a full day of discussions on strategies aimed at promoting diversity and inclusion within the global oil and gas industry.

WOMEN CONTINUE TO take on bigger roles in the oil and gas industry, with a new generation of female professionals seeking careers in scientific or technical roles, say industry leaders scheduled to take part in the ADIPEC Women in Energy conference.

While female professionals are increasingly well-represented in business management, or administration roles, a growing number are also seeking opportunities in technical fields.

“Women are dramatically under-represented in roles traditionally viewed as men’s work, such as science or engineering careers,” said Aida Araissi, founder and CEO of the US-Arab Chamber of Commerce.

“There are many young women studying and qualifying to work in these areas, and it is time to create more opportunities. We need to mentor women in achieving their potential, and ensuring that their contribution is visible to industry leaders and decision makers as they move forward in their careers.”

Building a diverse and inclusive workforce

The Women in Energy conference will include a full day of sessions aimed at highlighting the contribution women are making in the industry, and how industry leaders, both men and women, can join hands to build a diverse and inclusive workspace for future generations. Panel discussions will feature women working at several international and local companies, including Petronas, Lukoil, Nova Chemicals and Tatweer Petroleum, sharing their knowledge and experience, and exploring strategies for promoting diversity.

Research by the Boston Consulting Group, for the World Petroleum Council, has found that fewer than a fifth of oil and gas workers are female. The disparity is particularly acute



The Women in Energy conference at ADIPEC 2016

in offshore and marine, refining, and petrochemicals, in which women hold just 15 per cent of entry-level technical and field positions. By comparison, female graduates hold half of entry-level office and business-support positions.

The Women in Energy programme includes a significant emphasis on scientific and technical careers. In a live on-stage interview, journalist Reem Abdellatif will speak to female executives from Baker Hughes, a GE Company, as well as Petroleum Development Oman, about ways to include more women in less conventional fields such as refining and petrochemicals, offshore and

marine, among others.

Other sessions include technical case study presentations where female industry leaders and project managers will discuss key developments about oil and gas projects they are working on.

“Educators have achieved great success in encouraging many more girls and young women to pursue studies in ‘STEM’ subjects – science, technology, engineering and mathematics – and female students perform notably well in many of these areas,” said Reem Abdellatif, the English-language editor in chief at financial news website Argaam.

“The challenge is to ensure there are suitable career paths for young female professionals as they graduate, and continuing development throughout their working lives. The Women in Energy conference can help oil and gas firms capitalise on the talent available to them.” ■

“Women are dramatically under-represented in roles traditionally viewed as men’s work”

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It has a significant stock availability of pipes, tubes, fittings and flanges in austenitic stainless steel, duplex, superduplex, 6Mo, nickel alloys and titanium, counting also on the special business model Raccortubi Group boasts.

In fact, the group combines two complementary entities, being producer and distributor/stockholder at the same time. Within a market which is becoming increasingly challenging and competitive while offering great potential and opportunities, such an organisational set-up cannot but be beneficial for customers worldwide. As a producer, Raccortubi can offer competitive prices, minimising quality costs given its proven Quality system. As a distributor, it is able to guarantee customers a single contact with whom to manage the whole order – including both Raccortubi-manufactured products and other related items.

Thanks to this unique structure, Raccortubi Middle East is able to fulfil project packages quickly and cost-effectively, directly from its local warehouse in Dubai (Jebel Ali free zone). The on-demand production of butt weld fittings from ½ inches to 56 inches, together with continuous stock replenishment from the Group's integrated manufacturing plants located in Italy, means that the company can offer customers complete, tailored piping solutions to short lead times,



Raccortubi stocks and supplies piping materials

enhancing competitiveness as a consequence.

Therefore, ADIPEC is the perfect occasion for Raccortubi Middle East to make customers aware of its multifaceted business model, while both reinforcing relationships with existing partners and building new contacts with potential clients. "ADIPEC is the privileged platform to meet the main decision makers of the oil and gas industry in a very small timeframe," states Mr. Swami, managing director Raccortubi Middle East. "It is a formula that has proved to be greatly productive and time saving every year."

Stand: 1250

Elfab's pressure relief systems provide operational reassurance for oil and gas sector

ELFAB LIMITED, LEADERS in pressure relief innovation, will exhibit a range of technically advanced pressure relief products and services at ADIPEC. With over 80 years' manufacturing experience, Elfab supplies a range of rupture discs, explosion vents, BPRVs and burst detection systems across the globe. Elfab offers tailor-made solutions for a wide range of safety critical applications across various sectors, including oil and gas.

Health and safety is at the forefront of the oil and gas industry, with organisations facing stricter procedures and policies that they must comply with. As a result of this focus, Elfab has

worked closely with its customers to develop a range of pressure relief solutions to meet challenging industry demands for use throughout the entire oil and gas production process.

A key industry application such as mud pump systems requires a reliable pressure relief solution. In drilling applications for example, the mud pump is a crucial piece of machinery in the process of drilling for oil - any stoppage of the pump caused by failure of a key component can result in costly downtime. Elfab's leading Opti-Gard™ range of rupture discs offers a three per cent tolerance and 95 per cent operating ratio, enabling customers to push their process

conditions harder, resulting in more product and better uptime. The range includes the recently launched, high pressure reverse-acting disc which provides reliable pressure relief for this critical application.

Rupture discs are a cost-effective alternative to valves in such applications due to their high-performance characteristics and quick replacement times; and with Elfab's leading technology the task of replacing a disc is a simple and rapid procedure which doesn't require a team of people or special tools for completion, reducing overall costs.

To further support customers, Elfab's recently developed online tool, ElfabTech, provides engineering and purchasing with a dedicated online resource. Free to register, members have access to a wide range of information including high level engineering calculations and videos and presentations. To facilitate the purchasing process, materials can be re-ordered online and order and delivery tracking is available enabling the user to track where goods are within the manufacturing process from production through to despatch.

Elfab looks forward to welcoming visitors to stand 8526 at ADIPEC to showcase its wide range of products including demonstrations of ElfabTech. A technical sales expert will be available to discuss your application and answer any questions. To arrange a meeting at the exhibition, please email exhibition@elfab.com.

Stand: 8526



Elfab's pressure relief solutions are used in safety critical applications in sectors including oil and gas

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Visit us at
ADIPEC,
Stand 7431

Churchill Drilling Tools reports record demand in the Middle East

CHURCHILL DRILLING TOOLS, a global oilfield service company specialising in drilling innovation, has revealed a record demand for its technologies and services in the Middle East as it approaches its second anniversary in the region.

The company has seen a significant increase in orders across its product range in the region. Churchill reports unprecedented orders in the region in particular for its flagship product, the award-winning DAV MX™ CircSub bypass tool, while demand continues to grow for its other tools including the Drift Catcher pipe drift verification tool and the HyPR™ HoleSaver™, the world's first hydraulic pipe recovery system.

Nicholas Kjaer, Churchill's general manager in the Middle East, said, "I'm delighted the Middle East drilling engineer and operator sectors – our target customers – have welcomed our technologies and services in the relatively short time since we set up our offices in Dubai and our workshop in Abu Dhabi.

"Our rapid growth can be attributed to a number of factors, not least the talent and commitment of the experienced team that we've assembled in the Middle East who have become



Nicholas Kjaer, Churchill's general manager in the Middle East

trusted partners to many operators in the region. The quality of our tools, which are enabling operators to drill faster, more efficiently and at a lower risk, are inspiring confidence amongst the drilling community as word spreads and drilling engineers recognise their benefits."

Kjaer added that external factors have also contributed to the company's success. "An

increase in the oil price has created greater confidence and stability in the Middle East, as operators begin once again to focus more on value and less on the lowest price when considering the most effective tools to deploy. Additionally, we're noticing at Churchill that greater stability is breeding greater trust in new technologies."

Churchill's range of industry-leading dart activated technologies has redefined and improved many of the oil and gas industry's existing downhole processes, from exploration through to abandonment. Quick and easy to deploy, the company's suite of pump-in darts has delivered thousands of hours of savings to operators worldwide.

Kjaer added, "Our growth in the Middle East has been matched by significant investment in infrastructure, talent and servicing capabilities. It is an extremely exciting market for us and we're confident the strength of our customer proposition and our commercial strategy will ensure continued growth in the region."

Stand: 8557

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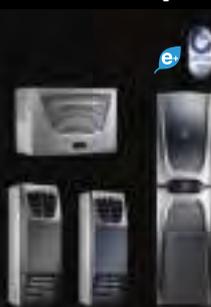
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Increasing safety and improving operating efficiencies in Middle East interventions

SINCE ITS INTRODUCTION during ADIPEC 2016, the Probe iSet™ electro-hydraulic setting tool has performed more than 20 successful setting operations in the Middle East.

By setting downhole devices, such as bridge plugs, packers, gauge hangers and straddles, without requiring explosives or lithium batteries, the iSet increases safety and improves operating efficiencies, resulting in overall cost reduction.

The operations, which were carried out to set plugs ranging between 4-1/2" and 9-5/8" O.D. in wells of less than 15,000 psi and temperatures to 300oF, took place in Saudi Arabia and Kuwait.

"Our customers are impressed with the iSet's reliability and efficiency," said Neil Duncan, regional manager – MENA & Asia for Probe. "The tool is easy to programme and operate, and can be run without redressing between consecutive operations. Our electro-hydraulic design is more efficient than traditional methods used in wells in the Middle East. The big win comes from eliminating explosives and lithium batteries."

Probe currently has eight iSet tools operating in the region, and projects that number will rise to 20 by December 2018.

Why the rapid rise? As operators strive to contain costs while maximising production, they're also keen to embrace safer alternatives, particularly for well intervention and abandonment operations that require the use of setting tools. Because the iSet is a non-ballistic device, it's safe and requires no special permits to use or transport, so there are no complex logistics to cause delays. Plus, it can run 50 setting operations before redressing is necessary. Between runs, the tool is prepared in under 30 minutes. All that's required is to reset and programme the tool for the next run.

Looking ahead, rising numbers of operators in the Middle East are joining those in the North Sea, Continental Europe and West Africa that rely increasingly upon the iSet to deliver safe, reliable and cost-effective setting operations.

Stand: 4110

The Probe iSet tool provides a safe, reliable and cost-effective method for setting bridge plugs, packers, gauge hangers and straddles.



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ADSB transformation as profits soar



A SIGNIFICANT CHANGE of strategy at Abu Dhabi Ship Building PJSC (ADSB) under the leadership of CEO Dr Khaled Al Mazrouei has enabled the company to buck the industry trend and transform its financial performance. After a loss in 2014 when ADSB dipped into the red by AED 90.6mn (US\$24.7mn), ADSB has had two successful years with net profit climbing to AED 71.0mn (US\$19.2mn) in 2016.

With its main site in the Mussafah Industrial Area, ADSB is a Public Joint Stock Company (PJSC) that along with 50 per cent public shareholding is also owned 10 per cent by the Abu Dhabi Government and 40 per cent by Mubadala Investment Company.

The new business model has centered on a diversification strategy to tap into new markets including Through Life Capability Management (TLCM) of the UAE naval fleet as well as servicing the commercial shipping fleet and oil and gas industry. Although the design and construction of high-tech naval vessels remains a core component in the company's portfolio, a carefully coordinated market research exercise revealed that ADSB's resources were not being fully utilised. Tapping into new revenue streams in the merchant and offshore sectors therefore offered significant potential.

The business has taken off. Between 2014 and 2016, enquiry levels almost doubled and contracts increased by more than 50 per cent year-on-year in both 2015 and 2016. The shipyard now has a whole range of new customers – its client base has grown from 31 UAE entities in December 2014 to 135 by June of this year; and from just six international customers at the end of 2014 to more than 60 by mid-2017.

Two years ago, the shipyard's management decided to expand the company's operating facilities in Abu Dhabi, as a result of which ADSB acquired a floating dock from Turkey and took space in Mina Zayed from the Abu Dhabi Ports Company. The site is about 35 km from the company's Mussafah headquarters but its access is not restricted by the same depth of water constraints.

In addition to the 180m dock which has a lifting capacity of 10,000 tonnes, there is a 430m quay for alongside repairs with an adjacent service area of 12,000 sq m. Much larger vessels can now undergo afloat repairs there. Meanwhile robotic hydro-blasting machines have been installed to replace copper grid-blasting equipment, leading to a significant improvement in air quality.

ADSB is ideally placed for the service and support of the many types of workboats operating off the emirate's shores. And the company's experience in high-tech naval design and construction will prove increasingly relevant as the workboat sector embraces automation and new digital technologies.

Stand: A130

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Surface condenser systems



Shell and tube



Dry seal gas panel



Finned tubes



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Pelican presents its innovations in safety lighting at ADIPEC



The 9455Z0 RALS safety light

IN ITS CONTINUOUS innovation to enhance the safety of professionals working in high-risk environments, Pelican™ – the global leader for more than 40 years of advanced portable lighting tools – presents two new state-of-the-art safety lights at ADIPEC.

9455Z0 RALS, the first and only RALS with safety certifications for global use

With the new 9455Z0 RALS, the company provides the safest product in its category thanks to its three global safety certifications: The European ATEX Zone 0 (Cat. 1), IECEx ia and North American CI, D1. All of



Pelican's safety lights are designed to enhance the safety of professionals working in high-risk environments

them make it the perfect choice for working in high-risk industries, regardless of the location in the world.

The 9455Z0 is a compact 7.3 kg portable area lighting system, easy to hand carry and to set up. Its powerful LEDs radiate 1,600 lumens in high and 800 in low with a run time up to 10 hours. Powered by a maintenance-free rechargeable battery, the system offers a wide beam spread of 125° of clean energy that illuminates the entire area preventing workplace injuries. It features a telescoping mast that extends to 80cm, a 360° articulating light array and a wide handle for easy gloved grip and transport.

New 3415MZO ATEX certified, versatile torch with magnetic clip

The 3415MZO is the ultimate ATEX safety-certified compact work light. The Zone 0 (Category 1) certification provides the security needed for the most hazardous locations. Offered in a "high visibility yellow" colour, it generates more than 336 lumens, providing up to 15 hours of runtime as well as a beam distance of up to 135m.

Driven by only 3AA batteries, the 3415MZO is equipped with both a spot and flood LED. This allows for close up as well as distant lighting needs. It is engineered to run on either or both LEDs. The articulating head and built in clip provide hands-



The 3415MZO work light

free and handheld options so you can direct the light wherever is needed. It also includes an integrated magnet that can be hold anywhere expanding its hands-free applications, making it

a truly multi-task torch designed to bring great value to your lighting needs.

See www.Pelican.com.

Stand: CN134/Concourse



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Increased business for offshore and marine services expected at ADIPEC

THE OFFSHORE AND marine industry is expected to see increased business at this year's ADIPEC, with analysts predicting modest increases in spending for maintenance and production in the oil sector, and significant investment expected for new offshore natural gas projects in the Eastern Mediterranean.

Analysis by consultancy Douglas-Westwood has found that, although investment in new offshore production remains low, compared with pre-2014 levels, the outlook for maintenance, modifications and operations is 'notably more positive'. Much of the rebound is caused by work orders that have been delayed, coming back online.

Within the GCC area, 2017 has seen Saudi Aramco sign agreements with Abu Dhabi-based National Petroleum Construction Company (NPCC) to purchase four offshore platforms and associated equipment, as well as a separate deal for the supply of 17 offshore platforms.

Globally, consultants Wood Mackenzie are predicting renewed exploration and production for deep-water projects, with efficiency improvements having lowered the break-even price by 20 per cent in the past three years.

"We are seeing renewed optimism among companies supporting offshore production, with demand underpinned by an industry that is now more efficient, stabilising prices, and the need to meet anticipated rising demand," said Ali Khalifa Al Shamsi, CEO of Al Yasat and chairman of ADIPEC 2017.

"ADIPEC supports this growth as a market where suppliers can network with purchasing decision makers and generate new business. Its comprehensive strategic and technical conference programmes provide an unrivalled opportunity for specialised knowledge exchange."

Natural gas is a significant contributor to the positive outlook, particularly in the Middle East and North Africa, where Egypt is seeing around US\$ 27.3bn



Prospects for the offshore sector are looking up

worth of investments across the Zohr, North Alexandria and Noras gas fields, and 76 new upstream exploration concessions have been signed worth around US\$1.5bn. Cypriot and Lebanese waters also offer fresh opportunities for offshore exploration and production in the Eastern Mediterranean.

As investment moves into the sector, new projects will create business opportunities at ADIPEC's unique Offshore and Marine area, which returns in 2017 for its third year.

Set directly on the waterfront, adjacent to the main ADIPEC venue, it is held in a dedicated purpose-built exhibition and conference space, with product displays encompassing the full value chain, from rigs, vessels, ship building, and subsea drilling equipment, to certification, pipelines, mooring, and tools for reservoir production and mapping.

The display's defining feature will be the temporary quay, with a series of state-of-the-art offshore vessels berthed directly alongside the venue, including a jack-up barge, high-speed craft and landing craft, tugboats, and platform supply vessels up to 70m in length. Visitors will be able to tour the vessels on display, seeing the latest evolution in marine engineering and technology first-hand.

Mohammad Rizal, chief operating officer at UAE-based shipyard group, Drydocks World, says the unique venue is an ideal setting for offshore suppliers to demonstrate their achievements and generate new business.

"At ADIPEC 2017, Drydocks World intends to update the marine industry on the yard's offshore capabilities, while showcasing the world-first cutting-edge projects completed in the yard that demonstrate our competency to execute large-scale projects with a proven track record of excellent HSEQ standards," said Mohammad Rizal. "We look forward to taking our business further and discussing future possibilities during ADIPEC 2017."

For 2017, an expanded conference programme will underpin continued efficiency, innovation, and growth, as well as offer insights into new opportunities. This year's Offshore & Marine programme will offer unrivalled opportunities to hear from leading executives and experts in their field, and will cover an array of important topics from both a strategic and technical perspective. There will also be a dedicated session on the Emirates Maritime Arbitration Centre, and the processes available for resolving maritime legal disputes quickly and without unnecessary cost.

The specialised exhibition and conference area is expected to attract more than 15,000 visitors and 150 exhibitors. Companies with confirmed spaces include NPCC, Zakher Marine International (ZMI), Horizon Geosciences, Seajacks, Seacontractors, Seatrax, Guidance Marine, ADNOC, Khalid Faraj Shipping, Overseas Marine Logistics, Drydocks World - Dubai, and Maridive Group.

Panel discussions will be held over three days, covering future expectations and challenges, driving growth, and adapting to new market conditions. Confirmed speakers include senior executives from National Petroleum Construction Company (NPCC), Wintershall, Cepsa Gas Comercializadora, McDermott, Foresight Group, Abu Dhabi Ship Building, Cyprus Hydrocarbons Company (CHC), Lebanese Petroleum Administration (LPA), Scottish Government Oil and Gas Taskforce, Kuwait Oil Tanker Company (KOTC), and ADNOC Logistics & Services.



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The luminaires are suitable for a wide range of environments

Explosion-protected emergency luminaires with LEDs

WITH EMERGENCY LUMINAIRES series 6009/1, which are explosion protected in dust-hazardous and gas-hazardous areas and which have been especially developed for LED technology, R. STAHL presents the latest development in the EXLUX product line and thus complements the LED luminaires product portfolio. The installation material and the central lock are the same as the ones used for the various other types of luminaires of this product line. The mounting possibilities are flexible, from ceiling mounting to pole mounting.

Generally, the emergency luminaires are used in offshore applications and on ships, but they may also be used in other applications where the focus is on individually supplied safety luminaires. They achieve a degree of protection IP66/67 and are impact resistant according to IK10. Suitability for ambient temperatures ranging from -30 °C to +60 °C and effective measures against corrosion make universal applicability possible – from clean rooms in pharmaceutical or chemical facilities up to the extremely harsh environments of the oil and gas industry. All the exposed parts are made of robust plastic or seawater-resistant stainless steel.

The luminaires are certified pursuant to ATEX and IECEx and also pursuant to the national certificates in the key markets. To make worldwide application easier and to facilitate storage, the input voltages range from 110 to 240V in 50 or 60 Hz circuits. Easy through wiring has been provided for. Fed from a single battery, every EXLUX 6009/1 ensures up to three hours of standard-compliant emergency lighting, pursuant to EN 60598-2-22 and EN 61347-2-7.

The luminaires are available in two versions. The shorter version has a wattage of 28W and provides a luminous flux of 2440 lm. The longer variants with a wattage of 52W achieve 4980 lm. Even in emergency operation, 30 per cent or 21 per cent of these values provide adequate visibility. The battery units can be easily replaced and all exchangeable parts are mounted on the easily accessible reflector sheet, so obligatory maintenance can be carried out quickly and requires only minimum expenditure. Compared to fluorescent lamps, the LED technology furthermore ensures a longer service life and lower operating costs, so the products will be amortised soon.

R. STAHL presents further information about this new series, LED technology in general and real-life experiences with explosion-proof luminaires in harsh conditions at www.stahl-explorers.com.

Stand: 13463

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Total Tubular Management expertise

RAMCO HAS COMMITTED to growth plans in the Middle East. Business development director Rob O'Neill has made a strategic move to Abu Dhabi to support the business as the company looks to drive modernisation of Oil Country Tubular Goods (OCTG) through Total Tubular Management practices with operators, contractors and partners.

Ramco is mapping out current practices on behalf of a number of National Oil Companies (NOCs) to demonstrate efficiencies in the storage, care, maintenance and preparation of tubulars across the supply chain.

"Drilling activity levels remain high and we see a significant opportunity for the efficiencies that Ramco can deliver for operators around a Total Tubular Management programme for OCTG," said O'Neill.

Stand: 1210



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Cut injuries – a life-changing risk

HAND LACERATIONS CAN pose devastating consequences – from debilitating, to life threatening if an artery is struck.

Heavy equipment, dangerous tools and risky situations are all part of the job when it comes to the oil and gas industry. Deep cuts and lacerations can cause permanent loss of motion – potentially ending careers and leading to legal action. Moreover, holding onto wet or oily tools and machinery can be

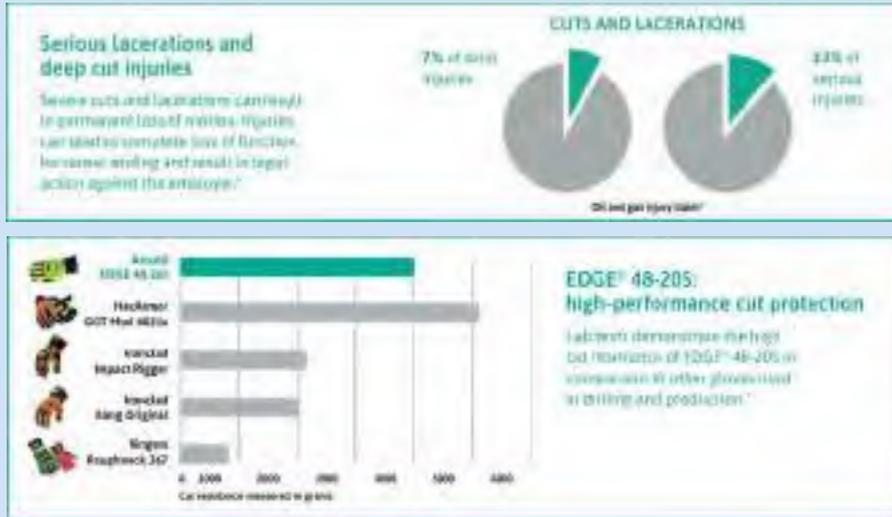
difficult and dangerous. Workers are at increased risk of losing their grip and cutting themselves.

The requirements and hazards involved in oil and gas-related work call for hand protection equipment that helps workers do their jobs safely, efficiently and comfortably. The oil and gas industry is continually amazing the world with discoveries based on technological advancement and innovation, much as Ansell has consistently done in the world of personal protective equipment (PPE) – delivering user-driven performance. Don't compromise on safety and comfort to get the job done.

Cut protection solutions from Ansell can significantly reduce the risk of life-changing laceration injuries through proper cut protection and enhanced grip technology. Workers get the right protection, and the grip that provides safe control of their tools and environment. Our extensive field research shows us precisely the types of injuries oil workers sustain most frequently, and we turn that insight into user-driven solutions.

For more information and product samples, please visit protection.ansell.com.au/extraction

Stand: CN126





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Rockwell Automation to demonstrate ConnectedProduction™ solutions

ROCKWELL AUTOMATION WILL showcase its Digital Oilfield and ConnectedProduction™ solutions for increased profitability in the oil and gas sector at ADIPEC.

The company will demonstrate how the automation, control and safety systems can help producers improve nearly all aspects of oil and gas production, from maximising equipment performance and meeting production targets to lowering operating costs.

“Leveraging data and turning that into real-time knowledge is the lifeblood of the digital oilfield,” said Pankaj Shrivastava, field business leader architecture and software, Rockwell Automation. “Digital Oilfield and ConnectedProduction solutions of Rockwell Automation bring value to our customers in the form of cost reduction, production optimisation, asset utilisation and wellhead optimisation, and support network and cyber security and production risk mitigation.”

Visitors to the Rockwell Automation booth will see how harnessing knowledge-driven solutions is the key to improving operational efficiency and bottom-line productivity in the oil and gas sector. Rockwell Automation experts will showcase how the ConnectedProduction environment brings the digital oil field to life in three key ways:

- Connecting production equipment, devices and systems.
- Integrating all of the data seamlessly.
- Transforming that data into useful operational intelligence.

ConnectedProduction enables operators to capture data from any number of third party sources through standard open source



Rockwell solutions can help to increase profitability in the oil and gas sector

technologies, and then making it available to a number of applications – such as real time visualisation and historical logging – within a single information environment.

It allows operators to run short-term Artificial Lift Systems (ALS) production optimisation loops, asset management systems and to connect to advance optimisation modules that can help the producer to reduce operational costs, increase efficiency, raise profit margins and have a stable infrastructure to reap the rewards of further Industrial Internet of Things (IIoT) benefits as they go online.

Stand: 1230



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VISIT US AT ADIPEC 2017

STAND 12814 HALL 12



Tenaris to showcase solutions for complex projects and environments

TENARIS WILL DEMONSTRATE at ADIPEC how it is serving the most complex projects and environments – such as HPHT, sour service and offshore – with its complete package of products and Rig Direct™ services.

Through Rig Direct™, Tenaris is helping its customers achieve safer and more efficient operations by bringing its expertise directly to the rig, covering services from string design and material selection, to running assistance.

The company's premium connections, suitable for oil and gas operations in the Middle East, will be on show, as well as its solutions for line pipe, sucker rods and power generation plants. Visitors to the stand can also learn about the company's well-established presence in the Middle East and its future plans for expansion.

Tenaris' technical experts and sales representatives will be present and ready to answer questions.



The Tenaris stand at a previous show

Stand: 4210

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- ▲ BOP Flame Resistance Hoses

Moreover ALFAGOMMA provides a wide range of Hydraulic and Industrial solutions for the Oil & Gas Industry.

Global meeting point for oil and gas professionals

This year's ADIPEC will give oil and gas professionals an unrivalled platform to meet potential new business partners from around the world, say the organisers.

FROM EXCLUSIVE C-SUITE networking sessions in the VIP-only Middle East Petroleum Club, to a bespoke matchmaking concierge service that will pre-arrange highly targeted face-to-face meetings, ADIPEC will offer a wide range of carefully designed opportunities for visitors, delegates and exhibitors to make valuable new connections and drive business growth.

"ADIPEC puts Abu Dhabi at the crossroads of the global energy industry, bringing together more than 100,000 professionals from across the world, all wanting to move their business forward," said Jean-Philippe Cossé, vice president, Middle East – Global Energy at dmg events, which organises ADIPEC. "When you come to ADIPEC, you know you are having the right conversations with the right people – whether that's between top CEOs discussing markets and strategy, or a buyer and seller closing a deal on the exhibition floor."

To support ADIPEC's role as a meetings hub, recent editions have seen consistent development of features designed to help bring people together.

For senior government ministers and officials, as well as C-level attendees, the Middle East Petroleum Club is the exclusive VIP club for oil and gas decision-makers. It provides an environment for high-level private networking, first introduced in 2013.

For trade professionals, the biggest challenge can be to identify opportunities amid the vast scale of ADIPEC. Over four days, the event will attract an estimated 10,000 conference delegates and 100,000 exhibition visitors from around 135 countries, while 2,200 exhibiting companies are confirmed from more than 53 countries. Those numbers keep growing year on year, partly because ADIPEC keeps expanding in its scope. In 2015, the Offshore and Marine area was launched, while last year the Security in Energy event was added to the programme. This year the downstream oil and gas industries will be included for the first time, as part of the expanded conference programme



ADIPEC provides unrivalled opportunities to make new connections

covering both strategic and technical content for the sector. Each comes with its own conference programme and exhibition area, and attracts additional attendees.

“ADIPEC puts Abu Dhabi at the crossroads of the global energy industry”

With so much ground to cover, 2017 will see an expansion of ADIPEC's Global Meetings Programme, which acts as a vehicle to drive bilateral trade as buyers and sellers from all around the world converge on the event. This bespoke networking and matchmaking service gives conference delegates, exhibitors and VIPs an efficient way to search for and connect with new and

existing business contacts, and pre-arrange meetings either in a dedicated lounge or on exhibitor stands.

Each attendee at ADIPEC can upload a profile onto the Global Meetings Programme platform, including company and personal details, listing their areas of interest, and the programme will suggest possible meetings. Anyone attending ADIPEC can use the programme, although access will be higher depending on the type of badge a participant holds.

"The matchmaking concierge service organised around 600 meetings last year, a number we plan to more than triple to around 2,000 for 2017, and we have designed the system to make sure these are all high-value meetings for both sides," said Cossé. "An important feature of the system is that, although initial matches are made by sophisticated algorithms, recommendations are checked and validated by a member of our specialised concierge team before passing them on." ■



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IMI Precision Engineering to exhibit award winning technology

IMI PRECISION ENGINEERING will be demonstrating at ADIPEC how companies can improve efficiency, reduce downtime and save energy, without compromising on safety, through its latest components and services.

The IMI Precision Engineering stand will boast the award-winning ICO4-PST, after it recently took home the Energy Industries Council's Technology Award. As the first-ever smart solenoid valve with fully integrated partial stroke testing capability and easily exportable diagnostics, the valve reduces the probability of spurious trips by 10 times compared to other available technologies, along with the lowest dangerous failure rate of any PST. It also provides the highest possible diagnostic coverage to consistently deliver the best possible SIL performance. Live demonstrations will take place on the stand.

Visitors to the IMI Precision Engineering stand will also have the chance to experience other market leading products and services, as well as meeting the company's upstream and downstream experts to discuss particular challenges. On display across the three-day event will be the product brands IMI Buschjost, IMI Herion, IMI Maxseal and IMI Norgren, including:

- **ICO3 Hydraulic** – a hydraulic variant of the field proven and highly regarded IMI Maxseal ICO3 solenoid valve. It builds on the lowest safe and dangerous failure rate of IMI Precision Engineering's IMI Maxseal design with a low powered hydraulic solution.
- **SOV Range** – these simply installed, globally certified and SIL-rated direct acting SOV valves ensure high reliability, long service intervals and, thanks to optimised magnetics, also very quick reaction times.
- **RVM (redundant valve manifold)** – compact modular units which for the first time negate the need for pipework by incorporating all functions governing both safety and availability in a compact, simple to install, low-maintenance, integrated valve control unit.

Patrick Deane, UAE-based regional sales manager at IMI Precision Engineering said, "Whether it is offshore oil & gas platforms, chemical plants or refineries, we can provide energy businesses with precision components that meet the most difficult engineering challenges. We work with world-leading energy providers, supporting them with products which deliver safety, reliability and durability to their operations. Our expertise in this area means we can work with customers to identify and deliver specialised products that are of the right specification and the highest standards."

Stand: 8435 (UK National Pavilion)

A leader in oilfield services

TOP OILFIELD INDUSTRIES has grown to become a leader in the field of land rig manufacturing (offering turnkey solutions), rig refurbishment, oilfield drilling equipment manufacture, repair, overhaul and certification. In addition, Top Oilfield also supplies mechanical, electrical and engineering field technicians throughout the Middle East and beyond, who undertake vital repair and maintenance projects in support of its clients. Top Oilfield Industries is proudly an ISO 9001:2015, API (4F, 7K & 16D) and BMTRADA certified company.

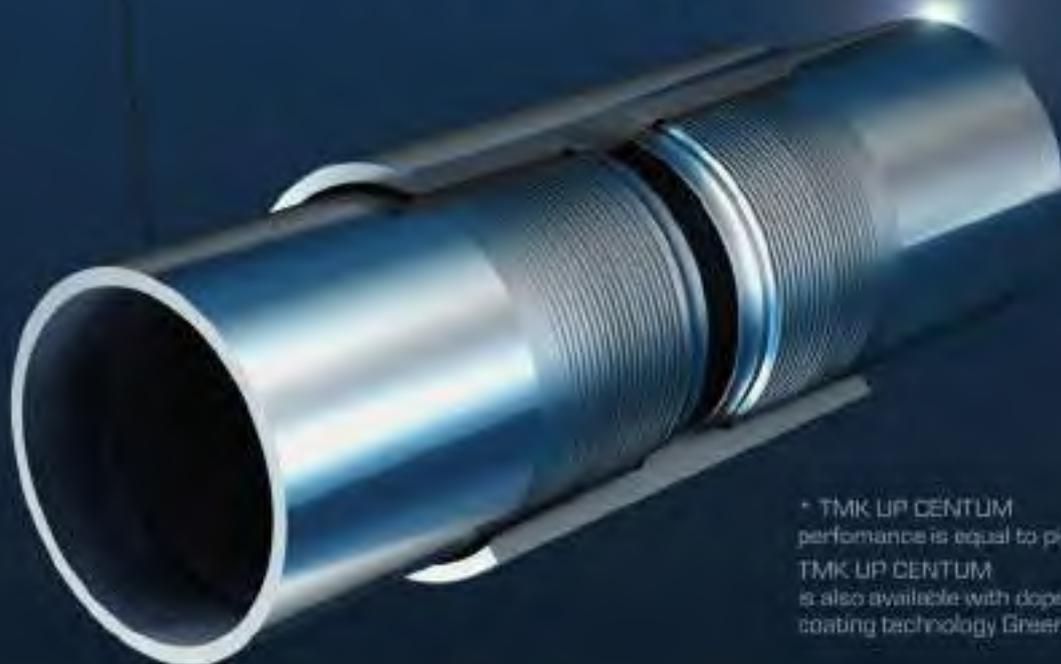
With more than two decades of service, Top Oilfield has achieved an impeccable record of oilfield equipment refurbishment, and prides itself on consistently producing work of the highest quality, in a timely and cost-effective manner. The company's commitment is that every piece of equipment that leaves its workshops has been overhauled to the highest industry standards, tested and will perform to its design specifications. We offer a 'one-stop-shop' concept, whereby drilling equipment, engines, electrical work and steel fabrication work are all undertaken in-house, by our own personnel. This means that we retain full control over all aspects of the projects we are commissioned to do. In addition, the savings we make by not sub-contracting work makes us one of the most competitive service providers in the region.

Stand: 14650



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Stand # 11610

Flowline Specialists FZE completes Middle East subsea project

INTERNATIONAL ENERGY INDUSTRY manufacturer and service provider Flowline Specialists FZE has recently completed work on a major subsea umbilical, riser and flexible (SURF) lay project in the Middle East.

The Dubai-based firm, which designs, engineers and manufactures a range of cable handling and deployment equipment, was contracted to assist in laying various flexible flowlines, umbilicals and cables from reels of varying size and weight.

Four pieces of equipment from the firm's extensive range made up the lay spread for this offshore project. This included a 300Te modular hub drive system, a 75Te shaft drive spooler, a 15Te twin-track tensioner and a three-pair linear cable engine. The 300Te hub drive was fitted with a rail system to allow multi-reel deployment, in turn increasing project efficiency.

All of Flowline Specialists FZE's equipment is modular in design, making it road-mobile and container compatible, allowing for rapid deployment worldwide. The flexibility of the equipment is underlined by its ability to be used in multiple industries. In addition to the subsea industry, this includes the oil and gas, marine



Flowline Specialists provides cable handling and deployment equipment

renewable and decommissioning sectors.

Overall project planning and operations for the Middle East SURF project were managed from Flowline Specialists FZE's UAE office, with support from the firm's UK-based engineering and operations teams. Equipment for the nine-month project was

mobilised from the firm's UK and UAE bases. Six technicians from Flowline Specialists FZE were on-hand for the project's duration to operate the equipment and assist with the overall product deployment. The project was completed on time with zero lost time incidents.

Commenting on the project, group operations manager Graeme Chalmers said, "Flowline Specialists FZE is very proud to have been involved in this major subsea project. It not only demonstrated the capabilities of some of our extensive equipment range, but also the expertise of our engineering and operations teams. Over the past five years, we have invested in expanding our product range in order to best serve the needs of our clients around the world. Along with building a robust equipment range, we have established a knowledgeable, technically capable and client-focused workforce. It is very satisfying to see that recognised by clients, who provide extremely positive comments praising the professionalism and can-do attitude of our experienced team."

Stand: CN35

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Quality French presence at this year's ADIPEC with 40 companies in attendance

BUSINESS FRANCE, THE national agency supporting the international development of the French economy, will once again organise a French collective pavilion at ADIPEC from 13-16 November, where some 40 companies representative of the industry's various sectors will be presenting their products, services and expertise to local professionals with a view to developing or strengthening partnerships.

With major reserves (48 per cent of the world's oil reserves and 38 per cent of its gas resources) and an expected two-fold increase in its production between 2004 and 2020, the Middle East is a leading global player and the commercial opportunities in the oil and gas industry in the region are vast.

Despite a sluggish hydrocarbons sector due to persistently low oil prices, the Middle East is still a very attractive region. The quality and quantity of the hydrocarbons produced in the region, along with lower-than-elsewhere extraction and processing costs, make it possible to generate business that is still better than in many other areas of the world.

The expertise of French companies, their technological skills and their capacity for innovation have helped the French oil and gas services industry to garner international recognition and a leading position among European exporters.

It is an industry par excellence, with one or more international leaders in the majority of its business areas. Alongside operators the likes of TOTAL, it consists of oil and gas industry equipment and service providers which include world giants such as CGG and TECHNIP. The sector also has two world-renowned research institutes, IFP Energies Nouvelles and IFREMER, and several major engineering firms and contractors.

Aware of the new challenges of a difficult context, the French companies exhibiting will offer solutions that serve the needs of operators: reservoir



Business France is the national agency supporting the international development of the French economy, responsible for fostering export growth by French businesses, as well as promoting and facilitating international investment in France

optimisation, reserve development, precision tools for wells and surface units, facility equipment and surveillance systems, environmental protection, and more.

Some of the French companies showcasing at the exhibition are 2B1st Consulting, 3C Metal Middle East, 3X ENGINEERING, ALCEN, Chromatotec-Airmotec, CURISTEC, Delta Plus Services, Doris Engineering, DrillScan, Drillstar, OCEA, PROTEM, SKF Magnetic Mechatronics, etc.

Hall: H6



When it comes to jacking systems as an alternative to hydraulic systems, Rexroth has developed a sophisticated Variable Speed Drive system, using frequency controlled AC-motors to various jacking system types and sizes, which are used in numerous self-elevating platforms (SEPs) such as jack up rigs, jack up vessels and jack up barges.

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Protecting the oil and gas industry from cyber criminals

With oil and gas being a prime target for cyber criminals, the ADIPEC Security in Energy conference focuses on strategies to mitigate cyber crime risks and deploy defence mechanisms to protect critical industry systems and infrastructure.

THE NOTPETYA RANSOMWARE attack at the end of June appears to have specifically targeted oil and gas companies. According to analysis by Kaspersky Labs, oil and gas accounted for around 25 per cent of targets, a close second to the finance sector, and just ahead of manufacturing. Recent reports predict the Middle East cyber security market will grow from US\$11.38bn in 2017 to US\$22.14bn by 2022.

“Cybercrime is a serious problem for any business, but recent incidents raise concerns that oil and gas companies will be high-priority targets for attacks,” said Christopher Hudson, president – Global Energy at ADIPEC organisers dmg events.

“The Security in Energy conference on 14-15 November provides a robust discussion specific to the needs of this industry, helping companies ensure that strong defences are in place.”

The conference will deliver the latest market intelligence in energy security protocols, and places a spotlight on the best innovations, security practices and crisis planning within the industry.

Specific conference sessions will cover key topics including ransomware; the internet of things (IoT); the convergence of operating technology and IT; security and compliance risks in cloud computing; risk management for supply chain and business continuity and the use of big data and analytics. Keynote addresses will focus on the balance between investment and risk, and the impact of regional collaboration on oil and gas security, with discussions to include both defensive



Companies need to ensure that strong defences are in place to protect against cyber crime. Photo: deepagopi2011/adobe stock

and offensive approaches to security.

There will be a significant discussion of threats to critical infrastructure, where attacks could cause widespread operational disruption and safety risks. It will offer insights into and front-line protection strategies, whether for new systems, or by retrofitting of existing industrial control systems to build secure and resilient operations.

There will also be a dedicated Security in Energy zone in the ADIPEC exhibition halls.

“Illicit cyber activity is here to stay,” said Don Randall, former head of Security and chief information security officer for the Bank of England, who will be sharing his expertise during the conference. “But understanding the motivation of the perpetrators, with appropriate responses and education, can substantially reduce the risk and harm.”

The list of speakers will feature leading figures from organisations tasked with tackling cybercrime in the Middle East, including Ahmed Alshemaly, director, Cyber Defense Centre, National Electronic Security Authority (NESA), United Arab Emirates; Eng. Ibrahim AlShamrani, executive director of Operations,

National Cyber Security Center, Ministry of Interior, Saudi Arabia; and Mohammed Bushlaibi, forensic analyst, Telecommunications Regulatory Authority (TRA), United Arab Emirates. They will speak alongside renowned international experts.

According to Accenture’s High Performance Security 2016 Report, 96 cyberattacks were reported over 12 months by oil and gas company heads, while 55 per cent of oil and gas leaders say the need to fill cybersecurity gaps in end point or network security is their most pressing concern. The Cisco 2017 Annual Cybersecurity Report estimates that the frequency of ransomware attacks is growing by around 350 per cent each year. The tools to conduct an attack are easy to obtain and easy to use.

Reduction in security budgets

While the number of attacks is increasing, there are concerns that some oil and gas companies have reduced their security budgets as they struggle to balance cost against risk at a time when finances are under pressure, leaving themselves dangerously

“Recent incidents raise concerns that oil and gas companies will be high-priority targets for attacks”

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exposed. The Security in Energy conference sessions will aim to bridge this awareness gap, emphasise the importance of building a solid defence platform against cyber-attacks and understanding the fallout of an attack and its implications to business.

"Cybercrime is a threat to the global economy," said Sandip Patel, QC, a UK-based lawyer and leading international expert on prosecuting cybercrime cases in court, and one of the speakers at the Security in Energy conference. "Some estimates cost it at more than US\$445bn, but the true cost is far greater as many countries do not report on this."

A company's security protocols are generally in the capable hands of the CIO/CISO. However, in order for the protocols to be 100 per cent understood and delivered, it is the priority of the entire organisation, from

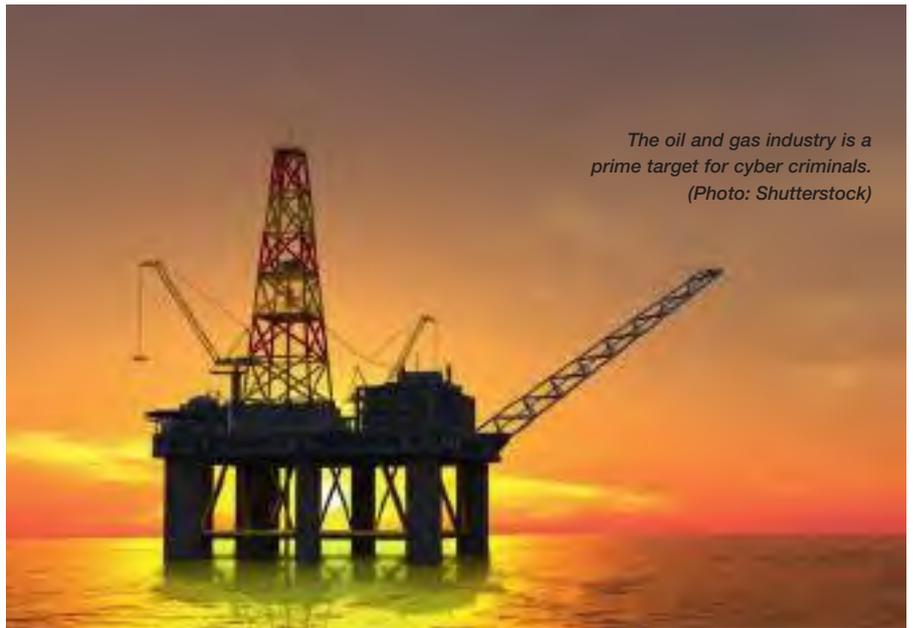
“ Keeping that technology safe and secure needs to be a number one priority ”

the top-down and bottom-up, to ensure a solid framework and delivery. Bridging the vocabulary gap between security professionals and their CEO's and senior management teams is vital to ensure they are all aligned on the ever-present security risks to their organisation.

"Reducing cost and improving efficiency are important messages in oil and gas today,

and many companies are investing in technology to reduce their costs," said Hudson. "Keeping that technology safe and secure needs to be a number one priority. It needs to be as much a concern for the CEO as it is for the chief information officer.

"Security in Energy recognises that this is a core issue for a modern business, and cannot be pushed into a departmental silo." ■



The oil and gas industry is a prime target for cyber criminals.
(Photo: Shutterstock)

Specialists in rotomolding and blow molding technologies

POLYCON GULF LIMITED is a part of Al Nasser Industrial Enterprises LLC (ANIE), a prominent industrial group with manufacturing activities spanning diverse verticals such as steel, polymers, fabrication and industrial intermediates.

ANIE was the first to introduce international food-grade quality water storage tanks in the AGCC region by setting up Polycon Gulf Ltd in Abu Dhabi. Subsequently, it has established joint ventures in Oman, Bahrain and Saudi Arabia.

The company manufactures products using rotomolding and blow molding technologies, and sets the standard with an innovative range of products such as water storage tanks, road barriers, portable restrooms, spill containment pallets, dual-face pallets, illuminated planters and more.

Polycon water tanks are approved by UAE municipalities and FDA and carry material and performance guarantees. The material helps guard against bacteria, fungus and algae. It has high environmental stress resistance, can withstand high-pressure impacts and poor temperature conditions, and prevents water from ultra-violet radiations, rust and leakage.

Seamless polymer lining solutions and Polycon spill containment pallets are innovative products suitable for industries such as oil and gas, chemicals and pharmaceuticals.

Polycon also supplies polymer lining for steel vessels, pipes and fittings. Polymer lining by rotomolding technique is a unique process that has significant advantages in complexity and material performance. This technique allows for a uniform and seamless polymer lining to be applied to the interior surface of hollow metal structures such as carbon steel pipe spools, fittings, metal vessels, tanks or other complex components.

The seamless construction without weld joints ensures increased resistance to permeation, provides corrosion protection and resistance to chemicals, acids, alkalis, oxidizers and solvents. The result is a dramatic reduction in wear and tear and an increased lifecycle of the product, using roto lining as compared to other 'spray-in' liners.

Polycon spill containment pallets are made for storage of 205 litre drums. Manufactured from FDA-approved UV stabilised polyethylene material with an excellent resistance to most chemicals, they are 100 per cent rot-free and maintenance-free. Every pallet has a strong removable plastic grid for easy cleaning. Polycon spill containment pallets can be customised by colour and design to suit the client's requirements.

For more information, visit www.polycongulf.com or call 02 554 0360

Stand: 12605

Cortec Middle East to present latest corrosion protection technology

CORTEC MIDDLE EAST, a member of Cortec Corporation, will participate in ADIPEC 2017 to support Cortec's expansion plans and strategy to grow in the Middle East region. Cortec Corporation is a world leader in corrosion protection technology, specialising in environmentally safe corrosion inhibitors and green innovative technologies. Proper corrosion management in design and manufacturing as well as construction phases significantly decreases operation and maintenance costs over the life of many assets.

Cortec Middle East provides customers and clients with best-in-class technology, project management, engineering, design, application, and training services to ensure low-cost and effective industrial preservation programmes.

Stand: 11040



Looking forward to further growth in the Middle East

STAUFF GROUP, DEVELOPER and manufacturer of line components and hydraulic accessories for machine and plant engineering, is looking forward to further expansion in the Middle East.

“Over the last five years, since we started to intensify our business activities by actively building and establishing direct connections with local customers, the Middle East region has developed into one of the fastest growing foreign markets for the Stauff Group,” says Boris Mette, head of marketing communication, Stauff Group.

“We are convinced that business for us in the region will continue to grow. We are still in the stage of entering the market with our products and services and see a lot potential for best quality fluid power components that meet and exceed the market-specific requirements. Our main customers include original equipment manufacturers and plant operators located in the region, but we most importantly target distributors and general industrial suppliers that focus on the MRO segment and provide the level of support and (on-site) service customers demand.

“Our success is mostly driven by the requirement for innovative fluid power components, such as the so-called ACT clamp, a recently developed Stauff original product for both OEM and MRO customers, that efficiently prevents crevice corrosion under pipe



Boris Mette, head of marketing communication, Stauff Group

clamps on stainless steel tubing and therefore generates middle- and long-term cost intervals due to extended maintenance and service intervals in some of the most challenging applications, such as the oil and gas industry.

“Another great example is the Stauff Form tube end forming system, one of the most high-performing solutions currently available on the market for connecting metric sized tubes made from steel, stainless steel and alternative materials such as copper, brass, CuNiFe or Tungum. Apart from its simplicity, the system provides a maximum level of safety with a pressure resistance of up to 800 bar (generally with a four-fold safety factor and taking into consideration various pressure-reducing factors) and ultimate tear-out strength as well as reliability and reproducibility. This is the result of exceptional care taken in the development of the system and the selection, handling and processing of the raw materials.

“The ADIPEC exhibition seems to be by far the best opportunity to showcase innovations like these and approach members of the specialist public, who are always open for methods to improve the efficiency of their own or their customers’ machines and plants.”

Stand: 8814

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Novel solution from Real Safety reduces costs on escape route markings

WITH A LOT OF escape routes on the average oil rig and the harsh environment at sea, maintaining escape route markings is both expensive and time-consuming. Therefore, Real Safety has developed a durable solution that allows rig owners to reduce costs on markings by 65 per cent.

Escape route markings from Real Safety are mounted directly on the gratings of the rig as opposed to the more traditional painted markings. According to Martin Boye, key account manager at Real Safety, this anti-slip solution makes the markings faster and easier to install.



Safe Escape from Real Safety is anti-slip and mounted in the gratings of the rig

"We have calculated the costs of painting escape routes on grates and compared this to the costs of implementing the Real Safe Escape solution. We found that using our solution, rig owners can cut costs on their markings by 65 per cent over 10 years," Boye says.

The costs for materials are the same whether one chooses to paint markings or implement the Real Safe Escape solution. They can, however, save money on manpower and downtime during installation.

"If a rig owner chooses to paint escape routes three workers have to be dedicated to the task; one observer, one with an epoxy certification and an accompanying technician. Furthermore, the work area must be blocked off and you will need to establish alternate escape routes," Boye adds.

"Safe Escape from Real Safety only needs one installer, and the rest of the rig crew can easily work in the installation areas. This cuts installation costs and simplify the process," he continues.

Real Safety delivers visible anti slip solutions for the oil and gas industry. In close corporation with the operators, Real Safety has developed both expertise and products to meet theoretical and practical safety liabilities with the distinct purpose of minimising falling accidents.

Stand: 7236

Rising demands for oil demands new low-cost infrastructure

WHILE MANY PROJECTS are on hold in the northern markets, the Middle East is investing in refining crude oil and LNG to meet rising demands for oil products. Oil prices, however, are still low, which increases the need for production at low costs. This creates intense competition between suppliers.

"The low oil prices are driving the energy supply towards new, more economic investments. Therefore, suppliers must contribute to this trend by developing innovative solutions that can cut costs and are easy to maintain," says Thierry Jahant, senior vice-president Commercial, Oil & Gas at LOGSTOR.

LOGSTOR has more than 20 years of experience servicing the Middle East markets. The company produces and delivers thermal insulation for pipe systems. LOGSTOR manufactures pre-insulated pipe systems for district heating and cooling and for the oil and gas, pharmaceutical and food industries. The head office is located in Løgstør, Denmark, and the company employs around 1,200 people in 12 different countries.

"One way of cutting costs is using our hybrid technology where we either pre-insulate at our existing factories to reduce installation cost and risks, or go mobile, which means that we can set up production near the actual project that we are supplying. This makes us able to minimise transportation costs," Jahant says.

Stand: 7132



LOGSTOR has more than 20 years of experience servicing the Middle East markets

LPG-fueled containerised gas turbine provides cost-effective and stable power

IN SOME AREAS of the Middle East, the power supply can be unstable and this can lead to downtime. At ADIPEC 2017, Makeen Power – owned by Makeen Energy – is launching a containerised gas turbine that can be connected to the tanks that LPG filling plants already have. This way, the LPG plant can produce its own power.

"By adding the turbine, the LPG plant will not only have a stable power supply, they will also get the opportunity to offer power to the neighbor company or public grid creating new business opportunities," says Torben Marius Gregersen, business development director at Makeen Power.



Makeen Power delivers integrated, tailor-made energy solutions worldwide

"We have customers offering to supply system services and power to the public grid in case of a break down. We also experience that other local factories or stores demanding a 100 per cent stable power supply to operate are interested in buying power generated from gas," he continues.

According to Gregersen, the turbine can be connected to the gas tanks at a LPG plant. This makes installation fast and easy, allowing the LPG plant to expect a fast return on investment.

"We have cases right now, where our customer is able to produce heat, cooling and power at lower prices than what the local utility can provide. This gives them a return on investment on only 3-5 year," Gregersen notes.

Makeen Energy is owned by the Saudi Al-Ayuni Group for Investment & Construction and is the mother company to Makeen Power/Sadelmi, Power Kosan Crisplant and Siraga.

Stand: 7236



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Electrical products for the **MENA market**

Giorgio Mariani, recently appointed export manager at Imequadri Duestelle SpA, discusses the company's activities in the MENA region.



*Giorgio Mariani, export manager,
Imequadri Duestelle SpA*

Can you comment on Imequadri's presence in the MENA market and the attractions of the market for your company?

Imequadri has operated in the MENA region since 2000, in particular in the UAE. It is an interesting market; recent market studies report estimate that, thanks to the strong industrial development, the demand for electricity will increase by five to six per cent over the next five years, and we are also seeing the growth of renewable energy.

There are several projects in the UAE of interest to us, firstly the intense development and expansion programme of existing power plants and the strengthening of energy

distribution networks established by the Ministry of Energy; and other important industrial projects, such as the new plant for energy production and desalination planned by DEWA for the coming years.

What is Imequadri offering in this market?

The company is a qualified supplier for Saipem and Eni for oil and gas and for the most important bodies in the area, such as the ADNOC Group (ADCO, ADWEA, Al Hosn Gas, Borouge, Fertil, GASCO, TAKREER and ZADCO) in the UAE; Ennpi and Petrobel in Egypt; and EDL in Lebanon.

We've carried out important projects such as the Bu Hasa, Shah Gas and Habshan power plants, in the UAE; the Abu Qir PIII platform, Al Mansurya, Hassi Messaoud, Ain Djasser and Labreg plants in North Africa; and we've acquired orders for the Ansaldo power plants at Ibri and Sohar and the ORPIC Liwa plastic complex in Oman, just to name a few.

What does Imequadri supply in particular, and what are its strengths?

Since 1962, Imequadri has been working as a

technical and a commercial partner, being able both to provide technical support during the design phase, and produce quality products.

The company is located in Bergamo, near Milan, strategically connected to ports and airports, and has around 180 employees. The company handles design and production on-site. Products consist of a wide range of LV and MV switchboards, MT equipment, as well as busbars and prefabricated cabins in containers.

The most focused products for the MENA market are, in particular, the Normoclad series, MV protected electrical switchboards for primary distribution, and the LV Polimeta power centre and multicontrol motor control centres.

The strengths of the company include its flexibility and the ability to customise all types of products, giving excellent value for money. ■

Stand: 1430

For more information see
www.imequadridualstelle.com.

“ The strengths of the company include its flexibility and the ability to customise all types of products ”

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Suraj also holds various certificates for quality in accordance with AD2000 MERKBLATT W0 and Pressure Equipment Directives [PED] 97/23/EC from TUV, NORD, and supplies its products under all national and international third party inspection authorities. Suraj also have their own testing



Examples of Suraj pipes, tubes and fittings

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Promoting entrepreneurship in Oman

Qais Al Khonji is an Omani businessman and entrepreneur. He is the founder of Qais United Enterprises Trading and Genesis International, a medical education company. He serves as a board member for many Omani companies, including the Al Khonji Group. Here he shares his views with *Oil Review Middle East*.

Can you give us some background on Genesis Projects and how you came to establish it? What led you to focus on laboratory analysis and total lube management?

I started Genesis Projects back in 2013. The purpose of core analysis is simply to enhance oil production. With the reports we produce, we can tell our clients to which level they should dig to extract more oil.

We started at a tough time, when oil prices were at their lowest. But this also was ideal timing for us, as all the oil producing companies were aiming at one thing – how to produce more to compensate for losses occurred by the drop in oil prices.

We decided to get into upstream analysis a year ago; the purpose of lube analysis is to enhance the performance of machinery, and our clients are factories and oil refineries.

How is Genesis Projects contributing to education and local development in Oman?

We have been teaching students in our laboratory, especially those who are chemical engineers. So far we have educated more than 10 and are looking to receive more each financial year.

“ I think Oman is a land of opportunity”

What importance is attached by the government to developing education and the knowledge economy?

The government has always been supporting local companies, especially in oil and gas. Big companies are adopting the ICV (In-Country Value) programme to make sure that local companies get the benefits of their services, especially new technologies.

On an individual basis, I have been



Qais Al Khonji

encouraging for entrepreneurship to be taught in schools. This is now being considered seriously. I think it's an essential subject that students will benefit highly from.

How do you view prospects for the Al Khonji Group core analysis business, and how are you looking to develop the business in the future?

Al Khonji group is my family business, and it's a long-established business as it started in the 1920s. I'm the fourth generation of the family business.

I decided to start my own business, Genesis Projects, for many reasons, I'm a risk taker, a learner and an adventurer. Also a man of decision; starting a business from scratch and making it successful has always been my passion. Today, after seven years of trying out

different ventures and activities, I have reached my steps towards success. It has been a very long journey, but the best is yet to come.

What are your views on prospects for the oil and gas industry in Oman, and where do you think the main opportunities will lie in the future?

I think Oman is a land of opportunity, but for a project to be successful, you need more than just funding and a great idea! You need resources, from gathering information to believing in your idea and the timing of it.

Oil and gas is a huge sector, and will always remain as a hub for opportunities. It is just a matter of proper research into what the market could be lacking. The industrial sector also offers potential. ■

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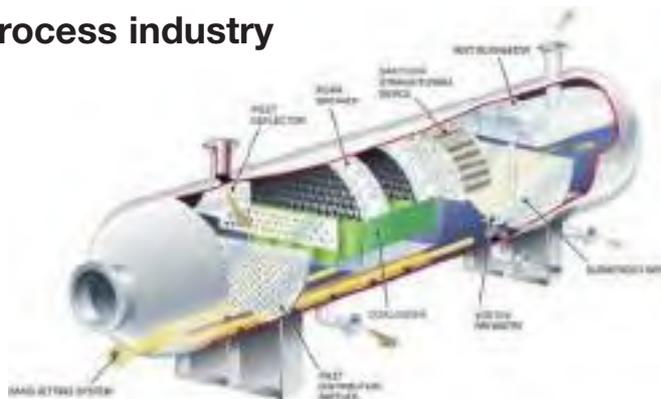
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Finepac is a specialist in mass transfer and separation technology

The company's 23 years of experience in industry, along with its customer-oriented approach, cost-effective solutions and innovative technology, have made it popular with clients, and its products are found in almost all continents of the world.

One of the key success factors for Finepac is that it continuously adopts, improves and adjusts its strategy to meet industry challenges and market requirements.

While the GCC oil and gas market has undoubtedly been affected by the drop in oil prices, the challenge posed by oil price fluctuations is not new, says Finepac. These fluctuations are reflected in the direction of projects, such as whether to invest in upstream or downstream projects.

"For companies like us, it is the best time to enter with full strength to grab the available opportunities in the market," says the company. "With an eye on market momentum, we set up our sales office in Sharjah, UAE in mid-2016."

Finepac believes that the market will pick up in the coming six to nine months, and expects that the Saudi and GCC market will return to its normal active pace in terms of project execution by the fourth quarter of 2017 or the first quarter of 2018.

Finepac has secured approvals from various domestic and international players such as Indian government organisations HPCL and IOCL, and ADCO, ADNOC, TAKREER, ADMA-OPCO, Qatar Petroleum, DEWA & ADWEA in the GCC. Recently its has been approved by JSRS – Joint Supplier Registration System, the single window registration for Oman's Ministry of Oil & Gas.

This is all part of the company's strategy to maintain a good long-term relationship with its partners. This emphasis on partnership is a core Finepac philosophy and key success factor, where partnership benefits both parties, and provides the ability to turn any challenge into an opportunity.

18



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Kuwait Oil Company marks breakthrough performance with deployment of smart drill bit by BHGE

KUWAIT OIL COMPANY (KOC) has achieved the highest rate of penetration (ROP) ever achieved in Kuwait's North field with the region's first deployment of the BHGE TerrAdapt™ adaptive drill bit combined with the BHGE AutoTrak™ eXpress rotary steerable system. The North field is a challenging application with high levels of vibration during drilling that can lead to nonproductive time and damage to the drill string.

The innovative combination reduced drilling vibration by over 33 per cent compared to previous systems and increased ROP by 42 per cent over the field average. In addition, KOC saved 19 hours of drilling time in one section and safely delivered the section one day earlier than offsets with zero non-productive time.

Waleed Al Saffar, development drilling team IV leader for KOC, said, "We are consistently seeking innovative technologies that enable us to achieve higher levels of operational efficiency and reliability in our drilling operations.

"As our long-term partner, BHGE understands our requirements, and together we deployed the region's first smart drill bit for the challenging North field operations. The results have been exceptional, with breakthrough performance achieved at all levels. This will help accelerate the operations of the field and bring production online ahead of schedule."

Saleh Gholoum, senior drilling engineer for KOC, added, "After running the smart bit in north Kuwait fields, we are looking at running TerrAdapt bits in another challenging application in west Kuwait."

Soufiane Kanoun, geo-market director, North Gulf & Turkey for BHGE, added, "This is a notable example of global technology at work with a strong and committed local workforce to achieve exceptional results."

BHGE's TerrAdapt adaptive drill bit with the AutoTrak eXpress rotary steerable system stands out for its ability to adjust to downhole conditions automatically to achieve smoother, faster drilling and extended tool life, says BHGE. It enables more efficient drilling by reducing the overloading of cutting structures while assuring cost-effective deployment and accurate, consistent drilling performance.

The innovative technology builds on BHGE's growing footprint in Kuwait, where it is providing a set of solutions from across its fullstream portfolio.

BHGE is also collaborating with KOC for training in the field of research and development, with the aim of developing cost-saving solutions for the oil and gas sector and offering specialised training programmes to enhance the skills and expertise of Kuwaiti engineers. It is also working on supplying state-of-the-art turbomachinery equipment for downstream projects.

HIMA safety controller certified by TÜV Rheinland to stringent standards

HIMA'S HIMAX SAFETY controller has been awarded the new cyber security certificate from TÜV Rheinland. The test agency certified the processor and the communications module in accordance with international standards IEC 62443-4-1, IEC 62443-4-2 and ISASecure EDSA 2.0.0. The certificate is based on stringent testing and evaluation of all requirements regarding IT security over the entire lifetime of the safety controller, and it says that the HIMax fulfils the requirements of security level SL 1. By combining highest safety (up to SIL 3) with IT security in a single system, the safety controller provides optimal protection for people, facilities and the environment in times of increasing cyber criminality.

"We are pleased to be amongst the first companies in the world to receive the new cyber security certificate from TÜV Rheinland," said Dr. Alexander Horch, head of Research, Development and Product Management at HIMA. "Successful certification is generally a prolonged and complicated process, which usually ties up a lot of resources. As our safety controllers are fully compliant with the necessary high requirements, TÜV Rheinland was able to issue the certificate without any extra effort. The certificate also confirms that our safety controllers have an extremely high degree of IT security by design. That is a splendid confirmation for us, and it benefits our customers because cyber security is an integral part of safety systems at HIMA. That applies at all levels: engineering, hardware, operating system and network."

In the age of Industry 4.0 and IoT, industrial plants are no longer autonomous, but instead increasingly linked to the outside world. Nowadays, plant operation is only reliable when plant operators systematically implement cyber security measures in addition to functional safety. The key normative basis for this is the international standard IEC 62443, "IT security for industrial automation and control systems", which specifies separate network levels with defined conduits. The newly developed cyber security certificate from TÜV Rheinland also conforms to this standard.

The certification process must satisfy extremely stringent criteria. TÜV Rheinland tests controllers in accordance with the IEC 62443 standard (Part 4-1, Secure Product Development Lifecycle



The HIMax safety controller provides a high degree of cyber security

Requirements, and Part 4-2, Technical Security Requirements for IACS components).

HIMA additionally received the Embedded Device Security Assurance (EDSA) certificate from ISASecure. ISASecure certification (ISASecure EDSA 2.0.0 – Level 1) is based on a test methodology derived from the IEC 62443 standard. Along with these two certificates, the cyber security of the HIMax controller is documented by an Achilles Level 1 certificate issued by the independent Canadian industrial security specialist Wurldtech.

HIMA's safety solutions boost the IT security of a plant by their independence from the process control system as well as their design. A dedicated operating system specifically developed for safety-related applications runs on HIMA's autonomous safety controllers. It is immune to typical attacks on IT systems. The operating systems of the controllers are tested for resistance to cyber-attacks during the software development process. In addition, the HIMA controllers have separate processors for control and communication. This enables operation of separate networks and ensures cyber-secure plant operation even in the event of an attack on external communication. The controllers also protect against unauthorised access to the automation network from the programming environment. Unused Ethernet ports can be disabled.

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Hytera presents 'the world's safest Tetra portable radio'

IN MAY, 2016, Hytera, a world leading solution provider of professional mobile radio communications, launched its latest Tetra handheld radio, PT790Ex, the world's first land mobile radio meeting the highest standard for intrinsic safety.

The PT790Ex has been designed to comply with the highest ia level for intrinsic safety since its development was initiated in 2012. "This Hytera radio is the first to give you the highest level of protection," said GS Kok, senior vice president of Hytera and head of the terminal division. In contrast with the ib-rated radios in the market, PT790Ex is the first land mobile radio that can be used in Zone 0 area where has explosive gas-air mixture existing for long periods. This marks its capability of being used safely in a wide range of applications where explosive gases and vapours may be present - from petrol filling stations and airport aprons to oil and gas installations, from the manufacturing industry to mining.

Since its launch, the PT790Ex has successfully acquired certificates of all mainstream explosion-proof standards in the world such as ATEX, IEC Ex, FM and CSA, and filed with the Mine Safety and Health

Administration (MSHA) for the feasibility of its utilisation in mines. "We are complying with nearly everything the safety committee in the USA has thrown at us," Kok said. "The PT790Ex will be the safest radio in the world."

In addition to the safety design, the PT790Ex has a number of advantages such as long battery life, large full-colour screen, IP67 protection and built-in GPS. "We, as designers, will embrace the latest technology because we think it is good for our customers. But we have to make sure that we do not put our customers' lives at risk," GS Kok commented. "Today I am very proud that we have successfully presented this latest Tetra portable radio to you."

Hytera offers complete and customized communication solutions to government, public security, utility, transportation, enterprise and businesses. Founded in 1993 in Shenzhen, China, Hytera is a key player in the PMR industry with a large customer base in more than 120 countries and regions across the world.

For more information, please visit www.hytera.com.



The PT790Ex Tetra radio

Pressure transmitters and pressure sensors made of corrosion-proof titanium

IN 1795, GERMAN chemist Heinrich Klaproth was so impressed by the properties of a newly discovered element that he named it titanium, after the Titans (a Greek race of deities). The best-known Titan is Atlas, who was sentenced by Zeus to carry the world on his shoulders.

For some time now, Keller AG für Druckmesstechnik has offered titanium versions of its products for use in heavily corrosive media. This metal has a host of advantages for applications under very special conditions.

Titanium is used as a replacement for steel in the aerospace industry, mainly for reasons of weight. In the medical devices sector, the fact that titanium is chemically and biologically neutral is especially important. This property is due to a permanent layer of oxide on the surface of the material. Thanks to its presence, components made of titanium will not corrode even in salt water or chlorinated water, unlike the high-grade steels that are normally used in the sector. This is why titanium is more frequently chosen for process measurement



Components made of titanium will not corrode, even in salt water or chlorinated water

technology applications involving wastewater that may be contaminated with unknown corrosive substances. A titanium housing makes it possible to carry out hydrostatic level measurements effectively in brackish water, or even in iron chloride.

The development of an implantable sensor (Ø 9 mm) made of titanium has caused a sensation. If a sensor of this sort is made of steel, it can only be exposed to temperatures up to a maximum of 60°C. At higher temperatures, the heat-induced expansion of the oil causes so much deformation of the steel diaphragm that it no longer returns to its original position. By contrast, the titanium diaphragm shows no deformation up to 120°C, which also makes stability errors much less likely than in products with steel diaphragms.

This is because the modulus of elasticity is only half as high.

At Keller, titanium is increasingly being used to manufacture high-quality transmitters that meet the most demanding stability requirements.



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New partnership secures global distribution for Salunda's drilling fluids tester

MONITORING SPECIALISTS SALUNDA Limited has signed a new partnership with the US-based OFI Testing Equipment, which will handle global distribution for Salunda's hand-held drilling fluid measurement instrument, MudChecker.

MudChecker is a compact, rugged and solid-state tester that can be either used in the laboratory or quickly deployed on a drill site or offshore platform to provide accurate and consistent data about the mud properties that are critical to fast, safe and profitable drilling.

The technology avoids the need to wait several hours to complete a retort and titration check, saving time in the process, facilitating the capacity for repeated checks and boosting productivity levels.

The company commented that the move comes as Salunda is seeing increasing demand for MudChecker from oil and gas sector contractors, and is part of a wider sales drive and global push for its range of analysers and sensors.

Salunda will be linking-up with OFITE to tap into the Houston-based firm's international reach and network of



Salunda's hand-held drilling fluid measurement instrument, MudChecker. (Image: Salunda)

distributors, promoting MudChecker and its rapid testing and analysis capabilities to a global base.

OFITE will be working with Salunda over the coming weeks to introduce the hand-held technology across its distributor and customer base, starting later this month with the SPE ATCE in San Antonio, Texas, and at ADIPEC in Abu Dhabi.

Alan Finlay, chief executive at Oxford-based Salunda, said an investment strategy is paying dividends at a time of huge potential for the firm and its technologies in global markets.

"We're delighted to be working with OFITE, harnessing its reputation and knowledge in this particular market segment. This is a great opportunity to get an innovative, proven and beneficial product in front of a huge customer base," he added.

The deal also augments an existing arrangement with Houston-based B2XL, which has worked intensively for several years to introduce customers to Salunda's product family.

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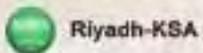
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Microseismic monitoring with real-time completions evaluation

MICROSEISMIC, A LEADING provider of surface microseismic monitoring, has announced the release of real-time completions evaluation – on-the-spot fracture modeling, dynamic SRV estimation, end of stage EUR and drainage estimation and rapid stress analysis.

According to the company, these new real-time advances in microseismic monitoring will now give operators the opportunity to increase production rates and recovery factors.

“MicroSeismic’s completions evaluation workflow is rapidly gaining traction in the industry as our clients realise the benefits of this analysis. Bringing this analysis into the realm of real-time allows a more comprehensive picture of the frac and expected well performance while the treatment is underway. This kind of insight at the time of completion means better decisions, earlier, and that goes to our client’s bottom line, said Dr Michael Thornton, chief technology officer, MicroSeismic, Inc.

Using Automatic Moment Tensor Inversion (Auto-MTI), the dynamics of the rock failure are captured in real-time as the fracture events are detected. The moment tensors provide a rich source of information about the geometry of fractures and the stresses that produced them. Combining the microseismic information with the real-time pump information enables a number of analyses:

- Allowing for a realistic real-time visualisation of the fracture treatment.
- Real-time dynamic SRV estimation models fracture intensity and induced permeability to allow for real-time analysis of SRV and Productive-SRV.
- Real-time end-of-stage EUR and Drainage Estimation generates permeability models and type curves for rapid assessment of induced drainage area and overall productivity.
- Real-time rapid stress analysis allows for more detailed moment tensor data for rapid analysis of the interaction of the stress regime and the treatment.

Ampelmann introduces enhanced gangway mode switch

AMPELMANN, OFFSHORE ACCESS solutions provider, has enhanced its existing E1000 gangway transfer system to speed up conversion of its gangway from personnel to cargo mode from at least ten minutes to less than one minute, providing greater operational efficiencies.

The innovative and adaptable E1000 motion compensated access system can transform from a gangway into a crane boom. It is 30m in length

and is capable of safely transferring people and up to 1,000kg of cargo in rough sea states.

The automated system now employs remote-controlled hydraulic pin pushers to fixate the gangway booms in less than one minute with a single button. To switch from cargo to personnel transfer mode, the crane hoisting cable is placed in a freewheel mode to allow the booms to telescope, significantly increasing the available

working time. Pins were previously manually deployed and the entire conversion process took at least ten minutes to complete.

Diederick Nierstrasz, Ampelmann’s offshore wind product development manager said, “Building on the success of the existing E1000, we recognised an opportunity to enhance the current system to reduce the time and physical effort taken to change the gangway work mode.”



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New multi-gas detector for confined space entry measurement

DRÄGER'S NEW MULTI-GAS detector, X-am 8000, measures up to seven toxic or flammable gases and vapours as well as oxygen simultaneously – in pump or diffusion mode. Comprehensive process safety is assured by a clear signalling concept and convenient assistant functions.

The X-am 8000 supports diverse typical applications offering specially developed assistant functions that guide the user through the process step by step. During confined space entry measuring, for example, the device calculates from parameters such as measurement gases, temperature limits and entered hose length the required flooding time for the probe used. It can be intuitively operated via three function keys using only one hand. The clearly arranged colour display shows all information in a well-legible way.

In the event of an alarm, the device issues its warning via coloured alarm LEDs, a loud horn sound, and clearly perceptible vibration. In addition, the X-am 8000 is equipped with a powerful pump. It can be connected to hoses of up to 45m in length. Changeover between diffusion and pump modes can easily be carried out anytime using a pump adapter. This makes sure that the pump is only operated when it is actually needed, saving energy, reducing wear and thus extending the service life of the pump.

Raytec expands Spartan range with DFT

DFT, LOCAL UAE distributors for the Raytec range, have announced the introduction of the SPARTAN High Power Floodlight range and the SPARTAN High Power Bay Light range.

Designed for large spaces, the SPARTAN high power Floodlight and Highbay luminaires can deliver up to 25,000 lumens.

The floodlight variant has been designed to light up large, open areas such as an offshore oil rig. The dedicated bracket allows the beam angle to be tilted and easily targeted into the required space.

The Highbay variant is designed for use in very high area applications such as aircraft hangers or hazardous area warehouses in installations that require high quantities of light from a powerful ceiling mounted solution. As well as requiring a high power lighting solution, these applications need an even distribution of light to deliver the optimal working conditions.

The new Spartan high power floodlight and highbay luminaire feature Raytec's holographic diffuser technology which smoothens and shapes the light output to deliver crisp, even illumination. Additionally, each individual optic has been carefully optimised to achieve a uniform light distribution and the best thermal performance. The LEDs are also recessed to minimise any chance of glare.

Rated for all Zone 1 and Zone 2 hazardous areas, the new high power Floodlight and Highbay luminaire includes all of the standard SPARTAN family features. This includes a modular design for easy maintenance and installation, along with interchangeable lens inserts, enabling a variety of beam patterns. Each luminaire also features a smart PSU with DALI and dimming capabilities as standard. The PSU can also be located remotely from the lamp head – perfect for lamppost or difficult to reach applications.

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Umm Qasr Logistics Centre

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2 Large Warehouses

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Office - 35m²

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Progress

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m² Total Area of
the facility

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m² warehousing

100,000
m² Inland Container
Depot within UQLC



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Cargo Security Secured cargo means peace of mind for you.

Flexibility You can take delivery of your cargo when you want to, in a manner you would like to. The ICD provides flexible timings and stripping options with in-house customs clearance.

Access Gulfair controls and regulates entry and exit to and from UQLC, providing direct access to the main Basra highway, avoiding all the traffic from the North Port and South Port of Umm Qasr

Control All the above permit you to manage and organise cargo from the point-of-entry to clearance and organise suitable deliveries.

For Further information, please contact

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Hempel launches new fast-drying coating

LEADING COATINGS manufacturer Hempel is introducing its new versatile high-build epoxy intermediate coating to help deliver longer service life for industrial assets. Hempaprime Multi 500, which is launching globally, gives faster drying times and shorter minimum overcoat intervals for the oil and gas, infrastructure and power generation sector.

Specifically designed to be fast drying to optimise productivity by shortening the man hours needed for application, Hempaprime Multi 500 enables three coats to be applied in 20 per cent less time than current products without compromising on quality, strength, finish or the high-volume solids of the product.

The coating can be used as a direct to metal or on primed surfaces, as primer, intermediate or topcoat application and is also ideal for minor repairs offering customers simplicity with a single coating solution. This high-performance solution assures a long service life for heavy industrial applications, helping to minimise maintenance requirements.

Because of the unique robustness of Hempaprime Multi 500, fast drying time, faster hardness development and improved cracking resistance, it is possible to move the coated steel or even build upon it faster, with a reduced risk of damaging the coating.

This decreases the need for reblasting and recoating, saving time and money.

Monica Li Aviram, segment group product manager, Infrastructure, at Hempel A/S comments, "At Hempel, we understand our customers' need for a fast-drying, intermediate coating to increase productivity and shorten the man hours needed for application. The versatility and adaptability of Hempaprime Multi 500 supports projects for the infrastructure, oil and gas and power generation sector during production, and provides top quality performance to new build assets throughout their service life. By not requiring thinning in optimum conditions, Hempaprime can be easily applied by spray, brush or roller, offering further efficiencies to asset owners."

In trials, our customers have been impressed with the product's ease of application, reduced over-coating time, smooth appearance of the dry surface, and the levelling of the intermediate surface over a range of dry film thicknesses."

Hempel continues to invest heavily in R&D, forming value-adding partnerships with its customers, to develop unique products that are in demand and in need.

Please contact your local Hempel sales office for further information on availability in your region.

New ball valve launched

SCHLUMBERGER HAS RELEASED the GROVE IST* integrated seat technology ball valve. New ball valve technology features a patented seat-on-ball design that significantly improves performance over conventional metal-seated ball valves in addition to offering considerable size and weight benefits.

"As the industry deals with more demanding reservoir conditions, conventional trunnion-mounted ball valves have only been slightly modified in design to adapt to these challenging environments," said Brent Baumann, president, Valves & Measurement, Schlumberger. "The GROVE IST ball valve introduces a disruptive technology uniquely designed to mitigate the risk of leakage at higher pressures and temperatures and to save operating cost."

Conventional ball valves tend to become larger in size and weight as oil and gas companies explore harsher environments. The GROVE IST ball valve seat design provides advanced sealing performance and increased valve life span while minimising size and weight, enabling customers to reduce total cost of ownership.



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Drive & control solution for continuous jacking system

Bosch Rexroth has received an order from GustoMSC to engineer, manufacture and commission the drive and control system for a Japanese continuous jacking system.

THE ORDER IS for GustoMSC's most recent model in its successful series of continuous jacking systems. It is intended for a Japanese construction vessel, allowing it to perform precise and high speed windmill installations at sea. The continuous jacking system (CJS) is based on innovative lifting functions, in which 48 hydraulic cylinders directed by a digital control work together seamlessly. Sensors and displacement sensor systems provide feedback for the complex cylinder movements. The CJS lifts the vessel out of the water in one fluid motion, turning it into a stable offshore construction platform.

Since the 1960s, Bosch Rexroth has been developing and delivering integrated drive and control solutions for jacking systems, usually on a turnkey basis. It has now delivered some fifty drive and control systems worldwide. These have not only been for lifting and installing oil and gas platforms and offshore windmills, but also for positioning and stabilising dredging, mining and construction vessels for offshore applications.

A continuous jacking system performs the jacking motion in a single, accurate and controlled movement. With its specialised knowledge of jacking principles and procedures, Bosch Rexroth has secured an important position in the global offshore world, building a close relationship with GustoMSC, a Netherlands-based company involved in the design and engineering of mobile offshore units and associated equipment. In addition to designing and supplying the complete jacking system, they have also designed the Japanese vessel, which is able to install windmills on the seabed in a single day under normal weather and sea conditions.

The CJS consists of four robust steel legs, with four movable jacks fitted around each leg, each connected to the piston rod of two hydraulic cylinders. The legs are first to be anchored into the seabed in a controlled manner, after which the vessel is lifted entirely out of the water, providing a stable construction platform for erecting the windmill

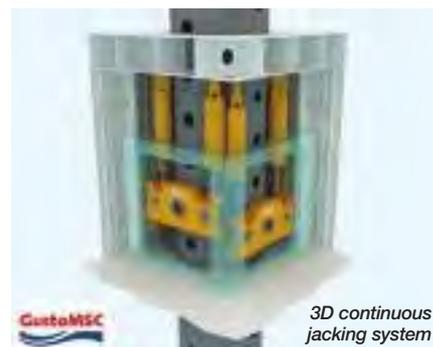
with the onboard cranes. Using hydraulically powered pins that drop into the holes in the legs, three jacks remain connected to the legs at all times during the leg and vessel movements. The separate fourth jack is then moved to the starting position, after which it is anchored with the pin, and another jack is sent from the end position to the starting position. This makes it possible to place the leg on/in the seabed in one uniform motion, allowing for three-dimensional stabilisation of the vessel and for lifting or lowering it at a constant speed. The movement pattern is extremely complex. It is regulated by the controls, the cylinder displacement sensor systems and other various sensors. This means, for instance, that the cylinder of the jack that returns to the starting position moves much faster than the other cylinders that are lifting the vessel out of the water at that moment. This represents a new way of integrating hydraulics, electronics and software.

A total of 32 hydraulic lifting cylinders are active during the jacking up movement. There are another 16 cylinders for moving the anchoring pins, while the jacking system consists of valve blocks, the control system and specially designed software.

Testing and commissioning takes place on site by GustoMSC in collaboration with Bosch Rexroth in Japan.

The extreme conditions found in the offshore industry (in particular salty and aggressive environments) place exceptional demands on the equipment used. This was a serious factor taken into account during the design phase, which was translated into a functional design, material choice and special facilities. To create durable hydraulic cylinder rods, Bosch Rexroth applies different Enduroq surface-protective techniques such as HVOF coatings, stainless steel welding and laser cladding. Both R&D and the procedures for applying high-grade protection under stringent quality standards are conducted in-house at Bosch Rexroth. The Enduroq 2000 High Velocity Oxygen Fuel (HVOF) coating was used for the CJS on the Japanese

construction vessel. This coating technique also offers the option of applying a Cylinder Integrated Measuring System (CIMS). This measurement system, developed by Bosch Rexroth, is based on the grooves in the rod's parent material, and is read by a sensitive sensor through the protective layer. This enables the exact rod position to be determined with a precision within tenths of millimetres. The hardware and software have been integrated in the newest generation of CIMS sensors, forming the basis for condition



monitored maintenance, part of Bosch and Bosch Rexroth Industry 4.0 developments.

The hydraulic control of the CJS is provided by a power unit from a Bosch Rexroth Modular Hydraulic Power Unit (MHPU) introduced at the end of 2016 and specifically designed for the marine and offshore market. A Lloyd's Type Approval has been included in this programme, but other classifications are also possible, such as with ClassNK in this project. These high-end power units cover a power range of 350 to 3,000 kW at working pressures of up to 350 bars. Efficient IE3 electric motors, which can drive one or more pumps, are employed for driving the pump units. The MHPUs are also fitted with extra sensors and interfaces for Internet communications, preparing them for Industry 4.0 and condition monitoring. Bosch Rexroth's worldwide service organisation guarantees professional support, including rapid on-site spare parts service from stock. ■



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Project Databank

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OIL, GAS AND PETROCHEMICAL PROJECTS, UAE

Project	Facility	Budget (\$ US)	Country	Status
ADCO - Buhasa Onshore Oil Field Expansion Project	Abu Dhabi	Oil Production	3,000,000,000	Feasibility Study
ADCO - Mender Field Development	Abu Dhabi	Oil Field Development	350,000,000	Construction
ADCO - North East Bab (NEB) - Phase 3 (Al Dabbiya)	Abu Dhabi	Oil Production	2,300,000,000	Construction
ADCO - North East Bab (NEB) - Phase 3 (Rumaitha-Shanayel)	Abu Dhabi	Oil Production	1,440,000,000	Construction
ADCO- Bab Gas Compression Phase 3	Abu Dhabi	Gas Compression	27,000,000	EPC ITB
ADCO- Bab Integrated Facilities Project- Expansion	Abu Dhabi	Oil Field Development	2,000,000,000	EPC ITB
ADCO- Buhasa- Wellhead Automation	Abu Dhabi	Oil Field Development	100,000,000	FEED
ADCO- Qusahwira Field Development - Phase 2	Abu Dhabi	Oil Field Development	550,000,000	EPC ITB
ADCO- South East Asset- Tie-in Project (A,B, C & D)	Abu Dhabi	Oil Field Development	650,000,000	Construction
ADGAS- Integrated Facilities Project (IGD-S) Expansion (Phase 4)	Abu Dhabi	Gas Field Development	650,000,000	EPC ITB
ADGAS- Integrated Gas Development (IGD) - Expansion (Overview)	Abu Dhabi	Gas Field Development	1,570,000,000	Construction
ADGAS- Integrated Gas Development (IGD) - Expansion (Phase 1)	Abu Dhabi	Gas Field Development	500,000,000	Commissioning
ADMA OPCO - Nasr Full Field Development - Phase 2 (Package 2 - Platforms)	Abu Dhabi	Oil Field Development	195,000,000	Construction
ADMA OPCO - Nasr Full Field Development - Phase 2 (Package 3)	Abu Dhabi	Oil Field Development	200,000,000	Construction
ADMA OPCO- Nasr Full Field Development - Phase 2 (Package 1 - Wellheads and Pipeline)	Abu Dhabi	Oil Field Development	900,000,000	Construction
ADMA-OPCO - Nasr Full Field Development - (Overview)	Abu Dhabi	Oil Field Development	1,700,000,000	Construction
ADMA-OPCO - SARB Offshore Oil Field Development - (Overview)	Abu Dhabi	Oil Processing Facility	2,000,000,000	Construction
ADMA-OPCO - SARB Offshore Oil Field Development - Package 2	Abu Dhabi	Oil & Gas Field	500,000,000	Construction
ADMA-OPCO - SARB Offshore Oil Field Development - Package 4	Abu Dhabi	Gas Processing	455,000,000	Construction
ADMA-OPCO - Umm Al Lulu Field Development - (Overview)	Abu Dhabi	Oil Field Development	2,500,000,000	Construction
ADMA-OPCO - Umm Al Lulu Field Development - Package 1	Abu Dhabi	Oil Field Development	800,000,000	Construction
ADMA-OPCO - Umm Al Lulu Field Development - Package 2	Abu Dhabi	Oil Field Development	170,000,000	Construction
ADMA-OPCO - Umm Shaif Infield Pipelines Replacement	Abu Dhabi	Oil Field Development	500,000,000	EPC ITB
ADMA-OPCO- Bu Haseer Field	Abu Dhabi	Pipeline	155,000,000	Construction
ADMA-OPCO- Lower Zakum - Oil Lines Replacement (Phase 1)	Abu Dhabi	Pipeline	950,000,000	Construction
ADNOC - LNG Import Terminal	Abu Dhabi	LNG Storage Tanks	1,000,000,000	Feasibility Study
ADNOC & Borealis - Borouge 4 Complex	Abu Dhabi	Petrochemical Plant	4,000,000,000	Pre-FEED
ADNOC & Borealis - Polypropylene (PP) Plant	Abu Dhabi	Polypropylene	1,000,000,000	FEED
ADNOC & EMARAT - Fujairah Terminal Expansion Phase 3	Fujairah	Oil Storage Tanks	40,000,000	Feasibility Study
ADNOC & MASDAR- Carbon Dioxide Capture and Storage - Phase 2 (Pipeline Network)	Abu Dhabi	Carbon Dioxide	300,000,000	Feasibility Study

Project	Facility	Budget (\$ US)	Country	Status
ADNOC Distribution - Bateen Executive Airport- Jet Fuel Depot	Abu Dhabi	Oil Storage Tanks	80,000,000	Engineering & Procurement
ADNOC- Fujairah- Mandous Field	Fujairah	Oil Storage Tanks	500,000,000	EPC ITB
ADOC - Hail Offshore Oilfield	Abu Dhabi	Oil Field	500,000,000	Construction
ADOC - Mubaraz Field Expansion	Abu Dhabi	Oil Field Development	500,000,000	FEED
ADPC - Khalifa Port and Industrial Zone (KPIZ)	Abu Dhabi	Port	7,200,000,000	Construction
Al Hosn Gas- Shah Field- Expansion	Abu Dhabi	Gas Network	9,500,000,000	FEED
Borouge- Borouge 3 - Ethylene Plant Expansion	Abu Dhabi	Ethylene	800,000,000	Construction
Borouge- Ruwais Pelletizing Plant - Bagging Lines Addition	Abu Dhabi	Polymers	29,000,000	EPC ITB
Dolphin Energy - Northern Emirate Pipeline (NEP)	Sharjah	Gas Pipeline	150,000,000	FEED
Emirates LNG - Fujairah LNG	Fujairah	Liquefied Natural Gas (LNG)	3,000,000,000	Feasibility Study
ENOC- Al Maktoum Airport- Jet Fuel Pipeline Expansion	Dubai	Jet Fuel Pipeline	250,000,000	FEED
Florexx - Fujairah Bio-Fuel Refinery	Fujairah	Biofuel Refinery	1,300,000,000	EPC ITB
Fujairah Oil Terminal (FOT) - Fujairah Oil Terminal Modifications	Fujairah	Oil Storage Tanks	200,000,000	EPC ITB
GASCO - Black Powder Management	Abu Dhabi	Gas Pipeline	41,000,000	Construction
GASCO - Integrated Gas Development (IGD) - Expansion (Onshore Pipeline)	Abu Dhabi	Gas Production	7,100,000,000	Construction
GASCO - Taweelah - Gas Compressor Station	Abu Dhabi	Gas Processing	70,000,000	Engineering & Procurement
GASCO - Yas - Mina Zayed Gas Pipeline	Abu Dhabi	Gas Processing	45,000,000	Construction
GASCO- Asab 1- Control System Upgrade	Abu Dhabi	Distributed Control System (DCS)	55,000,000	Engineering & Procurement
GASCO- Integrated Gas Development - Expansion (42 Inch Pipeline)	Abu Dhabi	Oil Field Development	450,000,000	Construction
GASCO- Ruwais - Train 1 & 2 Process Cooling Fire Water Pumps Replacement	Abu Dhabi	Gas Processing	80,000,000	FEED
Government of Dubai - Police Academy	Dubai		272,000,000	EPC ITB
IL&FS Prime Terminals FZC- Fujairah Oil Terminals- Phase 2	Fujairah	Oil Storage Terminal	80,000,000	EPC ITB
Saif Al Khaili & KIZAD - Emirates Chemical Plant	Abu Dhabi	Caustic Soda	80,000,000	Construction
Star Energy Group- JAFZA Expansion 7A	Dubai	Oil Storage Tanks	200,000,000	Construction
Takreer- Carbon Black Plant	Abu Dhabi	Gas Processing	200,000,000	Construction
Takreer- Gasoline and Aromatics Project	Abu Dhabi	Aromatics	700,000,000	FEED
Takreer- IRP - Phase 3	Abu Dhabi	Petroleum Oil Refinery	200,000,000	FEED
Takreer- Processing Offshore Crude Project	Abu Dhabi	Petroleum Oil Refinery	10,000,000,000	EPC ITB
Takreer- Ruwais- LPG Recovery	Abu Dhabi	Crude Oil Distillation Unit	40,000,000	Feasibility Study
Takreer- Tacaamol Aromatics Project	Abu Dhabi	Petrochemical Plant	10,000,000,000	FEED
VOPAK HORIZON - Fujairah Oil Terminal Expansion (Phase 7)	Fujairah	Gas Storage Tanks	200,000,000	Construction
ZADCO - Umm Al Dalkh ESP Installation - Package 2 (Phases 3, 4 and 5)	Abu Dhabi	Sub Sea Cable	650,000,000	Commissioning
ZADCO - Umm Al Dalkh Full Field Development (Overview)	Abu Dhabi	Oil Field Development	650,000,000	Construction
ZADCO - Upper Zakum Full Field Development - 750 Project - Surface Facilities - EPC 1	Abu Dhabi	Oil Field Development	1,300,000,000	Construction
ZADCO - Upper Zakum Full Field Development - 750 Project - Surface Facilities - EPC 2	Abu Dhabi	Oil Production	4,200,000,000	Construction
ZADCO - Upper Zakum Full Field Development - 750 Project (Overview)	Abu Dhabi	Oil Field Development	15,600,000,000	Construction
ZADCO - Zirku Facilities Capacity Enhancement	Abu Dhabi	Oil Field Development	400,000,000	EPC ITB
ZADCO- 750 West Region- Capacity Expansion & Sulphate Reduction Plant- EPC 3	Abu Dhabi	Oil & Gas Field	300,000,000	Engineering & Procurement

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Project Summary

Project Name	Al Dhafra Petroleum - Haliba Oil Field
Name of Client	ADNOC - Abu Dhabi National Oil Company, KNOC - Korea National Oil Corporation, GS Energy
Estimated Budget (US\$)	500,000,000
Facility Type	Oilfield Development
Status	EPC ITB
Location	Abu Dhabi
Project Start	Q3-2013
End Date	Q2-2023
FEED	Technip
PMC	WorleyParsons
Award Date	Q4-2017

Background

Korea National Oil Corporation (KNOC), GS Energy and ADNOC signed 30 year deal in 2012 to form Al Dhafra Petroleum to develop the Haliba oilfield on the border with Oman. KNOC and GS Energy are carrying out the exploration. The Halba oilfield project will be 40 per cent owned by KNOC & GS Energy and 60 per cent by ADNOC. The Haliba field, also reverend to as "Area 1", is believed to be close in chemically matching the Abu Dhabi's Murban crude and has high potential due to its content and onshore position that provides easier access to carry out required operations. KNOC and GS Energy have secured rigs for three appraisal wells planned at the Haliba field.

Project Status

Date	Status
Oct 2017	Evaluation of the EPC proposals is completed. No prior date is set up for the contract award. Larsen and Toubro (L&T) is believed to be the preferred bidder but it is unknown yet if the company will be awarded the contract.

Project Scope

There are three exploration blocks:

- Area 1, Haliba field, an onshore area
- Area 2, unclear
- Area 3, offshore - which includes former Adma field Mandous
- Wellhead installation
- Land preparation
- Drilling
- Associated works and utilities
- Associated facilities
- Front end engineering design
- Detailed design
- Engineering, procurement and construction
- Commissioning
- Testing

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Middle East & North Africa

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

Country	THIS MONTH			VARIANCE	LAST MONTH			LAST YEAR		
	Land	OffShore	Total	From Last Month	Land	OffShore	Total	Land	OffShore	Total
Middle East										
ABU DHABI	35	15	50	-2	34	18	52	27	22	49
DUBAI	0	2	2	0	0	2	2	1	3	2
IRAQ	55	0	55	2	53	0	53	40	0	40
JORDAN	0	0	0	0	0	0	0	0	0	0
KUWAIT	53	0	53	1	52	0	52	48	0	48
OMAN	55	0	55	2	53	0	53	64	0	64
PAKISTAN	26	0	26	1	25	0	25	21	0	21
QATAR	4	6	10	0	4	6	10	5	4	9
SAUDI ARABIA	99	18	117	2	98	17	115	109	15	124
SUDAN	0	0	0	0	0	0	0	0	0	0
SYRIA	0	0	0	0	0	0	0	0	0	0
YEMEN	0	0	0	0	0	0	0	0	0	0
TOTAL	327	41	368	6	269	43	362	315	44	357

North Africa

ALGERIA	50	0	50	-5	55	0	55	53	0	53
EGYPT	18	5	23	-1	18	6	24	20	6	26
LIBYA	0	1	1	0	0	1	1	0	1	1
TUNISIA	0	0	0	0	0	0	0	0	0	0
TOTAL	68	6	74	-6	73	7	80	73	7	80

Source: Baker Hughes

«جي إس إم» أو شبكات الإنترنت أو الواي فاي، إلى مجموعة كبيرة من الأجهزة المتصلة، مما يضمن حماية البيانات. وتتيح خدمات iConn، المعتمدة على التقنية السحابية، للمستخدمين أيضا الاطلاع على التحليلات الآتية، أو الوصول إلى البيانات عبر واجهات برمجة التطبيقات المفتوحة.

مستقبل مفتوح

الانتقال من الآليات المغلقة والخاصة إلى تلك المفتوحة، يعد أحد أكبر التغييرات التي طرأت على إنترنت الأشياء. فحلول «جاردنر دنفر» تساعد الشركات على دمج الأنظمة، وتسمح باستخدام تكنولوجيا المعلومات وتكنولوجيا التشغيل معا على نحو سلس.

وتتوفر منصة iConn بشكل قياسي في جميع أجهزة «كومب اير» الجديدة، ويمكن هيكليتها لتلائم منشآت الضاغطات القائمة. ومن بين السمات الرئيسية لتطور هذه المنصة هو أنها تدعم المنتجات الملحقة وغير القائمة على حلول «جاردنر دنفر». والهدف هو توفير تجربة رقمية شاملة لإدارة أنظمة الهواء المضغوط بالكامل.

يحصل العملاء - بطبيعة الحال - على المنتجات ذات العلامات التجارية المختلفة والكثيرة بمرور السنوات، وعلى مدى الفترات العمرية للمنتجات. غير أن منصة iConn غير مخصصة لأن تصبح فقط نظاما صالحا للاستخدام مع منتجات «جاردنر دنفر». فالبيانات الأخرى توفر رؤى وأفكارا أكثر ثراء من شأنها تعزيز جودة نظام الهواء المضغوط. ومثلما الحال مع إنترنت الأشياء، التي حققت النجاح لكونها أحدث ثورة حقيقية، تساعد منصة iConn في توفير رؤى وتوقعات هادفة، بصرف النظر عن الجهة المُصنعة للتكنولوجيا المستخدمة.

وتحليلات البيانات توفر للشركات أفضل الطرق لتقييم إنتاج الهواء المضغوط، والمتاحة - حتى وقتنا هذا - في الأسواق لمن يرغبون في اتباع إستراتيجية ذكية في التصنيع، وذلك لمساعدة المتخصصين في إدارة وتحسين الاستخدام. والسؤال المحوري هو: هل ستسعى لاقتناص هذه الفرصة؟

للحصول على المزيد من المعلومات حول iConn، يُرجى زيارة الموقع www.gardnerdenver.com

أما المرحلة الأخيرة، فهي التحليلات المعرفية. وهي إستراتيجية تتناول بالوصف كيفية تطبيق التحليلات وتوظيف التكنولوجيا لمساعدة البشر على اتخاذ قرارات أصوب. فالنظام المعرفي يحصل على مدخلاته عبر تفاعله مع البيانات وتلقيه الاستجابات من المستخدم النهائي. وهو يستخلص الدلائل من البيانات والأمهات القائمة، ويستخلص الاستنتاجات من قواعد المعلومات القائمة، ثم يقوم بمعالجتها للمساعدة في اتخاذ القرارات المستقبلية وذكاء الأعمال. ونظرا لأن النظام المعرفي هو بمثابة حالة دائمة من التعلم، فسوف يخضع للتعديل المستمر لتحقيق النتائج المرجوة بأكثر الطرق الممكنة كفاءة وفعالية.

والتحليلات المعرفية هي مزيج فعلي من الذكاء البشري والاصطناعي، وهي نتيجة ينشدها الساعون لتطوير النماذج التحليلية المتاحة في السوق. وتتم عملية التعلم بهذه الأنظمة تلقائيا، مما يساعد على تحسين إنتاجية الشركات ورفع كفاءتها، ومن ثم تحسين تجربة العملاء بوجه عام. ويبرش هذا المستوى من المعرفة الدقيقة بنتائج رائعة، فهو التكنولوجيا التي تستخدم البيانات والتجارب السابقة بشكل تلقائي لتنشئ أنظمة جديدة.

منصة iConn الجديدة

لتلبية هذه المتطلبات، طرحت «جاردنر دنفر» منصة رقمية جديدة باسم iConn في الأسواق. وهي منصة لإدارة الهواء تعتمد على التقنية السحابية، وقد خضعت للتطوير من أجل تقديم التحليلات المتطورة وتمكين الشركات من التحكم في منشآتها بصورة أفضل. ويقدم النظام تحليلات قديمة وتنبؤية ومعرفية في وقت آني، ويتيح للمستخدمين التغلب على المشكلات المحتملة قبل وقوعها.

وتعتبر المنصة مفيدة - على وجه الخصوص - للشركات ذات المواقع العديدة والنائية أو المنشآت التي تعمل آليا. فهي تمكن المستخدمين من مراقبة أداء الضاغظ من مكان واحد عبر هواتفهم الجوال أو حواسيبهم اللوحية أو المكتبية. هذا وتساعد iConn في الحد من الأخطاء وزيادة أوقات التشغيل، كما توفر الإعدادات التفصيلية للأجهزة والماكينات، وتحلل التوجهات بمرور الوقت لتمكين مديري المصانع من تحسين أداء النظام. ويمكن نقل بيانات الضاغظ أو الأصول الملحقة بأمان عبر هواتف النظام العالمي للاتصالات المتنقلة

جميع شركات توليد الطاقة على تقليل الهدر حتى الحد الأدنى. وتُقدَّر القيم المتوسطة لتكاليف إنتاج الطاقة على مستوى الصناعة بأكثر من ٨٠ في المائة من التكلفة الإجمالية للملكية الضاغظ، ويجب تشجيع أية مبادرات تهدف إلى مساعدة الشركات على تحديد مواطن انعدام الكفاءة، وتحسين الأداء، وتقليل التهربات، فضلا عن توفير الدعم التطبيقي لعمليات إدارة الهواء.

ويقدم توجه «الصناعة ٤.٠» وإنترنت الأشياء - دون أدنى شك - أعظم الفرص المتاحة في الوقت الراهن لمساعدة المؤسسات على التحول إلى التشغيل الذكي. غير أن العديد من المؤسسات الحالية لا تمتلك الوقت أو الموارد المتاحة لتحقيق الاستفادة القصوى من البيانات والمعلومات التي تجمعتها. ويبدو - على الجانب الآخر - أنها تلجأ فقط لأخذ البيانات في الاعتبار عندما تبرز المشكلات، ولا تستخدمها بشكل فعال في إدارة نظام الهواء المضغوط بصفة مستمرة. وخلاصة القول إنه يُخشى أن تفقد البيانات جدواها إن لم تُستخدم على النحو الصحيح.

بيانات بسيطة وتحليلات تنبؤية ومعرفية

هناك ثلاث مراحل أساسية للتحليلات: الأولى هي جمع البيانات البسيطة وعدم معالجتها بأية طريقة هادفة. إذ تفتقد أغلب البيانات الرقمية في العالم التنظيم، ومن ثم تفقد قيمتها. المرحلة التالية هي التنبؤية، إذ يجري استخدام أدوات تحليلية لمعالجة البيانات. ثم تقدم هذه الأدوات فيما بعد توقعات بالأحداث المستقبلية غير المعلومة عبر استخدام مجموعة من التقنيات من بينها استخراج البيانات والإحصائيات ووضع النماذج والتعلم الآلي وما إلى ذلك. ويقع مصطلح «التحليلات الآتية» الأساسي ضمن هذا السياق أيضا، ويشير في الأساس إلى إجراء تحليل للبيانات في لحظة إنتاجها.

والتحليلات التنبؤية المبنية على قواعد منطقية وذكية، تمنح الشركات المعلومات المناسبة والمطلوبة. ولاستخدام إنترنت الأشياء بنجاح في سوق الهواء المضغوط، يجب أن تستعين الشركات بمنظمة تحظى بالخبرة والكفاءة والفهم العميق من أجل وضع القواعد المناسبة للأنظمة المختلفة. وسوف توفر هذه القواعد رؤى وأفكارا ذات قيمة بشأن تشغيل نظام الهواء المضغوط، وتقدم التوصيات بصدد تحسين وترقية العمليات.



فرص كثيرة توفرها إنترنت الأشياء لسوق تكنولوجيا الهواء المضغوط

البيانات الرقمية وتكنولوجيا الهواء المضغوط

في هذا المقال، يشرح تشارلز جويل، المدير العام لإنترنت الأشياء والتحليلات في شركة «جاردنر دنفر» كيف يمكن توظيف إنترنت الأشياء لتمكين مستخدمي خدمات الهواء المضغوط من دعم وتحسين عملياتهم إلى حد كبير. وهو يقول إن حلول «جاردنر دنفر» تساعد الشركات على دمج الأنظمة، وتسمح باستخدام تكنولوجيا المعلومات وتكنولوجيا التشغيل معا على نحو سلس.

مليون طن من انبعاثات ثاني أكسيد الكربون. وعلى هذا تظل كافة الشركات في حاجة إلى الحصول على مصادر الطاقة عالية الجودة، والأداء الفعال بأسعار مجدية من حيث التكلفة، كما ينبغي تشجيع الرؤى والأفكار القائمة على البيانات التي تحقق ذلك. ويشغل توليد الهواء المضغوط نسبة ١٠ في المائة من إجمالي تكاليف الطاقة في الصناعة، ويجب أن تحرص

الطلب على سوق الهواء المضغوط وإطلاق العديد عليها مصطلح «الثورة الصناعية الرابعة»، لا يزال يتعين عليها - حتى وقتنا هذا - تحقيق استفادة أكبر من الفرص التي توفرها إنترنت الأشياء. فقطاع الصناعة في المملكة المتحدة يستهلك بالفعل ما يزيد على ٢٠ تيرا وات من الكهرباء كل عام لضغط الهواء، وهو ما يعادل إنتاج أربع محطات لتوليد الكهرباء، وينتج أكثر من ٨,١

تقود الثورة الصناعية الرابعة كل شركة إلى تبادل وتحليل بيانات الأصول، ولا توجد أي مؤشرات على تباطؤ استخدام إنترنت الأشياء. وتتوقع شركة «أي إتش إس ماركييت» نمو القاعدة المركبة لأجهزة الكمبيوتر بالسوق من ١٥,٤ مليار جهاز في ٢٠١٥ إلى ٣٠,٧ مليار جهاز في ٢٠٢٠، ثم إلى ٧٥,٤ مليار جهاز في ٢٠٢٥. ومما يدعو للدهشة أنه، على الرغم من زيادة



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تشغيل أول محطة للطاقة الشمسية في حقل نفط أم قدير

للمقاولين. ووقع اختيار شركة النفط الكويتية - مؤخرًا - على شركة سايبم الإيطالية للأعمال الهندسية لتنفيذ مهمة إنشاء شبكة أنابيب بطول ٤٥٠ كيلومتراً للمصفاة الجديدة جنوب الكويت بتكلفة ٨٥٠ مليون دولار. ومن بين الشركات الكبرى الأخرى في مجال الصناعات التحويلية، والتي تتولى تنفيذ المشاريع الجديدة، الشركة الكويتية للصناعات البترولية المتكاملة، وشركة «إيكويت» للبتروكيماويات.

أما عن أعمال التنقيب والإنتاج، فتتولى شركة النفط الكويتية، أبرز الشركات التابعة لمؤسسة البترول الكويتية، عددًا من المشاريع فضلا عن إدارة أصول الإنتاج طويلة الأجل، مثل حقل برقان العملاق وحقل الرتقة الشمالي. وهناك مشاريع أخرى للتنقيب والإنتاج في الكويت تتضمن استئناف الإنتاج مع المملكة العربية السعودية من حقول النفط ذات الإدارة المشتركة، لا سيما حقلي الخفجي والوفرة الواقعين في المنطقة المحايدة بين البلدين. وكان حقل الخفجي قد أُغلق في ٢٠١٤ لأسباب متعلقة بالبيئة، بينما توقف العمل في حقل الوفرة منذ ٢٠١٥ بسبب صعوبات التشغيل. ويعكف المسؤولون منذ ذلك الحين على حل مشكلات من بينها تقلب أسعار السوق، واحتمال إغراق السوق بالنفط. وقد بلغ إنتاج حقل الخفجي ٣٠٠ ألف برميل قبل إغلاقه، وهو خاضع لإدارة شركة عمليات الخفجي المشتركة، التي تعد مشروعًا مشتركًا بين الشركة الكويتية لنفط الخليج وشركة أرامكو لأعمال الخليج التابعة لأرامكو السعودية. وتبلغ طاقة إنتاج حقل الوفرة نحو ٢٢٠ ألف برميل يوميا من النفط الخام الثقيل.

التكنولوجيا

يشهد قطاع التنقيب والإنتاج بعض التغيرات، كما الحال مع تطور الصناعات التحويلية في مجالي التكرير والبتروكيماويات في الكويت، والاعتماد على تكنولوجيا جديدة لإنتاج أنواع وقود أكثر تطورًا. وقد بدأت الكويت، في العام المنصرم، تشغيل أول محطة لها للطاقة الشمسية على الإطلاق في حقل نفط أم قدير، مما سيكون له انعكاسات أخرى على هذا القطاع، وعلى مؤسسة البترول الكويتية. وقد بلغت تكلفة مشروع «سدره ٥٠٠» ١٠٠ مليون دولار ولديه القدرة على توليد ١٠ ميجاوات من الكهرباء، يستخدم نصفها لإمداد شبكة الكهرباء الكويتية، بينما يُستخدم النصف الآخر لإمداد حقل النفط ذاته المملوك لشركة النفط الكويتية بالكهرباء. ومشاريع الطاقة الشمسية، التي انطلقت في عموم

الكويت العالمية مبيعات الوقود في عدد من الدول، من بينها دول غرب أوروبا. ولا يقف الأمر عند هذا الحد، فقد أعلنت مؤسسة البترول الكويتية - مؤخرًا - أنها تدرس حاليا تأسيس شركة فرعية تجارية جديدة لتعزيز عملية التسويق لمشتقات البترول. ومجرد اعتماد المشروع، ستوجه الشركة الجديدة أنظارها، ليس فقط نحو المضاربة في أسواق النفط، بل أيضا إلى زيادة القيمة المضافة التي تعود على منتجات مؤسسة البترول الكويتية، وفقا لما ذكره عماد عبد الكريم القائم بأعمال العضو المنتدب للتسويق العالمي. هذا وقد أعلنت شركة بترول الكويت العالمية عن إرسال شحنتها الأولى من النفط الخام إلى مجمع «مصفاة نغي سون» الجديد للتكرير والبتروكيماويات في فيتنام استعدادا لبدء العمليات. وتبلغ طاقة المصفاة التابعة لشركة بترول الكويت العالمية نحو ٢٠٠ ألف برميل من النفط الخام الكويتي يوميا. ويحقق المشروع أحد الأهداف الإستراتيجية لمؤسسة البترول الكويتية بتوفير منفذ آمن طويل الأجل لبيع النفط الخام الكويتي. وتبلغ حصة شركة بترول الكويت العالمية ٣٥,١ في المائة من المشروع، إلى جانب شركات «بتروفيتينام» و«ميتسوي» و«إدميتسو كوسان» اليابانية. ومن المؤكد أنه سيتم إبرام المزيد من الاتفاقات المتعلقة بخطط الأنابيب حيث تواصل الكويت إنعاش قطاع الطاقة لديها، وتسعى لتركيز دعائمها في الخارج. تلك إذن أخبار جيدة للدولة ولكافة الشركات المتعاقدة في مجال الطاقة والتكنولوجيا، والتي عملت عن كثب مع مؤسسة البترول الكويتية والشركات التابعة لها مدى عقود.

أنحاء الخليج، تعد خطوة تقطعها الدولة للأمام، كما تمثل أيضا علامة فارقة في توفير خدمات الطاقة لأعمال التنقيب والإنتاج في حقل النفط هذا، وذلك في وقت تحرص خلاله المنطقة على تنوع مصادر الطاقة لديها لتلبية الاحتياجات المحلية الآخذة في التزايد. وعلى صعيد أعم، من المقرر أن يلعب استخدام التكنولوجيا، بجميع أشكالها، دورا كبيرا في توسعة عمليات مؤسسة البترول الكويتية، وتحديث قطاع الطاقة من الآن فصاعدا. علما بأن شركة هانيويل، الرائدة عالميا في مجال البرمجيات، قد استضافت «قمة هانيويل للتكنولوجيا» الأولى في الكويت في مطلع أكتوبر/ تشرين الأول برعاية شركة البترول الوطنية الكويتية، وهو ما يعكس هذا التوجه بشكل أو بآخر. ومن جانبه، قال جورج بومرتي، رئيس شركة هانيويل في الكويت والعراق والأردن ولبنان: «التكنولوجيا ورأس المال البشري هما القوة الدافعة الرئيسية التي تدفع الكويت قدما نحو تطوير صناعة النفط والغاز، كجزء من إستراتيجية ٢٠٣٠ التي تتبناها مؤسسة البترول الكويتية».

المكانة الدولية

تتوسع مؤسسة البترول الكويتية في إجراء الأنشطة الخارجية بالعديد من المناطق أيضا عبر الشركات الفرعية التابعة لها. ففي قطاع الإنتاج والتنقيب، استحوذت الشركة الكويتية للاستكشافات البترولية مؤخرًا على حصة تبلغ ١٥ في المائة إضافية من حقل «جينا كروج» الزويجي من شركة «توتال»، لتضاعف رأس المال السهمي لديها. أما على صعيد الصناعات التحويلية، تدير شركة بترول

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قطاع الطاقة الكويتي يتبنى التغيير

تواصل مؤسسة البترول الكويتية، والشركات التابعة لها، إصلاح وتجديد قطاع الطاقة العريق ذي الأهمية الإستراتيجية بالدولة على الصعيدين الداخلي والخارجي. وفي هذا الصدد، يبذل قطاع الطاقة الكويتي جهوداً حثيثة، وذلك باستخدام التكنولوجيا بجميع أشكالها من أجل تحديث هذا القطاع. وهو إذ يتطلع إلى الانفتاح الدولي بشكل آخذ في التزايد، يواجه الكثير من هذه الجهود نحو الداخل.

التابعة لها، إلى جعل هذه الرؤية واقعا ملموسا. وتتضمن الإستراتيجية - بوجه عام - مشروع الوقود النظيف. وتبذل الدولة الجهود لتحديث بنيتها التحتية لعمليات التكرير من أجل إنتاج أنواع وقود جديدة ومبتكرة صديقة للبيئة للاستهلاك المحلي والتصدير. كما تعكف شركة البترول الوطنية الكويتية حاليا على إنشاء أكبر مصفاة نפט في الشرق الأوسط في رأس الزور بطاقة تصل إلى ٦١٥ ألف برميل يوميا. وتُقدَّر قيمة المشروع بنحو ١١,٥ مليار دولار، مما يجعله واحدا من أكبر المشاريع الفردية في الكويت في وقتنا هذا. وقد وفر ذلك المشروع فرص عمل هائلة

قطاع الصناعات التحويلية وسعة التكرير. وتشير بعض التقديرات إلى أن الإنفاق الكلي في قطاع الطاقة الوطني، خلال السنوات الخمس التالية، سيرتفع إلى ما يناهز ١١٢ مليار دولار إن لم يكن أكثر من ذلك. وتشمل الأنشطة الرئيسية عمليات الدمج والتنوع حيث تسعى الكويت إلى استغلال مواردها الطبيعية بشكل جيد بالعمل مع شركاء ومستثمرين أجنب، وتطبيق التقنيات الحديثة.

الشركات الفرعية

تسعى مؤسسة البترول الكويتية، مع الشركات العديدة

تتولى مؤسسة البترول الكويتية أغلب مهام توسعة وتحديث قطاع النفط والغاز الوطني في قطاعي التنقيب والإنتاج، والصناعات التحويلية في أغلب الشركات التابعة لها، والتي تشمل كافة جوانب سلسلة الطاقة. فاستراتيجية ٢٠٣٠ الطموح، والتي تتبناها مؤسسة البترول الكويتية، تعزز هذا التوجه. ويشمل ذلك الإشراف على حجم الإنفاق الضخم خلال السنوات المقبلة. وعن قطاع التنقيب والإنتاج، يجري وضع خطة طموح لزيادة القدرة على إنتاج النفط بحيث يصل إلى ٤ ملايين برميل يوميا بحلول ٢٠٢٠، وفي الوقت ذاته يجري تطوير

تقرير جديد يبين التحديات الأمنية في مجال الغاز



التقلبات
المناخية
الشديدة يمكن
أن تؤثر على
تأمين إمداد
الغاز



مفكرة رجال الأعمال ٢٠١٧

نوفمبر/تشرين الثاني

13 - 16 .. معرض أبوظبي الدولي للنفط -

أديبك 2017 ..

27 - 29 .. الدورة 12 لمنتدى جيبكا

السنوي .. دبي

ديسمبر/كانون الأول

4 - 5 .. مؤتمر تكنولوجيا قطاع

البرميل .. المنامة

5 - 7 .. معرض العراق للنفط

والغاز .. البصرة

يناير/كانون الثاني 2018

15 - 18 .. القمة الدولية لطاقة المستقبل

أبوظبي ..

21 - 23 .. معرض إنترسك .. دبي

تتميز أسواق الغاز في الوقت الحالي بجودة التجهيزات. غير أن تحويل أسواق الغاز الطبيعي من الأنظمة الإقليمية إلى الأسواق العالمية والمتراطة يخلق تحديات أمنية جديدة، وذلك وفقاً لأحدث تقرير صادر عن الوكالة الدولية للطاقة، والذي يتناول تقييماً لأمن أسواق الغاز العالمية. يعرض تقرير «تقييم أمن أسواق الغاز العالمية» تحليلاً شاملاً لمشاكل ومخاطر موازنة الغاز الناجمة عن التطورات السياسية، والمرتبطة بأمن التوريد. ويتضمن ذلك الأوضاع التي تبعث على القلق لأسواق الغاز الطبيعي والكهرباء في العديد من دول جنوب أوروبا في شتاء ٢٠١٦-٢٠١٧، والأزمة الدبلوماسية بين قطر وبعض الدول المجاورة لها، فضلاً عن المخاطر التي تواجه إمدادات قطاع الطاقة الأمريكي من جراء الأعاصير الأخيرة.

يبين التقرير - بالتفصيل - أن الدول المستوردة في الأسواق مكتملة النمو وذات الترابط الجيد، قد تتعرض لصدمات غير متوقعة تفرض ضغوطاً هائلة على السوق. وعلى الرغم من انخفاض الأسعار الحالي، لا يزال الموردون عرضة للأحداث ضئيلة الاحتمال وشديدة التأثير، والتي قد تكون لها عواقب وخيمة على إمدادات الغاز العالمية. وقال دكتور فاتح بيرو، المدير التنفيذي للوكالة الدولية للطاقة: «لقد اتضح جلياً، من خلال الأحداث الأخيرة، أنه لا يمكن اعتبار سلامة إمدادات الغاز الطبيعي أمراً مُسلماً به حتى مع انخفاض الأسعار وفائض العرض في الوقت الراهن». وأضاف: «لا يسعنا تجاهل أمن الطاقة مع موجات البرد القارس التي تضرب دول جنوب أوروبا، وأعاصير خليج المكسيك، ناهيك عن الأزمات الدبلوماسية بين دول الخليج».

وقد أوضح التقرير تواصل الجهود المبذولة لتحسين توافر الإمدادات والمرونة التعاقدية، والتي من المتوقع أن تشهد المزيد من النمو في المستقبل، علاوة على تنويع شركاء السوق. ومن منظور مستقبلي، يُنتظر أن يشهد عدد عقود التصدير القديمة ذات الوجهات الثابتة، والتي تستغرق أوقاتاً طويلة، انكماشاً مع انتهاء آجال هذه العقود، على أن تحل محلها عقوداً أكثر مرونة. وتبرز زيادة الصادرات الأمريكية كعامل رئيسي لإضفاء المزيد من المرونة على العقود. ومن المتوقع أن تضطلع كبرى الشركات العالمية بدور أكبر وتوفر المزيد من المرونة التي تكتسبها من مراكز البيع المفتوحة في الوقت الحالي.

بتروفاك تفوز بعقد العراق

أعلنت شركة بتروفاك عن فوزها بعقد قيمته ٣٠ مليون دولار أمريكي، توفر بموجبه الخدمات الاستشارية لإدارة مشروع حقل حلفايا جنوب العراق. وستقدم الشركة الدعم لشركة «بتروشينا إنترناشونال العراق» بصفتها المشغل الرئيسي في حلفايا، حيث ستتولى وحدة الخدمات الهندسية والإنتاجية لمنطقة الشرق التابعة لشركة بتروفاك تنفيذ خدمات إدارة المشروع لمدة خمس سنوات.

وتتولى بتروفاك مسؤولية الإدارة والإشراف على سير العمل في العديد من المجالات الهندسية والتوريد وأعمال الإنشاء، والتي تشمل منشأة المعالجة المركزية والتوسعات في محطة توليد الكهرباء وكافة المرافق ذات الصلة. وسوف تشمل الأنشطة بالنسبة لكل مجال عمل إدارة أعمال التصميم والتوريد والإنشاء والتكليف بشكل تفصيلي. وقال مايفانان راجاباڠي، العضو المنتدب لوحدة الخدمات الهندسية والإنتاجية لمنطقة الشرق بشركة بتروفاك: «يؤكد فوزنا بهذا العقد المهم على قدراتنا المتطورة في السوق الأساسية. ومن خلال توفير الخدمات الهندسية والإنتاجية، نبرهن على قدراتنا وإمكاناتنا المتميزة للإشراف على برامج العمل الضخمة. ويضاف ذلك إلى سجل أعمالنا الكبير الحافل بالإنجازات ومنها تنفيذ المشاريع للمعملاء داخل دولهم، وذلك عبر تقديم الأنشطة الهندسية والتشغيلية والصيانة والتدريب. إن من دواعي سرورنا حصولنا على الفرصة لدعم «بتروشينا» والشركاء في مشروع «حلفايا» لتنفيذ مشروع البنية التحتية الرئيسي هذا. ونهدف في المقام الأول لدعم الإنتاج المستمر عبر إنهاء كل مرحلة بنجاح، ومن ثم تحقيق هدف الإنتاج الكلي بتوفير نحو ٤٠٠ ألف برميل يوميا».



بتروفاك لها سجل أعمال طويل في العراق

نفط الكويت تحقق إنجازاً في تقنية الحفر

العمليات التشغيلية. وقد أسهم استخدام هذه التقنية المبتكرة في خفض اهتزازات الحفر بنسبة تزيد على ٣٣ في المائة مقارنةً بالحلول المستخدمة من قبل، وذلك بالتزامن مع زيادة معدل الاختراق بنسبة ٤٢ في المائة مقارنةً بالمعدلات المسجلة في الحقل ذاته. وبالإضافة إلى ذلك، تمكنت شركة نفط الكويت من توفير ١٩ ساعة في منطقة إنتاج واحدة لتتمكن من تسليمها قبل يوم من الموعد المحدد دون أي هدر في الوقت.

وبهذه المناسبة، قال وليد الصفار، قائد فريق الحفر IV في شركة نفط الكويت: «نسعى دوماً للبحث عن تقنيات مبتكرة يمكننا من تحقيق أداء أفضل ومستويات أعلى من الكفاءة التشغيلية في عمليات الحفر. وانطلاقاً من مكانتها كأحد أبرز شركائنا على المدى الطويل، فإن بيكر هيوز التابعة لجنرال إلكتريك تدرك متطلباتنا جيداً. وقد استخدمنا معاً أول مثقاب حفر ذكي في المنطقة في عمليات حقل الشمال ذات الطبيعة الصعبة، وكانت النتائج استثنائية مع إنجاز أداء غير مسبوق على كافة الأصعدة. وسوف يساعدنا ذلك على الإسراع في عمليات الحقل، وبدء الإنتاج قبل الموعد الزمني المحدد».

حققت شركة نفط الكويت أعلى أداء اختراق على الإطلاق في حقل شمال الكويت باستخدام مثقاب الحفر التكييفي™ TerrAdapt مع النظام الدوار القابل للتوجيه™ AutoTrak eXpress والذي طورته بيكر هيوز التابعة لجنرال إلكتريك، ويجري تطبيقه لأول مرة في المنطقة. ويعتبر حقل الشمال من المناطق الصعبة بفعل مستويات الاهتزاز المرتفعة التي تؤثر على أعمال الحفر، والتي قد تتسبب في تعطيل الآليات ومن ثم توقف



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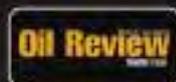


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الخاصة، وقادرون على الاستثمار بعيد المدى لتحقيق عائدات مجزية ومستدامة».

ولفت دكتور سلطان أحمد الجابر إلى أن أدنوك تدرس طرح حصص أقلية في بعض وحدات الخدمة التابعة لها، مؤكداً على استمرار أدنوك في دورها كمؤسسة مملوكة بالكامل لحكومة أبوظبي. وأوضح أن أدنوك تقوم بمراجعة هيكل رأس المال لتسريع تنفيذ إستراتيجية ٢٠٣٠ للنمو الذي.

وأردف: «نركز على تحسين الموازنة العمومية للشركة لتأمين رأس مال إضافي لاستثماره في الفرص الجديدة وتحسين العوائد في إطار الإدارة الفعالة لمحفظة الأصول. ومن ثم تدرس أدنوك خيارات متنوعة لتعزيز إستراتيجية التمويل المستقبلية. وإننا نؤمن بأن هذا التوجه الجديد نحو الشراكة وهيكل رأس المال من شأنه الارتقاء بالأداء و ضمان استمرار نمونا ونجاحنا في عصر الطاقة الجديد. نستشرف المستقبل عبر مد جسور التواصل والتعاون مع الدول الأخرى، وإبرام الشراكات التجارية التي تتجاوز حدودنا».

هذا، وقد أعرب دكتور الجابر عن ثقته في أن الموارد الهيدروكربونية ستظل المحرك الرئيسي لدفع عجلة النمو خلال العقود القادمة. وذكر أن النفط والغاز سيسهمان في تلبية ما يزيد على نصف احتياجات العالم من الطاقة بحلول ٢٠٤٠، بينما من المتوقع أن يشهد قطاع البتروكيماويات نمواً بنسبة ١٥٠ في المائة بحلول ٢٠٤٠.

وقد جاءت هذه الكلمة في أعقاب الإعلان عن العلامة التجارية الجديدة والموحدة التي أطلقتها أدنوك لمجموعة شركاتها لتحمل هوية واحدة. ويساعد ذلك في خلق ثقافة مؤسسية متكاملة أكثر ديناميكية وتقدماً بنموذج إدارة موحد، إلى جانب المحافظة على الاستقلال التشغيلي لكل شركة، بحسب أدنوك. وكان طرح هذه العلامة الجديدة الخطوة الأخيرة في إستراتيجية ٢٠٣٠ للنمو الذي تهدف إلى مضاعفة القيمة وزيادة الأرباح عبر تحقيق عوائد أكبر لعمليات التنقيب والإنتاج وإتاحة المزيد من أعمال الصناعات التحويلية المتنوعة ذات القيمة المرتفعة، وتوفير الغاز بأساليب أكثر استدامة وتوفيراً للتكاليف.



معالي الدكتور سلطان أحمد الجابر أثناء إلقاء كلمته في مؤتمر النفط والمال بلندن

رئيس أدنوك يؤكد على أهمية الشراكات

نطاق الشراكات قائلاً: «في ضوء التوجهات الجديدة لقطاع الطاقة، أعادت الشركة تحديد أهداف نهجها للشراكات بصفته العامل الرئيسي لتعزيز كفاءة رأس المال وتحسين سلسلة القيمة بالكامل وزيادة حصتنا في الأسواق».

وأضاف: «بينما غمضي في جهودنا الرامية لزيادة النمو، نتطلع إلى التعامل مع شركاء قادرين على اتخاذ القرارات الصائبة، وإتاحة الفرص في الاقتصادات التي تشهد نمواً متسارعاً، ويشاركوننا النظرة حول استشراف المستقبل، وتوظيف التكنولوجيا المتطورة لتطوير عمليات التنقيب والإنتاج والتكرير والمعالجة والصناعات التحويلية. كما نسعى لتعزيز علاقاتنا بشركاء يحظون بالخبرة في الشؤون المالية، لا سيما المؤسسات الاستثمارية وشركات الاستثمار في الملكية

قال الدكتور سلطان أحمد الجابر، وزير الدولة ورئيس التنفيذي لشركة بترو أبوظبي الوطنية «أدنوك»، إن الشراكات الإستراتيجية المثمرة تمثل ركيزة لمرونة قطاع النفط والغاز وقدرته على التكيف مع المتغيرات ومواصلة تحقيق النجاح، وذلك خلال كلمته التي ألقاها في الدورة السنوية الثامنة والثلاثين لمؤتمر النفط والمال التي انعقدت في لندن في ١٧ أكتوبر/تشرين الأول.

وفي كلمته الرئيسية التي ألقاها، أشار الجابر إلى أن «تضافر الجهود على نحو أكثر ذكاءً» يتيح لقطاع النفط والغاز العالمي «مواجهة أية تحديات مستقبلية، وتعزيز المرونة إلى جانب خلق قيمة إضافية». وقد أعطى نموذجاً عن التعاون وتضافر الجهود من خلال منهج «أدنوك» الجديد لتوسيع



النشرة النفطية

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