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VOLUME 23 | ISSUE 7 2020

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- Running an oil company from home
- Standardisation of crew transfer methods
- The shift to industrial autonomy
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ADNOC adapts to the fast-changing energy landscape

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- The shift to industrial autonomy
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Editor's note

AMID THE COVID-19 gloom, it is encouraging to see reports of ongoing project activity in the industry. The Abu Dhabi National Oil Company (ADNOC) is pushing ahead with expansion plans, recently announcing the award of contracts worth US$324mn to optimise onshore field operations. It follows the earlier award of US$245mn worth of EPC contracts to upgrade main oil lines and crude receiving facilities. The NOC is pursuing a number of new initiatives to keep pace with with the fast-changing energy landscape, in line with its smart growth strategy. See our review on p16.

The pandemic has ushered in new ways of working and accelerated the drive towards remote and autonomous operations. Our articles on p24 and p30 offer some useful information and advice.

How the energy sector is responding and adapting to the pandemic against a backdrop of increasing pressure to become more sustainable, will be the focus of ADIPEC Virtual 2020, taking place in November. See our preview on p34.

Contents

Front cover image courtesy of ADNOC

➔Executives' Calendar, 2020-2021

NOVEMBER			
2-3	**MENA Energy Meet**	VIRTUAL	www.menaenergymeet.com
9-12	**ADIPEC**	VIRTUAL	www.adipec.com
16-17	**Middle East Petroleum & Gas Conference**	VIRTUAL	www.mpgc.cc
17-18	**Kurdistan Iraq Economic Forum**	VIRTUAL	www.kurdistan-economic.com
17-19	**Int'l Rock Imaging Summit**	VIRTUAL	www.rockimaging.org
DECEMBER			
8-10	**BBTC MENA**	VIRTUAL	www.europetro.com/event/355
FEBRUARY 2021			
15-17	**ME-TECH 2021**	UAE	www.europetro.com/event/357
MAY 2021			
3-6	**OTC**	HOUSTON	2021.otcnet.org
SEPTEMBER 2021			
13-15	**Oman Petroleum & Energy Show**	MUSCAT	www.omanpetroleumandenergyshow.com

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

International Rock Imaging Summit - obtaining a better appreciation of asset value with digital rock imaging

THE CHALLENGES OF hydrocarbon and mineral exploration are many. Among them is the characterisation of the rock formation being explored, by drilling or mining. Sample analysis has long relied on complex and often lengthy physical and chemical experiments, and on tedious optical microscopy, to deliver useful properties. In recent years, this has been supplemented by many powerful new forms of digital rock imaging, from 1D automated high-resolution downcore logs of physical properties at centimetre scales to 3D X-ray micro- and nano-CT imaging at micrometre and nanometre scales. At the same time, with advances in image processing, pattern recognition, machine learning and artificial intelligence, the computational power to handle these large images and extract insights from them has put rock imaging technology within reach of geoscientists and engineers tasked with evaluating the potential value of natural resource assets.

Taking place virtually from 17-19 November, iRIS-2020, the International Rock Imaging Summit (www.rockimaging.org) will, for the first time, bring together a cross-section of rock imaging practitioners and researchers from across the world to provide delegates with first-hand accounts of how they have leveraged modern digital imaging technologies to derive formation properties more quickly and more reliably than was possible before. Speakers from leading global academic institutions, geoscience company specialists and imaging equipment manufacturers will deliver more than 35 presentations over two days covering areas such as "Digital Rock Workflows", "Image-Based Rock Typing", "Imaging Dynamic, In-Situ Processes" and "Applications of Machine Learning to Rock Imaging".

The first day of the event is dedicated to a workshop being run by Thermo Fisher Scientific, the gold sponsor of iRIS-2020. The PerGeos software workshop will be an interactive session with Thermo Fisher Scientific's Digital Rock experts who will explain multiple unique features and show how to integrate these to extract essential properties from multiple sources of digital rock image data.

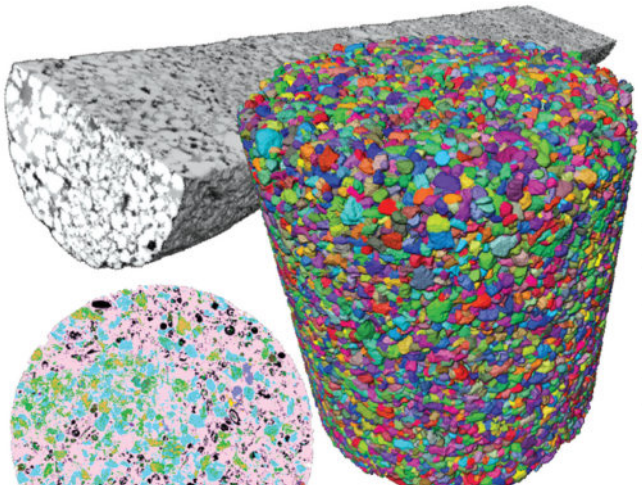

Image Credit: Thermo Fisher Scientific

The event will bring together rock imaging practitioners and researchers.

Sponsored by Thermo Fisher Scientific, Core Laboratories, Tescan, Geotek, Zeiss, Enersoft, Imago and Core Specialist Services, iRIS-2020 will be conducted virtually, providing a highly cost-effective opportunity to participate and learn from the experts which approach you might employ in your business situation. The programme runs for twelve hours each day, followed by reruns of the early sessions to accommodate visitors from North America. In addition, the recorded sessions will be available after the event for a limited time.

Sharpen your vision of rock imaging at iRIS-2020, from 17-19 November 2020.

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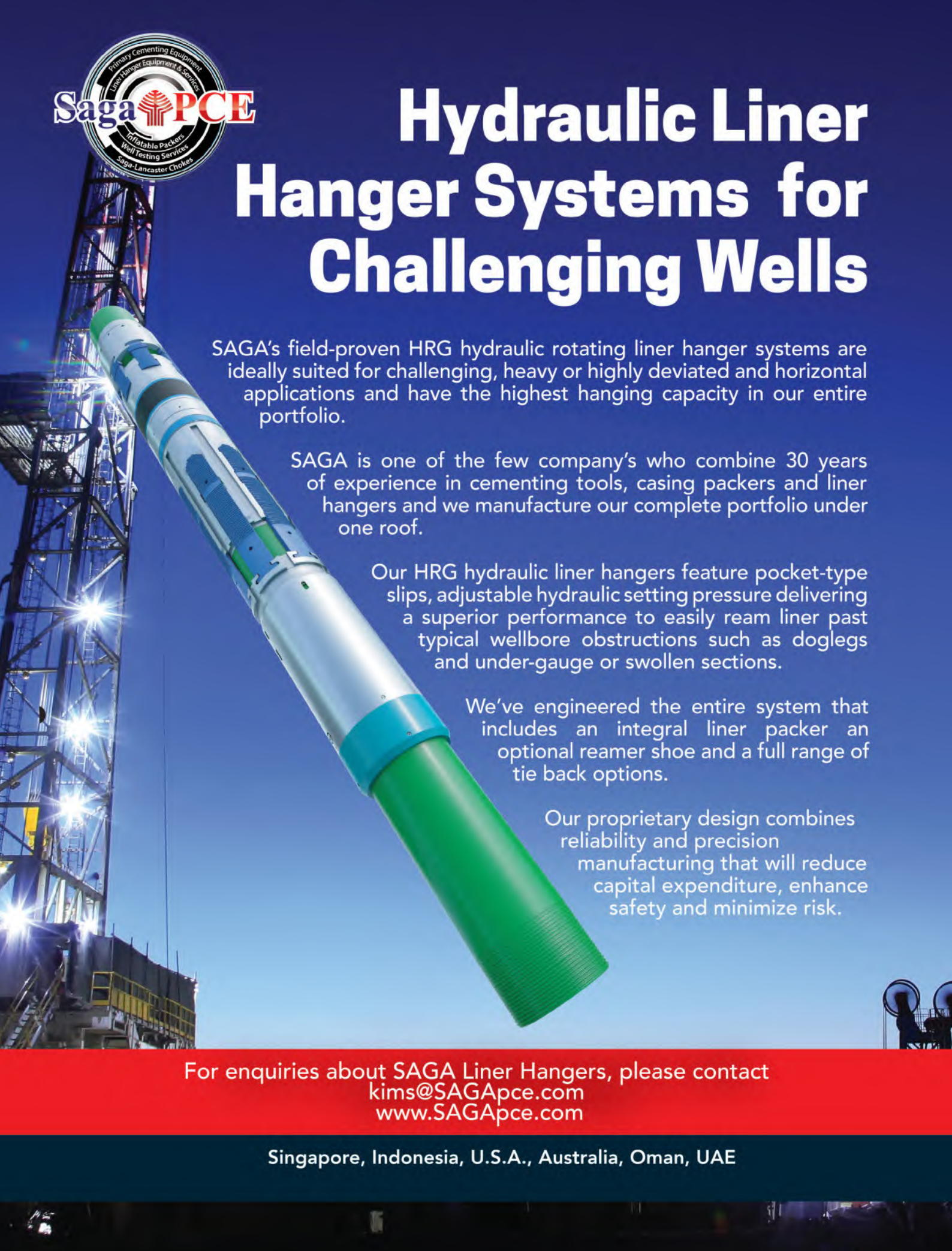

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Halliburton unveils first intelligent fracturing system

HALLIBURTON HAS INTRODUCED SmartFleet, the first intelligent automated fracturing system. SmartFleet, unlike any current fracturing fleet, gives operators real-time fracture control while pumping by integrating subsurface fracture measurements, live 3D visualisation and real-time fracture commands.

Image credit: Adobe Stock

The SmartFleet system connects to the reservoir through subsurface sensing.

The SmartFleet system connects to the reservoir through subsurface sensing to continuously measure cluster uniformity and fracture geometry. The system applies the measurements to make intelligent adjustments that improve fracture placement. Additionally, SmartFleet provides users a direct line of sight to live, 3D fracture geometry, projected fracture growth, and cross-well interactions. With SmartFleet, operators can control fracture outcomes in ways not previously possible, through real-time fracture decision making and commands. This includes automated actions while pumping to improve near-wellbore and far-field fracture placement, as well as directly manage frac hits.

"The SmartFleet system is the first of its kind, giving operators the ability to see and control how they land their fracs," said Michael Segura, vice-president of production enhancement. "SmartFleet represents a step-change towards intelligent fracturing that gives operators the ability to optimise fracture outcomes while pumping, allowing them to drive capital efficiency and asset performance."

KCA Deutag secures contracts in Oman

GLOBAL DRILLING, ENGINEERING and technology provider, KCA Deutag (KCAD) has been awarded contracts worth more than US$150mn in Oman, from the country's leading exploration and production companies.

The first award covers the provision of expert manpower for customer-owned rigs, hoists and workshops. In total, KCAD will provide approximately 420 people in delivering this contract. This is a five-year extension to a contract originally awarded in 2015. One-year contract extensions have also been awarded for eight KCAD rigs working in Oman.

Alongside these contract awards, KCAD's T-82 rig has spudded the Group's first well in Kuwait, representing a successful entry for the company into this attractive market. The rig is equipped with key components from Bentec, KCA Deutag's leading global manufacturer of drilling rigs, oilfield and energy equipment.

Commenting on the awards, Simon Drew, president of Land, said, "These awards demonstrate that despite challenging markets, KCA Deutag's operational strengths and capability at and beyond the rig site, continue to be recognised by our customers."

Cyberhawk wins drone inspection contract

CYBERHAWK, A GLOBAL leader in drone-based inspection, has secured a five-year contract with a major LNG producer for the provision of drone inspection, surveying and data visualisation services. The contract will see Cyberhawk collect engineering-grade inspection data from oil and gas assets in the Middle East, onshore and offshore, which will be delivered as detailed inspection reports via Cyberhawk's drone data visualisation software, iHawk, which allows asset teams to view up-to-date, visual data securely in the cloud.

Image credit: Cyberhawk

Cyberhawk will provide drone inspection services for a major LNG producer.

The contract with the state-owned oil and gas company was secured by Manweir LLC, Cyberhawk's local partner, which is working closely with the technology firm to build a strong regional presence and establish in-country value for local operators. The agreement allows any local energy operator to enlist Cyberhawk's technology solutions through this contract.

Chris Fleming, CEO at Cyberhawk, said, "This agreement is testament to the high standard of work that Cyberhawk has been delivering in the Middle East region for the past 10 years. By working closely with the client and local authorities, we were able to obtain the Minister of Interior permit to fly in-country.

"This is an extremely exciting partnership, where knowledge will be shared to benefit the local economy and businesses and allow oil and gas producers to thrive in the new digital era."

ADNOC to maximise smart growth through partnerships

DR SULTAN AHMED Al Jaber, UAE Minister of industry and advanced technology and Group CEO of the Abu Dhabi National Oil Company (ADNOC), shared insights on energy market dynamics, the energy transition and ADNOC's future strategy during a virtual session of the Energy Intelligence Forum.

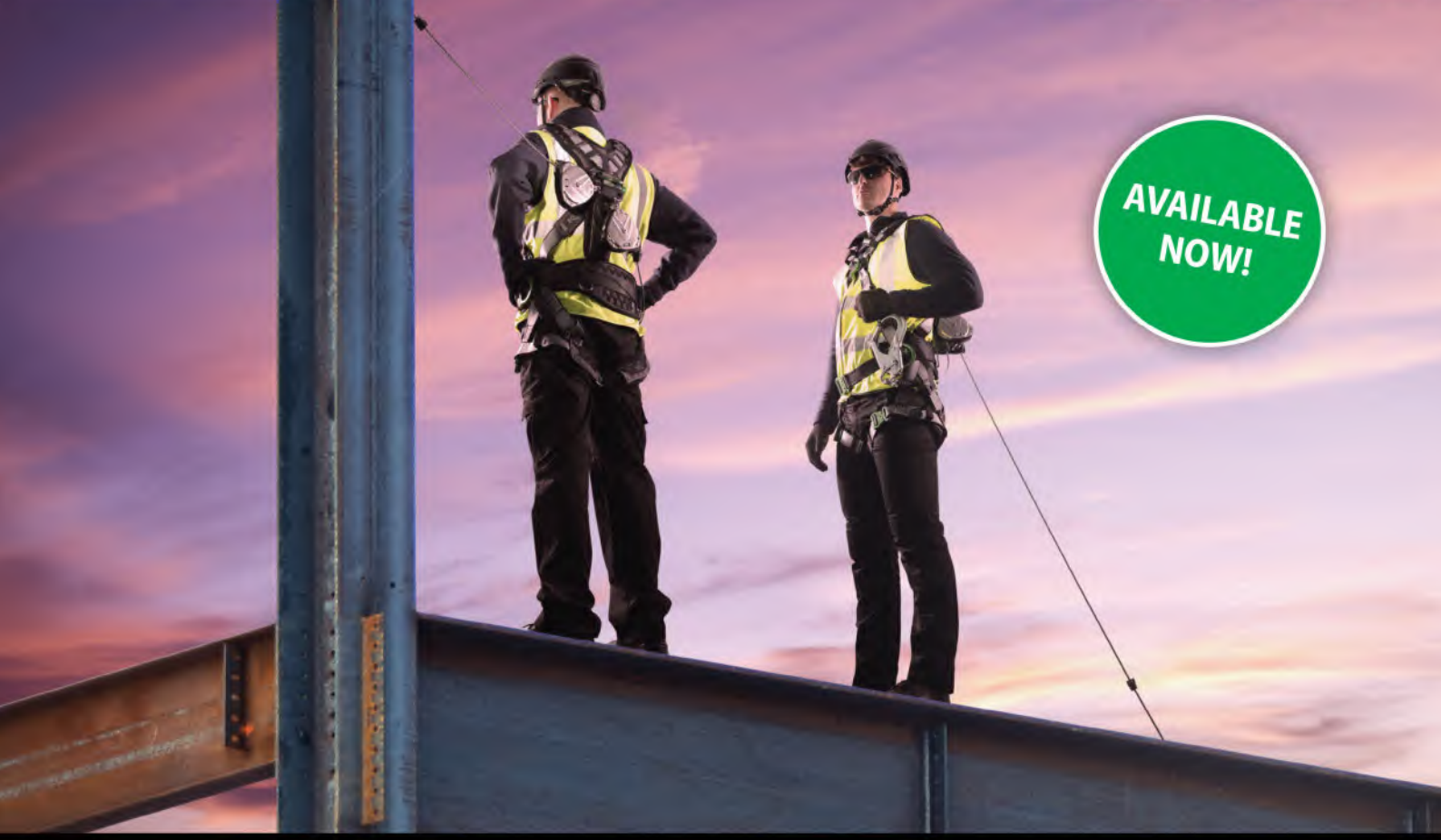
Speaking with Alex Schindelar, president of Energy Intelligence, during a leadership dialogue, Dr Al Jaber said, "When it comes to managing the economic impact of Covid, it really comes down to the fact that we are realising the benefits of the transformation we started four years ago. Over this period we have focused on improving our performance and strengthening our agility while always reinforcing efficiency throughout our business. Most importantly we have focused on what we can control, and that is our costs.

"Going forward, we will continue to focus on developing our upstream resources and expanding our downstream footprint here in the UAE, while maximising value through creative partnerships. In addition, we are further strengthening our marketing and trading capabilities. Last month we completed our first derivatives trade, marking the beginning of a new era for ADNOC as an active trader."

Commenting on how ADNOC and Abu Dhabi have continued to attract investment in 2020 following ADNOC's multi-billion dollar deals, Dr Al Jaber added that the deals were as a result of the fact that the UAE has created a safe, reliable, and stable business environment, underpinned by a unique partnership model. He noted this business environment is very attractive to the global investment community who view the UAE as a highly trusted, go-to investment destination.

Responding to a question on ADNOC's strategy behind monetising assets, Dr Al Jaber noted that ADNOC's strategy is very much focused on unlocking value and driving growth through smart, creative partnerships. He stressed ADNOC "will continue to leave no stone unturned to maximise value from across our portfolio."

Additionally, he emphasised that while no one is in a position to predict what the shape of economic recovery will look like over the next few months given that there are multiple variables at play, the long-term structural market for oil and gas is very robust, with demand expected to increase to 109mn bpd over the next 25 years, in line with global economic growth.



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DNV GL and Aker BP remotely inspect offshore cranes

IN A PILOT project, DNV GL and Aker BP have remotely performed inspections on three of their offshore cranes on the Norwegian continental shelf.

DNV GL has performed remote safety inspections of one box boom pedestal crane on the Valhall Flank West and two knuckle boom cranes on the Skarv field, both as part of annual surveys.

On the installations, crane operators and specialised crane technicians on board the platforms used tablets to take close-up video and pictures based on an agreed checklist of selected safety functions, which were shared with DNV GL's onshore inspectors. On the Valhall Flank West platform, which is normally unmanned, the one-year old crane, manufactured by NOV, featured auto-testing of the automatic overload protection system (AOPS).

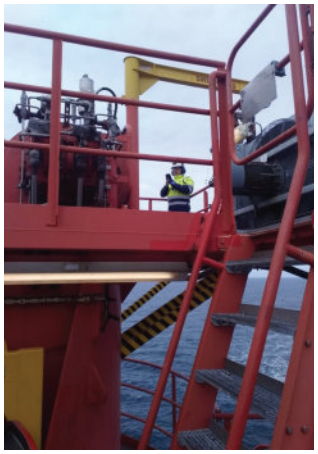

Image credit: DNV GL

Aker BP - Skarv crane.

A similar inspection programme is being performed on two knuckle boom cranes on the FPSO located in the Skarv field. As Aker BP's northernmost producing field, it boasts one of the worlds' largest offshore gas processing plants.

Planned gas investments in MENA rise by 29%

DESPITE THE GLOBAL demand shock, MENA committed gas investments are holding steady while planned gas investments reach US$126bn, a 29% increase compared to last year, according to APICORPS's *MENA Gas & Petrochemicals Investments Outlook 2020-2024*.

The report features major developments in the regional gas and petrochemicals landscape and the dynamics shaping it over the short and medium terms.

The year 2020 is witnessing one of the biggest gas demand shocks on record, with a year-on-year reduction of 4% globally. This stands in stark contrast to 2019, which was a record year for LNG Final Investment Decisions (FIDs). The 2020 global crisis is expected to reduce the annual growth rate for global gas demand during 2020-24 to 1.5% compared to the pre-COVID-19 estimate of 1.8%.

The increase in planned investments is mainly due to the strong ongoing regional gas drive for cleaner power generation and improved monetisation as a feedstock for the industrial and petrochemicals sectors. Notably, the petrochemicals sector witnessed a year-on-year increase of US$4bn in planned projects compared to last year's outlook, while committed projects decreased by US$13bn due to the completion of several projects in 2019.

Penspen wins EPC contract from Target Engineering Construction Company

PENSPEN HAS BEEN awarded a detailed engineering contract for crude receiving facilities at Jebel Dhana from Target Engineering Construction Company, an engineering, procurement and construction (EPC) contractor in Abu Dhabi, UAE.

Image credit: John R Perry/Pixabay

Penspen will develop facilities for unloading the Upper Zakum (UZ) field and Non-System (NS) crudes at Jebel Dhana from tankers.

Under the terms of the contract, Penspen will be responsible for the development of facilities for unloading the Upper Zakum (UZ) field and Non-System (NS) crudes at Jebel Dhana from tankers. The work will be carried out using the existing single point mooring (SPM-2), subsea pipeline, onshore pipeline and gravity pipeline to the three large tanks already in place. Both UZ and NS crudes will be blended and the crude will be transferred to Ruwais Refinery West to feed the crude oil distillation unit (CDU) with 420,000 bpd.

Target Engineering Construction Company offers in-house services for major construction disciplines in onshore and offshore areas, with more than 40 years' experience in the oil and gas sector. This contract is the second that the company has awarded to Penspen this year.

Reshaping the future of energy

THE ERA OF global oil demand growth will come to an end in the next decade, but a rapid decline is unlikely without a large shift in government policies, according to the newly-launched *World Energy Outlook 2020*, the International Energy Agency's flagship publication.

The COVID-19 crisis has caused more disruption to the global energy system than any other event in recent history. But whether this upheaval ultimately helps or hinders efforts to accelerate clean energy transitions will depend on how governments respond to today's challenges, the IEA argues. A surge in well-designed energy policies is needed to put the world on track for a resilient energy system that can meet climate goals.

Image credit: Jonathan Cutler/Flickr

Renewables feature strongly in all the IEA's scenarios.

The new report provides the latest IEA analysis of the pandemic's impact: global energy demand is set to drop by 5% in 2020, energy-related CO2 emissions by 7%, and energy investment by 18%. The WEO compares different scenarios that show how the energy sector could develop over the next 10 years.

In the Stated Policies Scenario, which reflects today's announced policy intentions and targets, global energy demand rebounds to its pre-crisis level in early 2023. However, this does not happen until 2025 in the event of a prolonged pandemic and deeper slump. Slower demand growth lowers the outlook for oil and gas prices compared with pre-crisis trends. But large falls in investment increase the risk of future market volatility.

Renewables feature strongly in all the IEA's scenarios, with solar centre stage. Supportive policies and maturing technologies are enabling very cheap access to capital in leading markets. Solar PV is now consistently cheaper than new coal- or gas-fired power plants in most countries, and solar projects now offer some of the lowest cost electricity ever seen. In the Stated Policies Scenario, renewables meet 80% of global electricity demand growth over the next decade.

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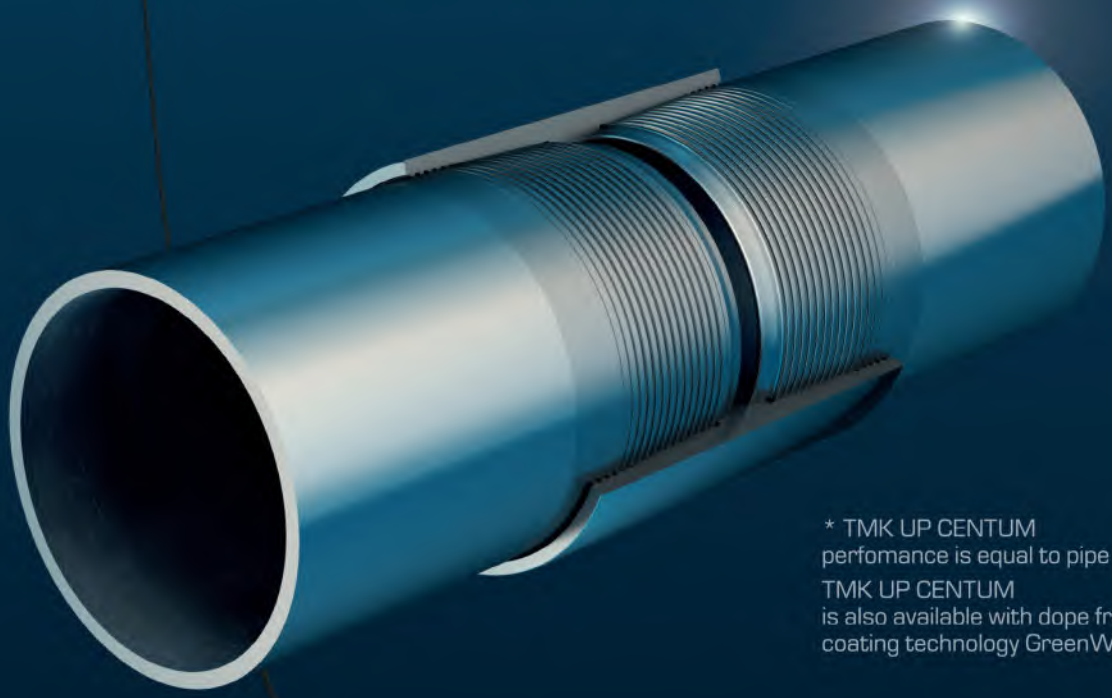

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Alfa Laval secures natural gas order in Algeria

ALFA LAVAL, A specialist in heat transfer, centrifugal separation and fluid handling, has won an order to supply Alfa Laval OLMI heat exchangers to a gas compression plant in Algeria.

The order has a value of approximately US$8.4mn and was booked late September in the Welded Heat Exchangers unit of the Energy Division. The company noted that the delivery is scheduled for 2021. The order comprises of Alfa Laval OLMI heat exchangers which will be used for natural gas cooling applications in different gas compression stations.

The delivery of the heat exchangers is scheduled for 2021.

Image credit: : Kaleb W/Flickr

"I am very pleased to announce this order for our OLMI heat exchangers, booked late in September," said Susanne Pahlén Åklundh, president of the energy division. "These heat exchangers which handle high pressure and temperatures are both reliable and efficient."

Alfa Laval is active in the energy, marine, and food and water sectors. Its main technology areas include heat transfer, separation and fluid handling.

Honeywell, Wolters Kluwer team up to help employees safely return to the workplace

HONEYWELL AND WOLTERS Kluwer have announced a collaboration to integrate Honeywell's Industrial Internet of Things (IIoT) connected devices and safety software with the risk and environmental, health and safety (EHS) software from Enablon, a Wolters Kluwer business.

The collaboration is designed to enable enterprises in asset-intensive industries to improve their risk, safety and operational excellence programmes.

The collaboration enables customers to monitor their EHS performance, receive early warnings about issues from their Honeywell equipment and take proactive steps to help prevent incidents and improve safety compliance.

"With companies concerned about making a safe return to their facilities, we are offering a solution that aims to provide peace of mind to management in terms of both safety and compliance to keep up with ever-changing health and environmental regulations," said John Rudolph, president, Honeywell Process Solutions. "Our new reality requires innovative solutions that both enable business continuity and help protect the health of their employees."

Shell, Microsoft partner to help address carbon emissions

SHELL INTERNATIONAL PETROLEUM Company Limited and Microsoft Corporation are embarking on a new strategic alliance to support progress towards a world with net-zero emissions.

Huibert Vigeveno, downstream director of Shell, said, "Microsoft and Shell both have rich histories of innovation and bold ambitions to decarbonise. We are proud of the work we have already done together. Our strategic alliance will enable us to push the boundaries of what can be achieved."

Image credit: Marc Rentschler/Unsplash

This alliance supports Shell's ambition to be a net-zero emissions energy business.

This alliance will support Shell's ambition to be a net-zero emissions energy business by 2050, or sooner, in step with society and its customers. Shell's supply of renewable energy will help Microsoft deliver on its renewable energy supply goals and its broader ambition to be carbon negative by 2050.

Judson Althoff, executive vice-president of Microsoft's worldwide commercial business, said, "Cross-industry collaborations like this are fundamental to help society reach net-zero emissions by 2050, and digital transformation is vital to tackling this important issue, within the energy sector and beyond."

The two companies will continue working together on artificial intelligence (AI), which has already driven transformation across Shell's operations through access to real-time data insights, contributing to worker and onsite safety, and delivering efficiencies that have helped reduce Shell's carbon emissions.

Dana Gas sells off Egypt assets

DANA GAS, A leading Middle East private sector natural gas company, has signed an agreement with IPR Wastani Petroleum Ltd, for the sale of its onshore Egyptian producing oil and gas assets for up to US$236mn including contingent payments. IPR is a leading private E&P operator in Egypt, with nine active concessions.

The asset sale follows a strategic review of the company's Egyptian business, and is in line with Dana Gas' strategic goals of strengthening its balance sheet and focusing on the development of its assets in the Kurdistan Region of Iraq (KRI).

Image credit: : dirtsailor2003/Flickr

Dana Gas is retaining its interests in its onshore and offshore exploration concessions.

The perimeter of the transaction includes Dana Gas' 100% working interests in the El Manzala, West El Manzala, West El Qantara and North El Salhiya onshore concessions and associated development leases. In the first half of 2020, these concessions produced 30,950 barrels of oil equivalent per day, and contributed US$38mn to the company's EBITDA. Dana Gas, through its wholly-owned subsidiary Dana Gas Egypt, will retain its interests in its onshore and offshore exploration concessions, respectively El Matariya (Block 3) and North El Arish (Block 6). The transaction is expected to complete early 2021.

Dr Patrick Allman-Ward, CEO, Dana Gas, commented, "Our aim is always to maximise returns to shareholders and optimise our portfolio. The sale of our Egyptian assets forms a key part of this strategy. Completion of the sale process will allow us to strengthen our balance sheet and focus our attention on the development of our world class assets in the KRI, of which our current share of reserves are more than 1bn barrels of oil equivalent.

"The quality of our remaining assets in Egypt is excellent, and we retain an interest in two exploration concessions. Our offshore exploration block in particular is highly prospective."

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bp begins production at Ghazeer gas field

BP, IN PARTNERSHIP with OQ, PETRONAS and the Ministry of Energy & Minerals in Oman, has announced that production has begun from its Block 61 Phase 2 Ghazeer gas field, 33 months after the development was approved.

Ghazeer was initially expected to come into production in 2021. The first phase of development of Block 61 – Khazzan – was brought online in September 2017.

Image credit: bp

The start-up of Ghazeer was achieved safely and ahead of schedule.

His Excellency Dr Mohammed Al Rumhy, Minister of Energy & Minerals of the Sultanate of Oman, stated, "I am delighted to see bp bringing the Ghazeer gas field online – it's an important project for Oman, and we are extremely proud of it. The gas from Ghazeer will contribute towards Oman's 2040 vision in terms of providing additional energy to local industries as well as diversifying the economy."

Bernard Looney, bp chief executive, said, "This project has been delivered with capital discipline four months early, wells are being drilled in record times and, importantly, safety performance has been excellent. It exemplifies what a strong and resilient hydrocarbons business looks like – a core part of our strategy."

Global oil and gas project sanctioning to recover from 2022, says Rystad Energy

RYSTAD ENERGY HAS estimated total sanctioning to bounce back to around US$100bn in 2021, primarily supported by offshore projects, whose value is forecasted at US$64bn for the year.

Although lagging onshore projects are projected to only account for US$36bn in 2021, they will see a steep rise in 2022 to around US$100bn, topping the expected US$95bn worth of offshore commitments that year.

"In this update, we have revised up our 2020 offshore sanctioning total from US$26bn to US$34bn. This was driven by the Mero-3 sanctioning in Brazil, which is estimated to cost US$2.5bn to first oil. MISC has a letter of intent in place with Petrobras for the charter of the FPSO. The contractor will sub-contract the vessel construction work to Chinese yards, with China Merchants Heavy Industry (CMHI) leading the race to build both the hull and topsides. Siemens will deliver the power generation modules, while Aker Solutions is performing front-end engineering and design (FEED) and engineering work on the FPSO topsides," stated Rystad Energy.

Caterpillar to acquire Weir Oil & Gas

CATERPILLAR HAS SIGNED an agreement to acquire the oil and gas division (Weir Oil & Gas) of the Weir Group PLC, a Scotland-based global engineering business. Weir Oil & Gas produces a full line of pumps, flow iron, consumable parts, wellhead and pressure control products that are serviced via an extensive global network of service centres located near customer operations.

Image credit: Weir Oil & Gas

The transaction includes more than 40 Weir Oil & Gas manufacturing and services locations.

"Combining Weir Oil & Gas's established pressure pumping and pressure control portfolio with Cat's engines and transmissions enables us to create additional value for customers," said Joe Creed, vice-president of Caterpillar's Oil & Gas and Marine Division. "This acquisition will expand our offerings to one of the broadest product lines in the well service industry."

The purchase price of US$405mn is to be paid in cash at closing. The acquisition requires approval by Weir shareholders and is subject to review by various regulatory authorities as well as customary closing conditions. The transaction includes more than 40 Weir Oil & Gas manufacturing and services locations and approximately 2,000 employees.

Jon Stanton, Weir Group CEO, said, "We are pleased to have reached this agreement that delivers a great home for the Oil & Gas division. This acquisition will enable Weir Oil & Gas to continue to flourish, ensuring the business remains at the forefront of innovation and customer service in the future."

Developing net-zero upstream facilities

MCDERMOTT INTERNATIONAL, SCHNEIDER Electric and io consulting have announced a collaboration to advance research and design of carbon-neutral facilities for the upstream oil and natural gas market.

The three companies will combine their capabilities and resources to explore and develop a proof of concept based on an offshore platform reference case.

The result of the collaboration will be published in a joint study on Net Zero Upstream Facilities before the end of the year.

The study defines a hierarchy of emissions-reduction technologies, ranked by maturity, investment and impact to enable operators to make informed decisions when prioritising areas for emissions reduction.

Image credit: Jerry and Pat Donaho/Flickr

The programme directly supports a significant carbon footprint reduction.

Samik Mukherjee, McDermott's group senior vice-president, projects, said, "By combining our strengths, we will deliver solutions that enable our customers to accelerate the industry-shared goal of reducing carbon impact throughout the production chain."

The programme directly supports a significant carbon footprint reduction within the production and transformation of oil and gas, which, according to the International Energy Agency, is about 15% of the entire oil and gas carbon footprint.

The companies expect the collaboration to demonstrate what is achievable with current technology, what new technologies are required and identify break-even carbon pricing to make the net-zero facilities viable now and in the future.

The team will adapt this proof of concept to any geographical region and project, considering local infrastructure and environmental policies regarding carbon pricing.

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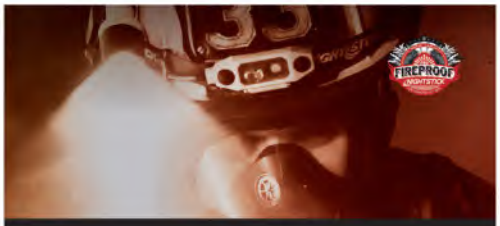

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Oil production costs reach new lows

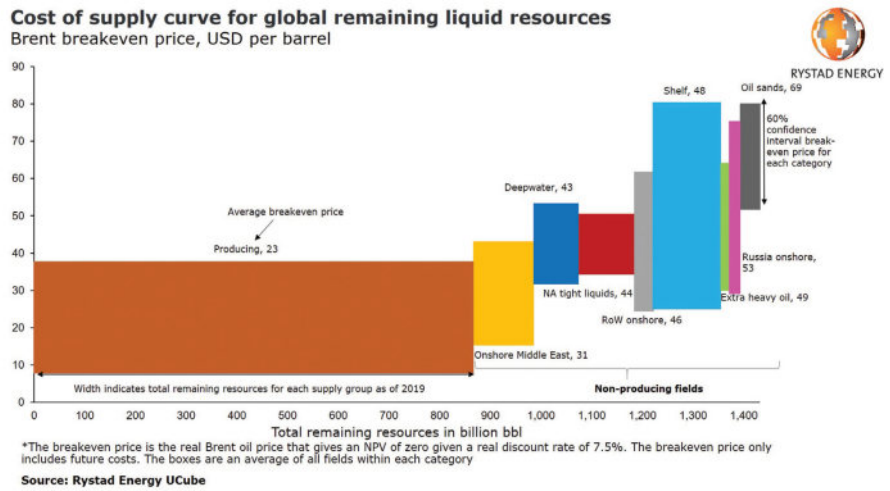


Image source: Rystad Energy

A RYSTAD ENERGY analysis of oil production costs has revealed that the average breakeven price for all unsanctioned projects has dropped to around US$50 per barrel, down around 10% over the last two years, and 35% since 2014. This means that oil is much cheaper to produce now compared to six years ago, with the cost savings winner being new offshore deepwater developments. Rystad projects that an oil price of only US$50 per barrel is needed to keep oil production at 100mn bpd in 2025.

"The implication of falling breakeven prices is that the upstream industry, over the last two years, has become more competitive than ever and is able to supply more volumes at a lower price. However, the average breakeven prices for most of the sources remain higher than the current oil price. This is a clear indication that for upstream investments to rebound, oil prices must recover from their current values," says Espen Erlingsen, head of Upstream Research at Rystad Energy.

Onshore Middle East is the least expensive source of new production, with an average breakeven price of around US$30 per barrel. This is also the segment with one of the largest resource potential estimates. Offshore deepwater is the second cheapest source of new production, with an average breakeven price of US$43 per barrel, while onshore supply in Russia remains one of the more expensive resources due to the high gross taxes in the country. Shelf remains the segment with the largest resource potential, with 131 billion barrels of unsanctioned volumes.

One of the key drivers of the improved costs and breakeven prices for upstream developments are the lower unit prices within the industry, says Rystad. After the 2015 oil price collapse, oilfield service companies were obliged to reduce the prices they charged E&P companies in order to remain competitive in the challenging market conditions.

AVEVA awarded for achievements in APM market

AVEVA, A GLOBAL leader in engineering and industrial software, has won this year's Frost Radar Best Practices Award for growth, innovation, and leadership excellence in the asset performance management (APM) market.

AVEVA was recognised with the GIL award for its strong digital and innovative initiatives and features included in its APM 4.0 framework, including AVEVA Insight, a cloud offering that provides end users with actionable insights from anywhere, anytime, and any device.

AVEVA's APM 4.0 framework (connecting engineering, operations, and performance) enables customers to predict unplanned failures and balances four key value drivers, such as asset performance, safety and compliance, cost control, and resource management, to drive the greatest monetary and business value for customers.

AVEVA's artificial intelligence (AI) and machine learning (ML) capabilities (e.g., predictive and prescriptive maintenance) are cited as well, which have helped many customers increase equipment reliability and operational performance.

"This award is testament to AVEVA's strong position in the APM market," said Kim Custeau, APM business lead at AVEVA. "Frost & Sullivan's recognition of our APM offering and value delivered to customers this year is a great accomplishment for AVEVA. In a challenging global environment, AVEVA is committed to helping organisations accelerate their digital transformation journey, by helping them manage risk and reduce OPEX."

CNX Resources and PDC Energy install VAtitan-TC connection

CNX RESOURCES AND PDC Energy have installed the VAtitan-TC connection from voestalpine Tubulars, one of the leading providers of full welding solutions.

CNX Resources has installed 27,361 feet of VAtitan-TC on the Maj-12 pad in the Pennsylvania Utica Shale.

Image credit: voestalpine Tubulars

CNX Resources has installed 27,361 feet of VAtitan-TC on the Maj-12 pad in the Pennsylvania Utica Shale.

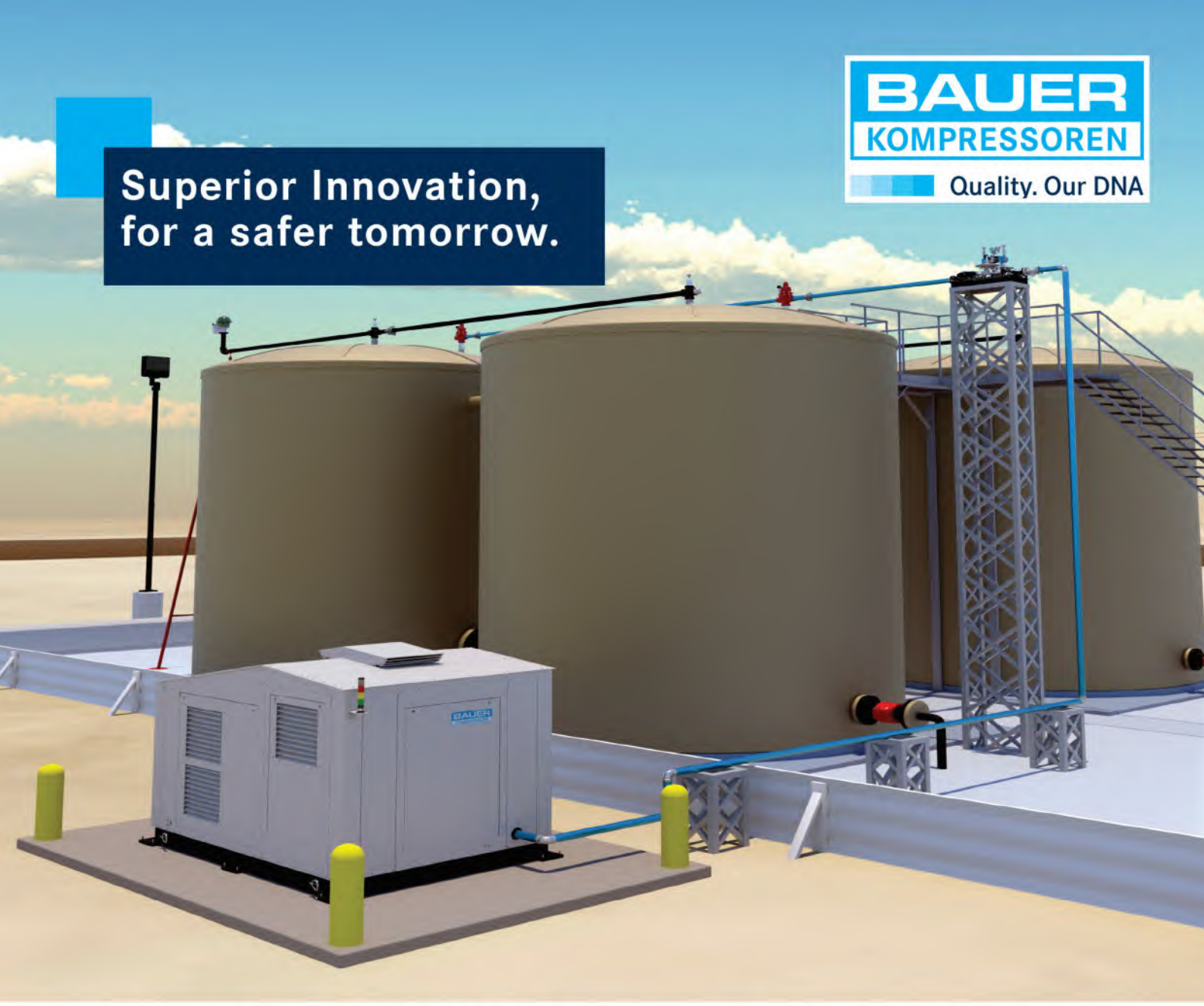
voestalpine Tubulars' newest addition to CNX's family of premium connections is VAtitan-TC, a wedge type connection with the highest torque rating in the industry. The connection was selected for its ability to withstand extreme torques, often required in such extended reach laterals. With the VAtitan-TC's deep stabbing, low-turn design, the installation took place in just over 25 hours, with zero breakouts or rejects occurring during the installation.

"The VAtitan-TC connection was very easy to make up at the rig site. The robust thread design and deep stabbing feature made for quick make ups, ensuring a smooth and efficient casing run," said Luke Beebe, vice-president of drilling, CNX Resources.

PDC Energy has installed 22,248 feet of VAtitan-TC in the Ferguson 23G-202 well located in the Wattenberg Field in the Denver-Julesburg Basin.

Extending out 15,640 feet from the KOP, this well has the longest lateral PDC Energy has drilled to date. Due to the long lateral length, a connection able to withstand extreme torque to break static friction was required in the event rotation of casing to bottom was needed.

"Whether the issue is a demand for gas tight connections, or in this application, a need for the highest torque rating in the industry, voestalpine Tubulars has shown to be up to the task," stated Randall Edwards, president and CEO of Premier Pipe.



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ADNOC advances into new energy era

Abu Dhabi's flagship oil company, ADNOC, seeks to expand and diversify its role in a fast-changing energy landscape. Martin Clark reports.

ADNOC has awarded EPC contracts worth US$245mn to upgrade facilities at the Jebel Dhanna Terminal.

Image Credit: ADNOC

ABU DHABI NATIONAL Oil Company (ADNOC) remains one of the world's top oil producers, but is clearly keeping an eye on the future.

Abu Dhabi is already committed to expanding the use of clean energy in the economy, building on its vast hydrocarbon wealth.

The emirate is the world headquarters for the International Renewable Energy Agency, established in 2009.

With oil and gas integral both to ADNOC and the UAE economy, any transition will be balanced and gradual over a period of time, its Group CEO Dr. Sultan Al Jaber says.

"By 2030, oil and gas will remain at the heart of ADNOC's business model," Dr. Al Jaber said in mid-October, cited by Reuters.

At the same time, it will raise its interest in areas such as hydrogen, which has long been touted as a major potential source of clean fuel for the future.

"We are pursuing hydrogen as a potential new venture as part of [our] clean energy and clean technology strategy," Dr. Al Jaber told the Energy Intelligence Forum (formerly known as the Oil and Money Conference).

> "By 2030, oil and gas will remain at the heart of ADNOC's business model."

Hydrogen has high potential as it only emits water vapour, though it has failed to gain traction because of historically-high production, transportation and storage costs.

According to Dr. Al Jaber, the world will continue to get at least half of its energy needs from oil and gas for many decades to come — even in the most fast-paced energy transition scenarios.

That means ADNOC sticking with its ambitious strategy of reaching an oil production capacity of 5mn bpd by 2030 — up from around 4mn bpd currently.

That's welcome news for an industry hit hard by the pandemic of this year, which has brought with it extensive travel restrictions and reduced overall demand.

Fresh investment

The move into new and alternative sources of energy is not the only change at ADNOC, which has been quietly reshaping its business behind the scenes for some time.

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It has been whipping up external streams of investment into key parts of its giant energy empire, including its strategic pipelines division.

Earlier this year, it signed a US$10bn deal for its gas pipeline infrastructure with investors including Canada's Brookfield Asset Management, which manages around US$550bn in assets — it marked one of the single largest energy infrastructure investments in the world during 2020.

More followed in October with Abu Dhabi Pension Fund and ADQ, one of the region's largest holding companies, investing a further US$2.1bn into gas pipeline infrastructure assets.

Al-Jaber called it a "landmark energy infrastructure investment" deploying long-term equity capital into some of ADNOC's prized assets.

Since announcing plans to open up to new investment in 2017, the group has also entered the debt capital markets for the first time, issuing a US$3bn bond backed by the Abu Dhabi Crude Oil Pipeline; partially floated ADNOC Distribution, the first-ever IPO (initial public offering) of an ADNOC Group company; and entered into several strategic partnerships in its drilling, refining, fertiliser and trading businesses.

A decade or so earlier and that level of external involvement in its business would have been unthinkable, underlining how far Abu Dhabi's oil and gas giant has already travelled.

The development of a more flexible and adaptive refining capability in Ruwais represents a cornerstone of ADNOC Downstream's 2030 smart growth strategy.

Image Credit : ADNOC

Balanced growth

For now, and for the foreseeable future, oil and gas remains the company's core business, just as it always has been.

And, according to Dr. Al Jaber, the long-term market for both remains robust, with demand expected to increase to 109mn bpd over the next 25 years, in line with global economic growth.

Accelerating the digital transformation

AT A SAPIENT/PETROLEUM Economist webinar entitled: 'Is COVID-19 accelerating the digital business transformation of oil and gas?' Khaled Al Blooshi, VP Digital, ADNOC, outlined how digital tools helped ADNOC to navigate the pandemic and led the company to create new solutions in its digital transformation.

He highlighted three technologies in particular that had contributed to ADNOC's efficient response to the pandemic, the first being AI modelling.

"At the beginning of the pandemic when COVID cases started spreading throughout our workforce, we started working on AI models which simulated the behaviour of the pandemic at work and in society," Blooshi explained. "These models included the production-related figures for each site, so we were able to build relations between COVID outbreaks in our critical staff and production values. We also built models to determine the effectiveness of measures introduced, and we are continuously training and improving these models. Building such a tool to fight the pandemic gave a lot of confidence to frontline workers on the effectiveness of the measures introduced, because we were able to simulate the expected results.

"Another technology that was engaged to tackle this pandemic was the remote support tool – we had a lot of experts quarantined and unable to go to sites and support our operational teams for commissioning or turnarounds. We used this technology to provide remote guidance to our operators and engineers, which was very effective.

"The third technology was the use of smart helmets to measure the temperature our people; in particular we were surveying our contractors to see the possibility of any outbreak and if we had any unreported cases. This helped to efficiently screen large groups."

Blooshi said ADNOC's Panorama Digital Command Centre had played a critical role in the decision-making process. "Our access to reliable data and the ability to do a full value chain simulation through modelling within the centre was a powerful combination," he said. "During the pandemic, when we were facing multiple challenges and major disruption in the oil and gas sector, there were times when the teams were running many simulations every day and would accordingly revise the production targets for our sites to capitalise on rising demand or compensate for falling demand for certain products. We had all the data coming in real time from the operating companies and were running the data and the simulation models, to address questions such as which wells do I need to bring online to increase my sales gas, and so on.

"So the Command Centre with its simulation capabilities, in combination with these three technologies, were the prime enablers for ADNOC to navigate this pandemic, and ADNOC was one of the few suppliers who were able to continue their commitments during this difficult time."

Asked whether the pandemic had helped to accelerate the digitalisation process, Blooshi remarked, "Certainly we're seeing a positive change in the mindset, and we are capitalising on the success stories to drive our digitalisation journey ahead, but we need to be mindful of the factors which have helped to accelerate the process, and we shouldn't take it for granted that the next steps will be easy. We didn't have any other choice than to go remote, and people did not resist because there were no alternative solutions. Furthermore most of these technologies we are talking about are already proven, whereas during digital transformation you're piloting and testing unproven technologies."

Blooshi stressed the importance of focusing on technologies that bring value in the digital transformation, rather than the 'nice to haves'. ADNOC's approach has been to identify the high value domains and how to unlock value from them, identifying the use cases that could be deployed to generate value, whether in terms of savings, or early production from facilities. This has involved building a roadmap for each high value domain to identify the sets of technologies to be targeted and the enabling use cases. ADNOC has gained US$1bn of savings in additional value from technology deployments from its transformation efforts, Blooshi said.

"This is just the beginning and we are only scratching the surface," he remarked.

"Going forward, we will continue to focus on developing our upstream resources and expanding our downstream footprint here in the UAE, while maximising value through creative partnerships," he adds.

In order to bring stability to the market this year, ADNOC has achieved full compliance with OPEC measures to balance supply and demand during what has been an incredibly volatile period for the global economy and the oil sector, in particular.

Even as the group rolls out higher oil production towards the 5mn bpd target, it will be mindful to do so in a way that respects today's environmental challenges, now uppermost in the public consciousness.

"Our role…will be to produce the world's most cost-efficient and carbon-efficient barrels," says Dr. Al Jaber.

ADNOC is likewise bolstering its marketing and trading capabilities.

It recently completed its first derivatives trade, marking the beginning of a new era for the group as an active trader.

Other innovative moves include the launch of AIQ, an artificial intelligence joint venture with Group 42, an Abu Dhabi-based cloud computing firm, which will focus on developing AI products and applications for the oil industry.

Oil & gas infrastructure

All the while, the UAE – OPEC's third-biggest oil producer – continues to expand and upgrade its core infrastructure on the ground.

In October, ADNOC Onshore awarded contracts worth US$324mn to Galfar Engineering & Contracting and Robt Stone for the procurement and construction of flowlines and wellhead installations across several onshore fields in Abu Dhabi. They include engineering, procurement and construction (EPC) of a new bypass sytem to promote back-up for existing crude recovery stations at the Jebel Dhanna and Fujairah oil terminals.

This follows the award of contracts worth US$245mn for the upgrade of two main oil lines and crude receiving facilities at Abu Dhabi's Jebel Dhanna terminal. The work will be carried out by China Petroleum Pipeline Engineering Company Ltd and Abu Dhabi-based Target Engineering Construction Co., with over half the total award value expected to flow back into the local economy under ADNOC's In-Country Value (ICV) programme, another key strategic initiative.

The project will increase the capacity of the two main oil lines and upgrade the terminal for it to receive Upper Zakum and non-system crude for delivery to the Ruwais Refinery West project.

Downstream, ADNOC is now three-quarters of the way through its so-called Crude Flexibility Project (CFP), with the ongoing upgrade of refining capabilities at Ruwais.

For 40-plus years, ADNOC has predominantly refined Murban crude, extracted from its onshore fields. The CFP allows for the Upper Zakum grade, extracted from offshore fields, to be processed, along with over 50 other types of different crudes. It forms a critical part of ADNOC's move into heavier and sour crude oil extraction — which will help to underpin its increased production capacity.

Upon completion, in mid-2022, the CFP will allow it to process up to 420,000 bpd of heavier and sourer grades, as part of the 840,000 bpd Ruwais refinery's capacity.

Crucially, it offers greater flexibility for an energy market experiencing unprecedented transition. ■

Asset Integrity Management Software for operational efficiency

Velosi Asset Integrity Ltd outlines the benefits of its VAIL-Plant Asset Integrity Management system.

ASSET INTEGRITY MANAGEMENT software plays an essential role in the day-to-day management of a process plant. The right asset management software can dramatically impact operational efficiency by identifying potential risks, managing the plant's assets and scheduling jobs for maintenance, thus reducing the likelihood and potential cost of failures.

Velosi offers a "VAIL-Plant Asset Integrity Management system", a cost-saving, in-house developed, and fully certified solution to manage the efficiency of physical assets on a single platform and control workflows throughout the whole asset cycle. Incorporating the VAIL-Plant application with decision-making methods and industry-specific asset models such as Risk Based Inspection (RBI), Reliability Centred Maintenance (RCM), Failure Mode, Effects & Criticality Analysis (FMECA), and Safety Integrity Level (SIL), increases the profitability of existing assets. The use of these asset models in the VAIL-plant application can help provide insights of overall asset condition and risks that a plant operator normally requires.

Image Credit : Velosi

VAIL-Plant covers all equipment in separate modules, based on their functional and operational features.

The software has been designed following the leading industry standards and is Exida certified for API 580, ASME B31.8S and IEC 61508 to meet industry requirements. VAIL-Plant software is SAP-certified to integrate with SAP ERP System. Velosi has automated its system to integrate with effective ERP systems, to deliver a high-quality solution to the oil and gas industries.

VAIL-Plant modules that cover all assets in the oil and gas industry include Asset Performance Management System (APMS); Pressurised Equipment Management System (PEMS); Pipeline Integrity Management System Onshore (PIMS); Pipeline Integrity Management System Offshore (PIMS); Structure Integrity Management System (SIMS); Pressure Safety Valve and Relief Valve Management System (PSVMS); Electrical, Instrumental and Rotary Management System (EIRMS); Lifting Equipment Management System (LEMS); Wellhead Integrity Management System (WHIMS); Civil Inspection Management System (CIMS); Cathodic Protection Management System (CPMS); Hull Integrity Management System (HIMS); Flexible Riser Integrity Management System (FRIMS); Computerised Maintenance Management System (CMMS); Inspection Scheduling Management System (ISMS); and Enterprise Resource Planning System Interface (ERPI). Thus, customers can opt in for modules according to their requirement.

Key features and functions

VAIL-Plant system is fully interactive and easily configurable and customisable for the client. It provides the following basic features:

- Manages and monitors asset status from a single management dashboard screen
- Identifies the unknowns and cumulative risks of aging equipment
- A hierarchical approach for data recording and management
- Identified user roles and user authorisations
- Captures deterioration mechanisms and historical information
- Covers all equipment in separate modules, based on their functional and operational features
- Creates optimised inspection and maintenance strategies
- Identifies various trends by reporting the types of integrity parameters, eg corrosion rate, inspection activities, etc.
- Prioritises and manages inspection programme tasks and resource planning
- Saves all the necessary documents against every piece of equipment for easy access and record
- Extensive reporting and customised User List View
- Equipment condition monitoring
- Various corrosion rate models
- Inspection scheduling and maintenance with workflow adjustments
- Bulk loading and data exporting
- Integration with Arc GIS for the geographical representation of maps
- Ability to set specific searches and automatic email alerts.

With Velosi's vast experience across the Middle East, Asia, Europe, and Africa with trusted and comparative analytics, VAIL-Plant has enabled plant operators to identify critical assets, increase equipment reliability by at least 20%, reduce failure risk by up to 90% and achieve cost savings of up to 50%. VAIL-Plant is a single resource software solution, empowering decision makers with the information they need to optimise their assets and understand their aging infrastructure. ■

A leader in asset integrity management solutions

Ijaz Ul Karim Rao, Managing Director, Velosi Asset Integrity Ltd, explains how the company is playing a vital role in helping companies to maximise efficiency, reduce costs and maintain the integrity of existing assets.

WITH OVER 37 years of worldwide experience, Velosi is a leading global consulting firm that provides asset integrity management, HSE, engineering services and software solutions to clients in the energy industry around the world.

Giving some background to the company's foundation, Rao says, "I was brought up in a small village in Lahore, Pakistan and was the only family member and one of the few from my town who made it to university. After I completed my Bachelors in Chemical Engineering, I joined Descon as process design engineer, and worked as head of design in Olayan Descon for many years. This helped me to strengthen my core process design concepts, which enables me to solve complex problems to this day. I also gained good industrial facilities experience which allowed me to visualise all aspects of petrochemical and power plants."

As a result of this experience, Rao was soon leading large teams in various multinational firms, heading up AIMS (Asset Integrity Management Services) and TPC services at DNV GL for the Middle East region prior to founding Velosi Asset Integrity Ltd.

"Our business model is very simple," he explains. "Velosi mostly focuses on competitive bidding for internationally published tenders, and since we have both onshore and offshore execution centres, we are able to give a competitive and reasonable offer to our customers, which is one of the key factors for getting new business."

Vital role

In the current low oil price environment, maximising efficiency, reducing costs and maintaining the integrity of existing assets are priorities – and here Velosi can play a vital role. "Major oil and gas players are being pushed to operate assets beyond the planned design and operation life," Rao comments. "With aging equipment and facilities, operators face increasing challenges in improving asset reliability, integrity and operational safety. We help our clients by engaging our team of experts who perform a series of tasks starting with data analysis, identifying the problems and gaps, meeting the plant operators and proposing solutions based on the best industrial practices and standards. We support these companies by providing a full range of AIMS, HSE, engineering and in-house developed software solutions which play a key role in maximising efficiency, reliability and cost savings.

Image Credit : Velosi Asset Integrity Ltd

Ijaz Ul Karim Rao, Managing Director, Velosi Asset Integrity Ltd.

> "Companies should be focusing on improving asset reliability to stay competitive."

"Helping clients to maintain the integrity of existing assets is a challenge that we have faced head on since the beginning," he continues. "In the current environment, there will be an increased demand, as operating companies will be looking to optimise their operations and maintenance activities while reducing expenditures. Companies should be focusing on improving asset reliability to stay competitive, maximise cost efficiency and production. This will also ensure long term profitability for aging assets.

"Velosi can play a vital role with VAIL-Plant, a holistic asset integrity software solution that tackles these challenges."

Health, safety and environment is a growing focus for the company, reflecting the global trend. "We have our own HSE department where we deal with all types of HSEIA & SIL studies for petrochemical plants," explains Rao. "Over the past few years, there has been more awareness, and companies have adopted and implemented many measures towards environment protection and sustainability. Thus, nowadays most of the projects have a HSE & SIL component. We have been playing a vital role in assisting these companies to undergo this transition by providing key services in the areas of HSE, SIL & environment protection. We have also developed our own software, VAIL-PHA which is being utilised in HSE & SIL projects to visualise and manage risks and maximise efficiency.

While business has been impacted by low oil prices, Velosi is on the lookout for exciting new opportunities, says Rao."We have recently expanded our technology department where we are constantly researching and developing new software, to help clients reduce expenses and increase efficiency."

Important market

The Middle East is a key market for the company, Rao stresses. "We have been generating good business in the field of AIMS, HSE, engineering and software solutions all over the world, but at least 70% comes from the MENA region. In the Middle East, we are pursuing more engineering opportunities in the oil and gas industries in Saudi Arabia, Oman and Qatar. In North Africa, we have established a good position in Algeria and Sudan for AIMS and HSE services, and are also aiming to strengthen our position for the same in Tunisia

and Morocco. For any project that we undertake, we establish relationships with our clients to understand their needs and offer tailor-made solutions to cater to the problems. One of the biggest factors in our recent growth has been word of mouth from satisfied clients.

"There have been some major wins for us over the past few years. Currently we are completing a very prestigious project in which we are developing the operating manuals and procedures for all facilities of a major oil and gas company. As a part of the same project, we are also developing 3D modules-based e-learning solutions for training purposes, so that any individual with no prior experience can get a good walkthrough on how to operate the different equipment present in a plant and understand operational safety measures."

So what does Rao see as the secret of Velosi's success? "There are several things that we bring to the table," he says. "Our team of multidisciplinary experts, commitment to integrity, high quality and a drive to always go the extra mile. We are continuously improving our services to adapt to innovation-driven changes in the oil and gas industry. Our increased investment in intelligent software solutions, focus on internal training and mentoring, and customer focus-based approaches are factors that have been playing an important role for us recently.

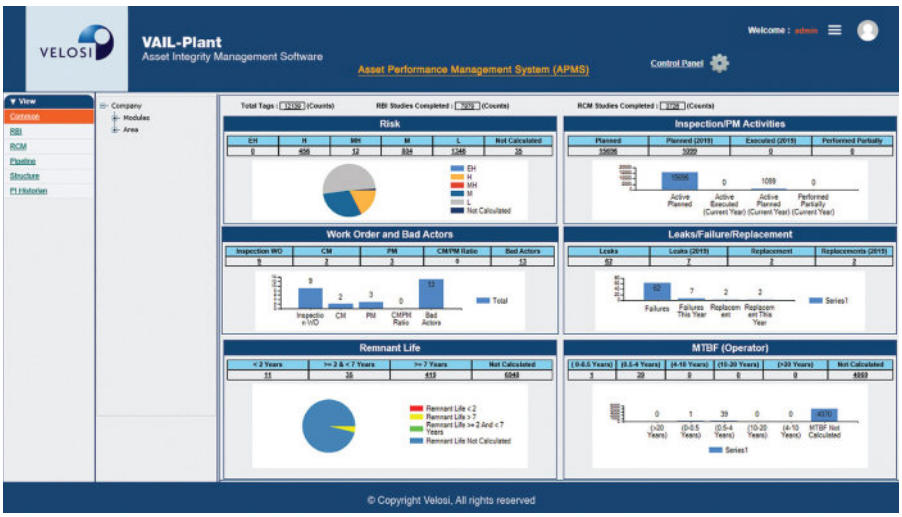

Image Credit : Velosi Asset Integrity

Velosi Asset Integrity's VAIL-Plant is a holistic asset integrity software solution.

"I am very proud of everything we do here at Velosi," Rao concludes. "Every day, we are faced with new challenges and tackle them together as a team. The unique Velosi approach that we have perfected over the past 37 years is something that truly sets us apart. Through constant hard work and determination, we have been able to establish a good name in the region for providing complete solutions in the field of AIMS, HSE, engineering and software services." ■

DNV GL makes available OREDA data

OFFSHORE AND ONSHORE reliability data (OREDA), gathered by several oil and gas operators for nearly four decades, is now available online through DNV GL's data platform, Veracity.

The OREDA handbook, established in 1981 in cooperation with the Norwegian Petroleum Directorate, has amassed data from almost 300 installations.

Image Credit : DNV GL

Liv Hovem, CEO, DNV GL - Oil & Gas

This includes the collection and analysis of data from more than 18,000 equipment units with 43,000 failure and 80,000 maintenance records. The databank also includes information on subsea fields with more than 2,000 years of operating experience.

Working in partnership with French IT service provider SATODEV and OREDA member companies, DNV GL has now moved the data from the traditional handbook to a digital tool called 'OREDACloud' available via DNV GL's Veracity data platform.

Instigated by a joint industry project (JIP), it aims to allow users to have easier, more efficient, interactive access to the OREDA database.

"It is crucial for the oil and gas industry to be able to learn from past events to maintain the highest standards of safety and quality in the future. The OREDA dataset is an important asset for this. Delivering this information easily through Veracity will help stakeholders unlock, qualify, combine and prepare data for analytics and benchmarking, create new insights and develop innovative solutions, making contributions to a safer and more efficient oil and gas industry," said Liv A. Hovem, CEO, DNV GL – Oil & Gas.

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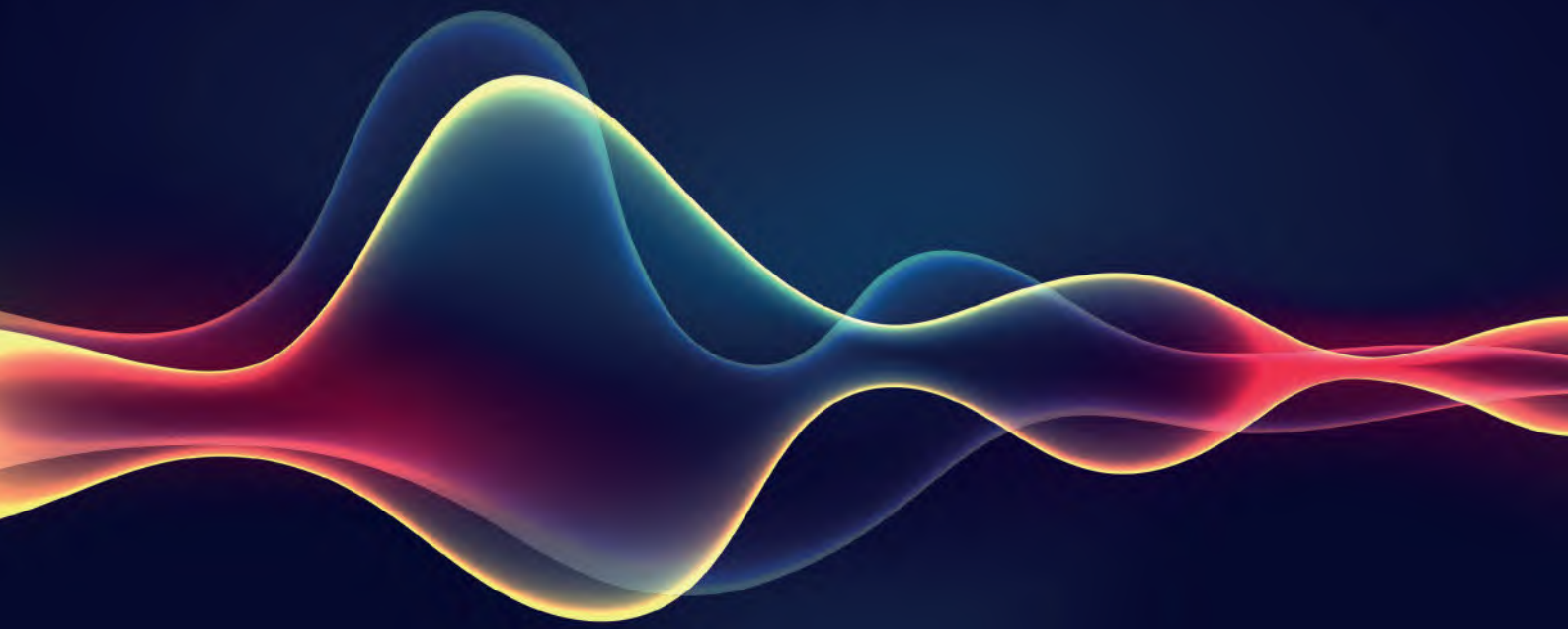

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How do you run an oil company from home?

The sudden, large-scale shift to remote working as a result of the pandemic has required new ways of leading and managing. Boris Ivanov, founder of GPB Global Resources B.V. has some advice for business leaders.

THE COVID-19 PANDEMIC has triggered one of the most volatile periods on record for energy markets, with almost a third of global oil demand wiped out as millions stayed home amid lockdown measures and travel bans.

As a result, oilfields were shut down, storage tanks filled up in record time, US prices temporarily turned negative for the first time in history and oil companies embarked on a price war to try and gain a competitive advantage in the market.

A pandemic can have severe consequences in impacted areas and geographies, making them inaccessible for an extended period of time. Running an oil company – a type of business which typically requires a significant number of workers on the ground and near others – is no easy feat.

Before the pandemic, many oil producers had been wary of moving away from traditional means of drilling with on-site specialists. Overnight, entire workforces were relocated home and operations had to adapt to ensure the safe running of oil assets.

The sudden, large-scale shift to remote working has meant leading and managing in new ways. So, as the industry starts to take stock of one of the most disruptive periods in history, what are the key lessons to running an oil company from home?

Image Credit: Adobe Stock

The pandemic has ushered in new ways of working.

Communication and connection

Running a global business with operations spread across multiple countries is challenging at the best of times, particularly when you are having to navigate multiple time zones and language barriers. With employees also working remotely and therefore being disconnected from the company's central hub, it is imperative that you form an ongoing and open dialogue.

Leaders need to respond quickly and address reality. They must acknowledge the new, difficult facts on the ground and their narrative must be honest, simple and direct. Communication style is at the heart of this.

While developing clear communication pathways has always been of the upmost importance to leaders, this has now moved far beyond communicating wider company decisions and trajectories, to a process whereby leaders and senior management actively engage with team members directly, and on a regular basis. The key here is to empower team members and offer support amid the ongoing market uncertainty, while avoiding the pitfalls of micromanaging.

This process does not just apply to employees. Successful oil companies also rely greatly on developing strong working relationships with leading industry players including governments, private equity and non-bank lenders, development finance institutions and local civil society organisations. Over the past six months, it has become paramount that oil executives have become more focused on connecting and engaging with these stakeholders, in the absence of in-person interaction.

Embrace the digital revolution

Even before COVID-19, many organisations faced considerable IT challenges. Now, COVID-19 is pushing companies to rapidly operate in new ways and IT is being tested as never before. Leaders across all industries have benefitted from adopting the right technologies amid the global shift to working from home. From Zoom calls and Microsoft Team chats to shared spreadsheets and cloud storage solutions, these tools have enabled executives to effectively steer operations and monitor employee progress.

While the same applies within the oil industry, some executives have gone one step

further to bridge distancing issues by using the latest digital developments. For example, the COVID-19 pandemic has accelerated the use of remote drilling and fracking technologies. This has kept oil wells operational and employees on the clock. The adoption of digital inspections in maintenance and manufacturing has also helped oil companies to stay on track and make faster decisions, both in relation to current and future projects.

Leverage local partnerships

With a vast number of industry employees including oil rig, refinery and pipeline workers re-locating, it is vital that company executives leverage their local networks and partnerships to ensure on the ground assistance and engagement.

Ultimately, companies who come out on top will be those who remain agile and adapt with the rapidly developing situation. For this you will need a revised, perhaps reinvented business model, which is resilient enough for the new times. If your usual country representatives are no longer available, consider creating new teams or tapping into local talent networks and re-distribute responsibilities accordingly.

Teams also tend to thrive when they are co-located, so re-assigning employees to form new teams within their immediate proximity can also help to significantly boost productivity and company morale. It is important to remember that these teams can remain flexible, and as the energy market landscape changes, they can be adjusted to suit the company's immediate priorities.

> "The pandemic has accelerated the use of remote drilling and fracking technologies."

Image Credit: GPB Global Resources B.V.

Boris Ivanov, founder of GPB Global Resources B.V.

Champion transparency and authenticity

While the very priority of an organisation during a pandemic is the safety and well-being of its workforce, firms must also address how critical functions can be performed and monitor operations constantly. Effective leaders will need to make sure that their employees feel safe and appreciated. Employees are looking for leaders to be trustworthy, compassionate, stable and hopeful. You do not have to be in the building to be visible and show a strong leadership presence.

Being transparent, particularly amid the constant stream of industry news, will help reassure employees about their position in relation to the company and the role they can play in its future. Rather than being evasive, now is the time for leaders to step up and be honest about the priorities for the company, realistic about the challenges ahead and change behaviours and processes where necessary.

Running any company from home comes with its own unique challenges, and leaders will need to commit to bold structural moves and embrace new ways of thinking to successfully adapt to the new COVID-19 era. Actions taken now can have an instant impact on the survival of the company and how it can successfully rebound from the global downturn. Business impact analysis on the chain of activities and functions, along with interdependencies (e.g. people, process, technology, data, facilities, third parties) can also help to inform potential mitigation strategies.

It is crucial that executives do not overlook the fundamentals of good management. For example, communicating and connecting effectively with both employees and industry stakeholders, remaining transparent and open amid the current turmoil and recognising employees' individual and collective strengths.

Future business journey

While businesses focus on supporting employees, customers and suppliers, stablise revenues and reshape their businesses to align with the present situation, leaders will need to assess opportunities for growth and optimise their company's resilience. They will then have to rapidly turn their attention to the next period.

With an unpredictable economic recovery over the horizon, new competition and opportunities will rise; with that, business practices, leadership mindsets and corporate behaviour will shift into a new era as industries reinvent themselves and redefine their purpose. Agility, flexibility, visionary thinking and bold action will be paramount in this new age of opportunity, as the oil and gas ecosystem reconfigures and rules of the next normal toughen. ■

Standardisation for cost savings and improved performance

Reflex Marine discusses the benefits of crew transfer methods standardisation for offshore projects.

THE EMPHASIS ON cost reduction continues as the energy industry makes plans for the coming decade. Companies are consolidating in an effort to reduce cost whille gaining market share.

One way of working with cost reduction is to standardise. Standardisation leads to simplified work processes and has been proved to increase performance. Standardisation can have positive impacts in a company, in areas such as manufacturing, distribution, service and maintenance.

For all offshore projects globally, one area that could benefit from being more standardised is crew transfer. Crew transfer is an inevitable part of offshore operations, it consumes resources, can have a significant impact on project workability and with the inherent safety concerns, it must be carefully planned and evaluated with duty of care on the operator.

Standardisation of crew transfer methods across sites brings about several benefits. From an operational point of view, standardised company procedures result in improved efficiency. Crew having essential knowledge of equipment and being familiar with the pre-use inspection procedures, boarding procedures and operational parameters of the equipment used all result in safer and quicker operations. Use of standardised systems or equipment allows for simplified crew training where teams across sites can be trained together and each team member can help another when needed to ensure safe operations. In terms of inspection and maintenance of equipment, the workers can confidently complete many works in-house when they know the products inside-out. Streamlined procurement processes and universal replacement parts across various sites will create significant long-term cost-savings. Standardised company procedures result in increased safety and improved operational efficiency. All this leading to cost savings long-term through better processes and less time wasted.

Image Credit : Reflex Marine

Reflex Marine's additional services include maintenance and servicing (available on and offshore) and training (now also available online).

> "Standardised company procedures result in improved efficiency."

Shared services is another practice becoming more and more in demand through applying standardisation. This is where operators look for joint operations with other companies as means of saving money and time. Choosing the crew transfer methods capable of performing in the widest range of conditions is crucial to ensure that a shared crew services model will reach optimum efficiency. Marine transfer methods are used globally by the offshore energy industry, and marine transfer by crane is a key method for a range of transfer scenarios. Reflex Marine's FROG-XT range of carriers has the highest operational capacity and an unprecedented safety record among the options available for that crew transfer method. Using a Reflex Marine carrier also translates to compliance with global standards and guidance including LOLER. The support offered by Reflex Marine's experts helps with seamless integration of this equipment into standard procedures. Additional services offered include scheduled consignment of regular replacement parts and further assistance to streamline procedures and save costs.

In the current climate, adaptability and lean management practices, including standardisation, are key to maintaining profits. Contractors and equipment manufacturers must also put new processes in place to meet the new norms. Services offered by Reflex Marine fall well into the new requirements of operators worldwide, while marine crew transfer by crane is becoming increasingly popular among those considering sustainable and cost-efficient solutions. ■

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Realigning the business for future opportunities

Tariq Bakeer, regional managing director of Endress+Hauser Middle East, speaks to Oil Review Middle East about the launch of the company's new organisation in Dubai and the outlook for business.

ENDRESS+HAUSER, A global leader in measurement instrumentation, services and solutions for industrial process engineering, is looking to boost business in the Arabian Peninsula with the establishment of a new organisation structure, headquartered in Dubai. Launched on 1 July 2020, Endress+Hauser Middle East aims to lead and support all regional solutions, sales and service activities, including Endress+Hauser sales centres and sales representatives in the Middle East region. Tariq Bakeer assumed overall responsibility for the region as regional managing director of the new organisation.

Discussing the rationale behind its establishment, Bakeer explains Endress+Hauser first entered the region around 14 years ago, expanding in the region with four entities and employing a total of around 170 people. This was a great success as a first step into the market, allowing the company to build and develop its business substantially. In a strongly connected and integrated world, the new structure will further align with the operations in the region.

"We have realigned and simplified our regional organisation to achieve better market focus and execution. The well-established set-up in the Middle East has been amended to increase customer proximity, ensure ongoing high quality of sales and service operations, expand all customer-focused activities and create a lean and future-oriented business," he says.

Outlook for business

Discussing the outlook for business, Bakeer remarks, "The current oil prices, introduction of VAT and other fees, and now the pandemic with all its consequences across the globe, have undeniably affected the way we operate and has added pressure to our costs. However, with the clear vision and efforts of governments to adapt and diversify, the Middle East remains a very attractive and strategic growth market.

"As we know, one of the hardest hit sectors by the pandemic was oil and gas," he continues, adding that he is expecting the negative impact to continue into the first half of 2021. But then he expects business to "start flying" again.

Image Credit : Endress+Hauser

Tariq Bakeer, regional managing director, Endress+Hauser Middle East.

Whereas in the past, the company's focus in the region had been very much on oil and gas, its increasingly diversified operations mean that it is less vulnerable to the vicissitudes of the oil market. "We are active in seven strategic industries, meaning there are always opportunities," says Bakeer. "While the company is experiencing a slow pace of business, we are still seeing enquiries, but sales are taking longer to materialise. We continue to be active in the market."

> "We have realigned and simplified our regional organisation to achieve better market focus and execution."

As far as individual markets are concerned, Saudi Arabia is at the top of the list, with the UAE providing solid opportunities and Iraq offering strong potential for growth, he says. The company is also looking to invest in other potential regions in the Middle East.

As for how the company is responding to the challenges of the pandemic, he comments, "We are staying positive, taking care of our people – that's the only way our people can remain productive. The company has a strong commitment to supporting its people in difficult times; in line with the local regulations, we operated the office premises at 50% capacity to provide social interaction and help those who have faced difficulties working from home."

The company has also invested in digitalisation, which offers new possibilities. "We are constantly making our website, endress.com, more interactive for our customers and visitors, providing a chat functionality, various online tools for support, and of course the responsive e-commerce section which provides endless possibilities for ease of business," explains Bakeer.

COVID-19 has really accelerated the digital process, he comments, for example in remote services. "Where customers need our support to run their processes, we can support them remotely if there are issues allowing people on to their premises or even otherwise," he says. "We are finding new and creative ways to support our valued customers."

Safety is a priority

Turning to the company's areas of focus, Bakeer comments that, as a Swiss family company, Endress+Hauser sees safety as top priority. "We are dealing with sensitive processes where hazards arise from an early stage, requiring explosion protection and functional safety and therefore for us, safety is always by design and choice, not by chance.

We have the most comprehensive range of devices with in-built safety features, we lead the way in all aspects of safety – be it safety-related design, trend-setting safety-related testing concepts or environment and people safety, and the proof is in the various awards that we have received throughout the years in this field."

He adds that Endress launched its Heartbeat technology four years ago, which combines diagnostic, verification and monitoring functions for process optimisations. It guarantees permanent diagnostics and verification without process interruptions, ensuring a cost-efficient and safe plant operation during the entire life cycle. The technology enables information to be given about the health of instruments for diagnostics, verification monitoring and safety, providing alerts when instruments need recalibrating, and employing predictive maintenance to determine when instruments need fixing.

> "Disruptive technologies and R&D are critical for our existence and future growth."

Commenting on technology and innovation, Bakeer says, "Like many other companies, we are looking at a fast moving and competitive world, so disruptive technologies and R&D are critical for our existence and future growth. The company devotes almost 7.5% of its turnover to Research and Development. Endress+Hauser owns a portfolio of nearly 8,000 patents and patent applications worldwide, achieving a record number of innovations almost every year. More than 1,100 employees are active in R&D, but innovation is not limited to just this group or certain areas.

"As it is said, data is the new oil, and is the key to reaching faster and smarter decisions," he continues. "We are investing in IoT and cloud-based applications to empower the field."

Endress+Hauser is also investing in process and lab analytics. The focus to date has been mainly on process analytics, but the company is growing its capabilities in lab analytics through acquisitions.

Endress+Hauser co-operates closely with universities, institutes and start-ups, Bakeer adds, bringing in a mix of experience and new ideas.

So, what is the secret of the company's success? "Looking at our almost 15-year history and expansion in the region, it's always been about getting closer to our customers," says Bakeer. "Supporting our customers, understanding their requirements and adapting our investments accordingly. As a family business, our culture chimes with that of the region; we are committed, friendly and thinking sustainably about the environment as well as the people – internal and external. We are looking at helping and maintaining strong relations with our customers over the next several decades.

"Furthermore, we are committed to supporting the governments of the region in their ICV initiatives. Governments are seeking commitment; they are looking for companies who will come and invest, train, hire locals and share technology. We see ourselves having a major part to play here. We are in Saudi, UAE, Qatar and next year in Oman, bringing local value to customers. We're excited about the future." ■

Shining the spotlight on industrial autonomy

Muraleedharan Nellikkayil and Hirofumi Takahashi of Yokogawa Middle East and Africa, discuss autonomous operations in the oil and gas sector.

THE "*Global End-user Survey on the Outlook for Industrial Autonomy*" conducted by Yokogawa Electric Corporation for more than 500 respondents, provides an in-depth view of future trends in automation and autonomy, business priorities, and technologies being deployed in major process industries including oil and gas.

COVID-19 has arguably presented a great impetus for industrial autonomy moving forward. A higher priority is now being placed on the ability to continue running operations without workers needing to be present.

Yokogawa's survey has revealed that 74% of respondents in refining industries and 66% in the upstream oil and gas sector are anticipating fully autonomous operations by 2030. More than half of the respondents said that their companies are either slightly or significantly increasing their investments in industrial autonomy over the next three years.

Muraleedharan Nellikkayil, senior executive VP, IA and process solutions business, Yokogawa Middle East and Africa, acknowledges the push for digitalisation and greater autonomy in the oil and gas industry. He feels that the need for greater investments in autonomy has been accelerated by the COVID-19 pandemic, especially in areas such as optimisation and supply chain management.

> "Remote monitoring and control seem to be gaining significance in the oil and gas sector of the region."

It is clear from the survey that, from its impact on the economy to the move towards unmanned systems and the renewed emphasis on worker safety, the global pandemic is set to reshape our plants. As companies count the costs of an absent workforce, a well-designed autonomous system will bring the benefits of remote operations and safer working environments.

The Middle East has been largely open to embracing digitalisation and autonomous operations. "Remote monitoring and control seem to be gaining significance in the oil and gas sector of the region," Nellikkayil remarks. He further cites the example of Yokogawa's involvement with a project in the UAE, the first in the region to be equipped with the single push button start-up of the entire plant.

Improving decision-making

While a greater proportion of respondents stated they had more significant automation of physical tasks in 2020, it is the automation of decision-making tasks that is set to boom over the next three years. Developing technologies such as AI and Digital Twins will see companies move from the automation of basic decision-making tasks to the significant automation of most physical and decision-making tasks.

"In the decision-making process, there are definitely changes in the region, however, they are in phases, prioritising the move towards semi-autonomous processes and operations," Nellikkayil says.

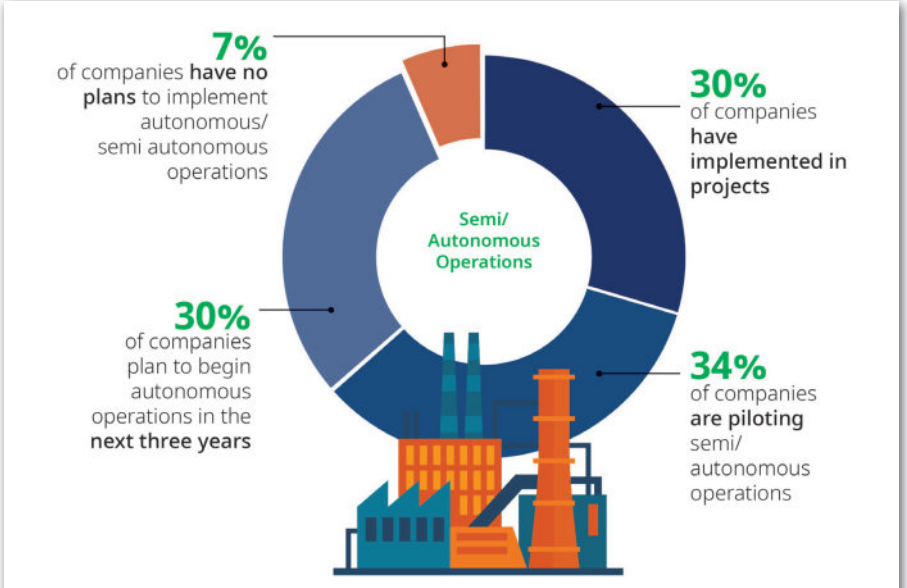

Image Credit: Yokogawa Electric Corporation

More than half the respondents said their companies are slightly or significantly increasing their investments in industrial autonomy over next three years.

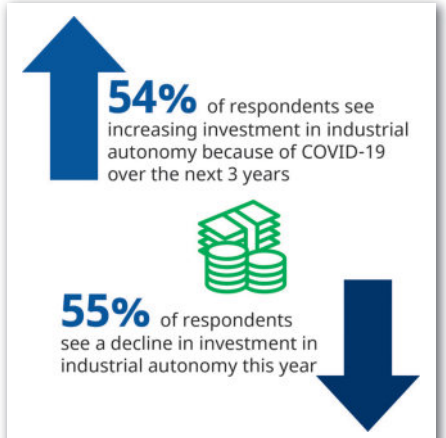

Image Credit : Yokogawa Electric Corporation

COVID-19 has put the brakes on economic growth in 2020 but will be a catalyst for the medium- to long-term growth of industrial autonomy.

Business objectives

The survey revealed that the main objectives behind the shift from manual and automated operations to autonomy are improved productivity and efficiency. Emerging technologies are enabling this shift by revolutionising the way that plants operate and by making physical tasks and decision-making more autonomous.

"Improving capital efficiency through process simulation, impacting asset efficiency through AI predictions that improve decision-making, as well as greater resource safety and efficiency through technologies such as robotics are the three broad areas that are the main drivers of autonomous operations in the oil and gas industry," Hirofumi Takahashi, general manager, process solutions business, digital enterprise business division of Yokogawa Middle East and Africa, highlights. ■

> "Improving capital efficiency, asset efficiency as well as resource safety and efficiency are the main drivers of autonomous operations in oil and gas."

Image Credit: Yokogawa ME and Africa

Muraleedharan Nellikkayil, senior executive VP, IA and process solutions business, Yokogawa Middle East and Africa.

Image Credit: Yokogawa ME and Africa

Hirofumi Takahashi, general manager, process solutions business, Yokogawa Middle East and Africa.

The transition to the digital oilfield

John Geasa, senior director of IoT Product and Services at Speedcast, discusses the benefits of digital oilfield transformation for offshore operations in the Middle East and beyond.

THE RECENT INTEGRATION of the Internet of Things (IoT) into a broader number of sectors worldwide has sparked an industrial evolution in which a vast amount of data is being transmitted and received between a growing number of devices. As operations become streamlined due to this enriched communications network, industrial productivity has increased, while simultaneously reducing production costs. As a result, operators are competing to deploy the best possible network which will enable them to deliver the most competitive prices, quality and market position.

This is especially true in the energy sector, where the introduction of IoT requires a carefully managed transition to the digital oilfield. Oil rig operators, along with oilfield services companies across the Middle East, are now under increased pressure to invest in the modernisation of their platforms and overall efficiency, to keep up with widespread innovation and demand for enhanced data to better analyse and adjust their operations for safety and efficiency. In doing so, they can take full advantage of digital transformation to deliver a service which better benefits their customers, their work environment and their Return on Investment (ROI). Solutions such as Speedcast's IoT, (see https://www.speedcast.com/blog-hub/2019/how-upstream-and-midstream-energy-companies-boost-roi-with-iot/), Machine Learning (ML) and data analytics provide reliable automated responses to ease crew responsibility, minimise error margins, and reduce overall costs.

Data overload

More connected machinery and devices onsite means that a surge in data is generated, putting a strain on existing IT networks and systems. To support the transition, a resilient scalable network is required to cope with and protect the data. Without laying this stable foundation, operators risk a decrease in efficiency, production and security – creating vulnerabilities which could encourage latency, delays and opportunities for cybercrime, costing producers a significant amount of time and money and damaging profit margins and ROI. This is why, despite the large investments required to implement effective network upgrades and overhauls, adapting to the digital era is the best way to remain competitive in this consistently changing market.

By implementing IoT and ML technology within digital oilfields, producers can benefit from improvements in operations, crew wellbeing and safety.

> "A typical offshore rig uses data analytics and ML to integrate more than 30,000 sensors and 200 operating variables."

By implementing IoT and ML technology within digital oilfields, producers can benefit from improvements in business operations, crew wellbeing and safety onboard their remote assets. A typical offshore rig uses data analytics and ML to integrate more than 30,000 sensors and 200 operating variables and, if managed properly, can significantly streamline operations. For example, these sensors and data points provide information in real-time, creating the opportunity for early intervention, maintenance or shutdowns to protect the system from malfunction or failure.

From conception to future proofing, digitalisation can ensure efficiency and adaptability throughout the rig's life cycle.

Supporting the workforce

Data analytics can be an effective tool well before the rig is even erected. With site construction making up 40 to 70% of all capital spending in the oil and gas sector, carefully managing this complex stage is critical to preventing misplacement of systems or unintentional environmental damage. Furthermore, site locations are often remote, with heightened climate and safety risks. By employing IoT and analytics, algorithms can generate automated recommendations for accurate well placement via subsurface planning – simplifying the process, saving on time and costs and minimising environmental impact.

> "Resilience to the harsh environmental conditions is also key."

On the rig itself, 80% of manual tasks executed on modern well sites can be automated with digital well prospect maturation, reducing risk, department hand-offs and between 3,000 and 6,000 man-hours. This not only minimises human errors and increases success rates, but also allows experts to work remotely on several sites at the same time, improving efficiency and positively impacting staff wellbeing by eliminating the challenging aspects of rig work. Job performance is also more consistent, with digitalisation amounting to a 30% reduction in costs.

Analytics can also lower the rate of accidents, improving safety records by identifying high-risk actives and behaviours on the rig, and using this to refine health and safety performance. Meanwhile, telemedicine capabilities allow doctors to treat offshore crew remotely on-site, collecting health data, diagnosing and prescribing care to reduce response-time, travel and emergency evacuation costs.

Monitoring below the surface

IoT and ML solutions also enable the remote management of devices and equipment, allowing for pipeline monitoring, real-time defect detection and early interventions in malfunction scenarios including pipeline leakage, gas bottlenecks and safety breaches. This is vital for the industry, not only for improving ROI, but also maintaining ethical operations with minimal environmental risks, especially in the current climate.

IoT sensors and algorithms can scan incoming data and generate predictions as to when the risk of oil leakage is the greatest, automatically intervening if this becomes a threat to the surrounding water. Beyond leakages, theft can also be protected against, with real-time pipeline condition reports helping to reduce the US$37bn global annual losses due to pipeline breach. With 2.9mn kilometres of pipeline between 10 countries, it is vital to protect the systems and the environment surrounding it. Monitoring pipeline health will save in repair costs across entire rigs, as well as predict pump failures that can cost operators up to US$300,000 per day in lost production. Effective monitoring can help improve production between 1-2%, assisting companies to reach the 77% productivity rate they aim to surpass.

Tailored, regional solutions for the future

In the Middle East, the transformation to the digital oilfield presents its own unique challenges. In the heart of the oil and gas industry, much of the network has already been established, calling for affordable, interoperable and customisable solutions to suit the existing infrastructures. Beyond this, resilience to the harsh environmental conditions is also key, as well as the necessity to adapt to the rapid rates of change facing the industry in its bid to meet global demands.

To understand the priorities of regional producers and service them with the required and desired network upgrades, it is important that a vast and reliable satellite network is available – no matter how remote the offshore platform is. This is particularly important in the current climate, where the opportunity for face-to-face intervention is limited, making remote connectivity and implementation without operational disruption vital. Therefore, it is important that operators choose a solutions provider with the capability to offer a wide range of fully-managed IT services 24/7, both remotely and on-site via local engineers, to fully and efficiently service mobile drilling units and support vessels alike. By investing in such solutions to optimise productivity, protect crew and preserve the surrounding environment, producers can make better-informed operational decisions from the ground up, facilitating a stronger market position.

Speedcast has operated across the Middle East for many years, using the world's largest and most robust VSAT and terrestrial network to deliver innovative solutions, supporting the energy industry in its mission to be more efficient and safe. Supplying a number of rigs across the region with essential connectivity and critical communications, the company was recently awarded a contract with the largest LNG operator in the world, to expand regional drilling operations and double its output with the help of a private VSAT network – further expanding the company's expertise and knowledge in the region. ■

For further information, see https://events.speedcast.com/speedcast-iot-energy).

Shaping the energy sector post-COVID-19

Held under the patronage of the UAE President His Highness Sheikh Khalifa Bin Zayed Al Nahyan, and hosted by the Abu Dhabi National Oil Company (ADNOC), the ADIPEC Virtual Conference will provide a platform for the thought leadership that will frame the future oil and gas landscape.

THE ADIPEC VIRTUAL Conference will run from 9-12 November and will feature more than 135 sessions, with over 700 renowned speakers and 115 technical sessiosn, giving attendees access to world-class industry content. The virtual exhibition will host more than 100 companies.

Omar Suwaina Al Suwaidi, chairman of ADIPEC, said, "ADIPEC is regarded as the premier thought leadership event within the oil and gas industry, bringing together industry leaders and renowned technical experts to discuss, debate and to share ideas. Despite facing unprecedented challenges in 2020, our industry has shown remarkable flexibility, commitment and a strong resilience in responding to adverse market conditions. As we continue to meet the global demand for energy, I am confident that ADIPEC will provide many new opportunities for collaboration and innovation as we respond to new realities throughout global markets."

During the ADIPEC Virtual Conference more than 70 government ministers, CEOs, global business leaders and industry specialists will focus on how the energy sector is responding and adapting to the COVID-19 pandemic. Against a backdrop of the complex dynamics that have impacted global markets, they will provide perspectives on how the industry can build future resilience and engage with the challenges and opportunities of the energy transition.

Confirmed speakers include: H.E. Dr Sultan Ahmed Al Jaber, UAE Minister of Industry and Advanced Technology and Group CEO of the Abu Dhabi National Oil Company (ADNOC); H.E. Suhail Mohamed Al Mazrouei, UAE Minister of Energy and Infrastructure; H.E. Mohammad Sanusi Barkindo, secretary general, OPEC; Joseph McMonigle, secretary general, International Energy Forum; Patrick Pouyanné, chairman and CEO, Total; Bernard Looney, CEO of BP; Claudio Descalzi, CEO, Eni; Takayuki Ueda, president and CEO, INPEX Corporation; Mario Mehren, CEO, Wintershall DEA; Philippe Boisseau, CEO, Cepsa; Meg Gentle, president and CEO, Tellurian and Hajime Wakuda, president of the Japan Oil, Gas and Metals National Corporation.

> "Despite facing unprecedented challenges, our industry has shown remarkable flexibility, commitment and resilience."

ADIPEC 2020 conferences will take place virtually.

Image Credit : dmg events

This year marks the 10th anniversary of the ADIPEC Awards as industry leaders honour the people, projects and ideas that continue to shape the future of the oil and gas industry. This year's event will be held online in a virtual ceremony on 9 November.

Fatema Al Nuaimi, chairperson of the ADIPEC Awards and CEO of ADNOC LNG, said,"The winners represent the very best of the global oil and gas industry. Today, more than ever, our industry needs new ideas and cutting-edge thinking from individuals, projects and companies like those taking part in these awards. The ADIPEC Award entries all demonstrate new ways of working, breaking down barriers and driving positive change during these challenging times. I would like to congratulate everyone who submitted, as well as the winners."

Alongside the virtual conference programme, the technical conference organised by the Society of Petroleum Engineers will bring together technical leaders, who are at the forefront of the post-pandemic economic recovery. The expanded ADIPEC Virtual Downstream Technical Conference, organised by dmg events, will explore the role of Artificial Intelligence (AI) and digitalisation in refining and petrochemicals; decarbonisation; the future workforce; energy security, efficiency and management; and the future impact of the downstream on the circular economy.

Christopher Hudson, Global Energy president, dmg events, said, "The ADIPEC Virtual Conferences and exhibition will enable the oil and gas industry to forge new models of strategic partnerships and reinforce the strong connections and long-lasting business relationships necessary to break from old conventions and create tangible value in a post-pandemic energy landscape.

"In tandem with our partners, dmg events is committed to ensuring ADIPEC remains at the heart of the global oil and gas landscape." ■

For more information, see www.adipec.com

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Responding and adapting to COVID-19

The ADIPEC Virtual Strategic Conference will focus on how the energy sector is responding and adapting to the COVID-19 pandemic against a backdrop of rapidly increasing pressure to become more sustainable.

ADIPEC WILL FOCUS on five pillars, each providing a critical element of insight into understanding the challenges and tasks facing energy sector leaders over the coming months and years:

Future energy supply and demand: new assumptions and perspectives on future trajectories

The oil and gas industry was paralysed by a combination of a sharp downturn in energy demand – brought on by COVID related lockdowns and the associated deep global economic recession, and oversupply. As the energy sector seeks to recover, it faces huge uncertainties, the eventual outcome of which will shape global balances and investment strategies over the course of the next decade.

Building future business resilience through technology, innovation and partnerships

Shocks – both short-term in the form of COVID-19, and long-term in the form of the energy transition – are challenging the industry's profitability and its ability to create sustained value for investors and governments. New approaches are required for a sector where "cheaper, cleaner, more efficient" will become the standard for business resilience and operational success:

The geopolitics of energy

The COVID-19 pandemic has had profound implications for energy supply and demand. Beyond energy it has also compounded the megatrend of deglobalisation that has changed the international operating systems. Trends that had been evident for a number of years have been accelerated, with the emergence of new energy leaders, new patterns of trade, and new national security concerns. These factors will shape the energy sector in the coming years, determining the stability of energy trade and prices.

Image Credit : dmg events

The ADIPEC Strategic Conference will provide a forum to discuss the challenges facing energy leaders.

> "Trends that had been evident for a number of years have been accelerated."

Environmental and social governance and the oil and gas industry in a post-pandemic world

Climate and sustainability concerns pose a challenge to energy industry norms. Business as usual is no longer an option in a sector that is front and centre of the energy transition. If the public and private sectors are to maintain the social license to operate, business practices must adapt, and long-term operations must change.

Workforce of the future: positioning for success in times of change

Demographics, changing views of the energy industry, climate concerns and gender imbalance are all impacting the sector's workforce and the availability of talent around the world. In the western hemisphere, in particular, attracting and retaining the best and the brightest is becoming an increasing challenge. Industry leaders will require new, innovative strategies to maintain and ensure a long-term supply of talent in the sector.

These issues will be addressed by ministers, CEOs and global energy leaders through keynote addresses and panel sessions. Distinguished speakers include HE Dr Sultan Rahmed Al Jaber, UAE Minister of Industry and Advanced Technology, and Group CEO of ADNOC; HE Suhail Mohamed Al Mazrouei, UAE Minister of Energy and Infrastructure; energy ministers from Saudi

Arabia, Bahrain, Russian Federation, Arab Republic of Egypt, Jordan, Iraq, Indonesia, Senegal and Nigeria; HE Mohammed Barkindo, secretary general of OPEC; Joseph McMonigle, secretary general of the International Energy Forum; Patrick Pouyanné, chairman and CEO, Total; Bernard Looney, CEO bp; Omar Suwaina Al Suwaidi, chairman of ADIPEC; Dai Houliang, chairman of CNPC; Claudio Descalzi, CEO, eni; Meg Gentle, president and CEO, Tellurian; Vicky Hollub, president and CEO, Occidental; Lorenzo Simonelli, president and CEO, Baker Hughes; and Girish K. Saligram, president and CEO, Weatherford. ■

> “Companies put themselves in a defensive mode when they should have deployed and promoted innovative technology.”

Oil demand set to peak in 2030, predicts Mubadala’s CEO of Petroleum and Resources

GLOBAL DEMAND FOR oil is likely to peak around 2030, as the world recovers from the impact of COVID-19, according to Musabbeh Al Kaabi, CEO of Petroleum and Resources at the UAE’s Mubadala Investment Company.

In a wide-ranging interview, conducted as part of the on-line ADIPEC Energy Dialogue series, Al Kaabi shared his outlook on the recovery of oil and gas markets and the long term impact of demand post COVID-19 on energy supply and demand.

Al Kaabi said the post COVID-19 world will be totally different, with fewer people travelling and lower activity in a number of economic sectors. And, while demand for energy will edge back to 2019 levels, some sectors, such as jet fuel, will take longer to recover than others.

“COVID-19 has created a major disruption to demand, and we expect to see the continuation of that disruption in 2021. But if you project the horizon to 2030, we will go back to an acceptable level of growth, potentially peaking in 2030,” said Al Kaabi.

Addressing concerns over future supply issues, Al Kaabi said climate change pressures, concerns over ESG and government policies are impacting the investment decisions by big international oil companies, which could result in episodes of disruption of supply. But, he added, this would create space for national and privately-owned oil companies to invest in the upstream sector.

Al Kaabi added that national and international oil companies should learn from history and be more proactive in dealing with the decarbonisation of their operations.

"In the past companies put themselves in a defensive mode when they should have deployed and promoted innovative technology to minimise the carbon footprint of their production.I see a similar trend in the petrochemicals sector, where it is critical companies address the plastics waste issue and not be in a state of denial," Al Kaabi said.

The future of gas development in the UAE

Hamish McArdle, London global projects partner, Baker Botts (UK) LLP, and Wicki Anderson and Blair Jones, associates, Baker Botts LLP (Dubai), assess the impact of the UAE's Jebel Ali and Mahani gas discoveries, and their role in the wider energy transition.

THE UAE'S OIL and natural gas reserves are estimated to provide more than 60 years of production at current levels, positioning the UAE as the sixth highest globally in terms of oil and gas reserves, and, despite having one of the most diversified economies in the region, the country continues to rely on oil exports for some 30% of its GDP. However, the emirates have markedly different hydrocarbon resources. Abu Dhabi has the seventh-largest oil reserves in the world and over 90% of the UAE's reserves, with the other emirates at varying reserves and production levels and reliant on oil supplied by Abu Dhabi, or imports.

Although Dubai has been producing since 1969, with five current operational fields, its reserves and production had ceased to be substantial. The announcement of the Jebel Ali shallow gas discovery in February 2020, potentially one the largest global discoveries in the last 15 years, was accordingly significant for Dubai. The cross-border Abu Dhabi / Dubai discovery is the result of strategic cooperation between ADNOC and Dubai Supply Authority (DUSUP). It is expected that the shallow nature of the Jebel Ali discovery will mean lower development costs when compared to Abu Dhabi's sour gas resource, and that both conventional and unconventional drilling methods and technologies will be used to achieve comparatively better production rates.

Developments in Sharjah are also positive, with the announcement in early 2020 of the Mahani-1 onshore gas discovery, the first onshore discovery in the emirate in 37 years. Mahani, a Sharjah National Oil Company / Eni discovery, is to be further evaluated, however initial well tests have indicated gas flow rates of up to 50mscf/d, which may mark a turning point for the emirate, given that production from its Zora and the Saaja fields are insufficient to meet Sharjah's own demand for gas.

Gas production in Ras Al Khaimah ceased in 2016, however the emirate concluded a successful 2018 licensing round in which concessions were awarded to Eni and PGNIG. In the other emirates, Umm Al Quwain has limited gas production from an offshore gas discovery in 2008 but no recent discoveries, and no commercial discoveries have been made in Ajman and Fujairah. Fujairah's location on the Gulf of Oman has enabled the emirate to develop into a refining, bunkering and storage centre.

Image Credit : ADNOC

The Jebel Ali discovery reinforces the UAE's goal of achieving gas self-sufficiency.

> "Natural gas is the UAE's primary fuel for power generation and water desalination. facilities."

Energy security

While attention in the Middle East is often focused on oil production and export, particularly in light of the recent downward pressure on price and demand, gas has arguably played an equally significant geopolitical role in the region, particularly in the UAE. Natural gas is the UAE's primary fuel for power generation and water desalination facilities, and sustained population growth and the rise of gas-intensive industries resulted in the UAE becoming a net importer of natural gas from 2008. Although the UAE seeks gas self-sufficiency by 2030, and potentially seeks to become a net exporter of gas in the longer-term, gas imports will continue for the foreseeable future.

Currently, two bcf/d of gas is imported to the UAE via the 364-kilometre subsea Dolphin Pipeline, connecting Qatar's North Field to the UAE. Despite the status of diplomatic relations between the UAE and Qatar, gas flow through the Dolphin Pipeline has continued. The term of the Dolphin supply contract is understood to expire in 2032, by which time the UAE's

domestic gas production might have changed significantly, and there are expectations that the Jebel Ali and Mahani discoveries will be major contributors to this transformation. LNG is also imported to the UAE, in Dubai since 2010 via a Floating Storage and Regasification Unit (FSRU) and in Abu Dhabi since 2016, utilising ADNOC's FSRU at the Ruwais LNG terminal.

While the UAE does not lack gas reserves, future energy security in gas will depend on establishing supplies from the recent gas discoveries that will compete economically with alternatives, including gas imports. Abu

> "Future energy security in gas will depend on establishing supplies from the recent gas discoveries that will compete economically with alternatives."

Image Credit : SNOC

The Mahani discovery could be a catalyst to Sharjah's energy sector.

Dhabi is making headway in gas self-sufficiency through existing sour gas reserves, significant ADNOC development projects including the Gasha, Hail and Dalma fields and through gas-cap capture from offshore fields.

The Jebel Ali discovery should contribute to securing Dubai's medium- to longer-term gas supply needs, while the Mahani discovery in Sharjah could well be a catalyst to Sharjah's energy sector, reducing gas import dependence and enabling gas supply from Sharjah to other emirates.

COVID-19 uncertainty

The oil and gas sector in the UAE, like many others, has been hit hard by the COVID-19 pandemic, with demand reduction, price pressure and the need to allocate funding to economic stimulus programmes. Global

demand for oil is not expected to recover until 2022 and, in response to this and OPEC efforts to address the oil price and global supply, Abu Dhabi revised down its 2020 average production forecasts. Although the impact of COVID-19 on the UAE oil and gas sector is continuing, and spending is being reduced on projects, the effect of the pandemic on project development timelines and on long-term production forecasts remains to be seen.

Energy transition

The recent UAE gas discoveries, and the opportunities that could come from them, should be viewed within the context of the energy transition that is being increasingly discussed globally, including within the upstream oil and gas industry, and that is increasingly impacting hydrocarbon investments and project development decisions. Already the UAE leads the region in renewable energy development, particularly in solar power generation. In September 2020, the UAE's Minister of Energy and Infrastructure emphasised that climate change had increased in importance in consequence of COVID-19. The UAE plans to transition from 100% natural gas reliance in 2017 in power generation to generate 50% of its power needs from green energy by 2050. Solar is targeted to contribute 44% of the energy mix for power generation, with gas reducing to 38% and clean coal and nuclear making up the balance.

Various solar projects are being developed throughout the UAE, and Abu Dhabi already hosts about 80% of the installed solar capacity in the region. Dubai is developing the Shuaa Energy 3 900MW mega-solar project, and the emirate of Ras Al Khaimah recently launched a pre-qualification for a 15MW capacity aggregated solar tender, the first in the emirate.

In addition to the strides made in expanding renewable energy capacity in the UAE, there is an increasing focus on the potential to develop a low-carbon hydrogen economy and other technologies that are complementary to the oil and gas industry, including Carbon Capture, Utilisation and Storage (CCUS). ADNOC has announced its intention to expand CCUS capacity fivefold by 2030 through its existing Al Reyadah facility and other facilities in the future, such as the Shah gas plant, and through this approach ADNOC aims to maintain its position as a leader in low carbon intensity oil and gas production and to maximise the value of its reserves through use of captured carbon dioxide for enhanced oil recovery.

These ambitious programmes are complemented by the Barakah project – the Arab world's first nuclear power plant – which recently started up its first reactor. When fully operational, this 5.6GW complex, developed by Korea Electric Power Corporation and Emirates Nuclear Energy Corporation (ENEC), is expected to deliver a significant portion of the UAE's electricity needs when all four reactors are operational, with correspondingly significant reductions in carbon emissions.

Image Credit : ENEC

The Barakah nuclear power plant will deliver a significant proportion of the UAE's energy needs when fully operational.

Surplus gas – the future

Some industry commentators consider that the future displacement of gas within the UAE's energy mix seems certain, and believe that Dubai's demand for gas may peak this year or the next. However, natural gas projects both upstream and in the power sector will continue to be developed, such as the 2.4GW Fujairah F3 IPP project, which will be the country's largest gas-fired power plant when it comes online in 2022. Where domestic demand for gas is reduced, as expected, and where the switch in demand to alternative energy sources occurs more rapidly, the question for the UAE is how it will utilise its surplus gas production.

> "Discoveries such as Jebel Ali and Mahani will require significant capital expenditure to bring them online."

As an alternative to, or alongside developing an export market, domestic gas production is expected to be channelled into industrial and petrochemical projects. ADNOC already plans to triple its petrochemicals output by 2025 through its Ruwais facilities alongside refining capacity as part of downstream investment plans for its 2030 growth strategy.

While Qatar has long been a preeminent LNG exporter, Abu Dhabi has exported LNG since 1981. The three-train Das Island export terminal already enables ADNOC to export LNG, and increased LNG exports may be anticipated in the future based on the growth of additional gas supplies that will be available for export. Traditionally supplying LNG to Japan, ADNOC is now seeking to diversify its customer base. As gas produced from the Jebel Ali discovery is intended to be supplied to DUSUP for use in Dubai, it is expected that export of LNG from the UAE would be fed from the other projects being developed in the UAE and from potential new discoveries. But it is clear that the UAE faces challenges in developing its LNG export market, given the competitive market globally, and the position in that market of existing low-cost producers.

Discoveries such as Jebel Ali and Mahani will require significant capital expenditure to bring them online, and this will be a challenge, in light of the current uncertainty as to the extent of the resource, possible technical challenges in production – and the associated cost of production – as well as uncertainty on the possible markets and end use for the gas. An additional challenge to the development of these gas resources for domestic use is the level of integration of the UAE's gas infrastructure, which is likely to require strategic cooperation amongst the emirates and their various gas companies, as well as significant investments.

Overall, the UAE is likely to continue to prioritise gas as an important fuel that is complementary to an energy transition to a lower carbon and more diversified economy. These recent gas discoveries in the UAE should play their part in this process, despite the many uncertainties, and the current economic challenges that the UAE and the oil and gas industry face. ■

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AI and the cloud enable energy's transformative leap

By leveraging artificial intelligence and the cloud in tandem, Middle Eastern oil and gas companies can thrive in the post-pandemic economy, says Dr. Tariq Aslam, head of MEA, AVEVA.

THE CURRENT PANDEMIC has shown the oil and gas sector how dependable enterprise operations can be upended almost overnight. Workforce routines at extraction sites and refineries have been disrupted, causing unplanned outages, as we saw at the Sharara oilfield in Libya. With supply chains interrupted, parts manufactured in traditional source markets could not be delivered on time, delaying essential maintenance. Border closures and an unprecedented drop in demand have further constricted already tight economic operations.

Not only do these conditions look set to continue over the short term, but other challenges loom over the foreseeable future. A supply glut and a depressed outlook for hydrocarbon prices have been forecast over the medium-term, and over the long-term, oil demand could peak within two decades as fuel demand drops and pressure to act on climate change mounts.

To thrive in this brave new world, oil and gas players must respond with transformative action, taking inspiration from the industry's bold, pathbreaking history. At AVEVA, we have made it our mission to help companies capitalise on current opportunities, while striving to protect lives and livelihoods for the companies and communities we serve.

Success in a post-pandemic world will require innovative thinking and action at scale. Here, two transformative new technologies will shape a sustainable future for oil and gas and its partner industries, and for the world around us. These are artificial intelligence, or AI, and cloud computing.

AI is enabling better decisions

AI has been with us for over three decades. As it becomes more sophisticated, with wider use cases, it allows organisations to improve productivity. With unified smart analytics that bridge complete data stacks, teams can leverage mathematical thought processes across all their activities. Individuals are thus afforded scale and capacity that would otherwise have been unavailable: knowledge, data-led intelligence, and the capacity to recognise new opportunities. AI enables people to make better decisions – and even recommends courses of action – that enhance the capabilities of human staff. Overall, McKinsey predicts that AI will drive a 2% growth in manufacturing and energy for the next decade – or US$1 trillion every year.

Image Credit : AVEVA

Dr. Tariq Aslam, head of MEA, AVEVA.

At AVEVA, we have been using AI to enhance the value chain over the past 15 years, with specific applications for predictive analytics in the maintenance and asset performance space. Aramco, for example, uses AI and advanced analytics solutions to help eliminate unplanned downtime across its diverse operations.

> "The cloud helps scale the benefits of AI across the entire range of enterprise operations."

The cloud offers connected insights

Leverage the cloud here and we are able to integrate standalone products, linking AI modules together into a broader intelligence for more efficient performance. With integrated systems comes integrated analysis. AI can produce increasingly more complex insights and recommendations for human workforces quicker and with less chance of error. If AI underpins better decision making, cloud is the glue that binds it all together.

As an example, consider ENEL, which uses next-generation predictive maintenance to leverage AI-driven simulation and forecasting. The result is a 360-degree view of risk that improves decision-making across the business. As soon as an issue is flagged up via predictive maintenance, technicians can seek answers to several follow-up questions. Are there enough system resources to make it the next planned outage, or is an emergency maintenance shutdown required? What is the best time for maintenance to reduce adverse impacts on operations? What knock-on effect could an outage have, and what preventative actions can alleviate it? This is how next-gen technology transforms energy production, driving efficiency and sustainability across an optimised value chain.

The cloud helps scale the benefits of AI across the entire range of enterprise operations as opposed to the past, when narrow AI was infused into various products. This broader AI leads to general artificial intelligence – the ability to make a complex decision using combinations of different types of AI, to learn something in one place and apply it elsewhere. The development of general AI is very much a continuum, and the potential benefits are enormous. Lessons from the resource extraction operation could very well be applied to another division.

With the shift to digital business models following COVID-19, the trend has gathered speed, and we are now partnering with clients worldwide to leverage those benefits. ■

Saga Group continues to focus on expanding overseas markets

SINCE 1984, THE Saga Group has practised a customer-first approach to delivering customised cementing accessory solutions to an expanding global market. Constantly seeking improvement and diversity, Saga has expanded its product and services portfolio over the years to include production chokes, drill-stem testing and casing packers.

Saga PCE is headquartered in Singapore and is the exclusive worldwide distributor for PT Sagatrade Murni products and services.

In recognition of Saga's total commitment to quality, PT Sagatrade Murni has been awarded API 11D1 certification for their manufacturing processes of liner hanger and production packers at their engineering facility at Samarinda, Indonesia.

Offering some insight into the thoroughness of the process, PT Sagatrade Murni's director of Operations in Indonesia, Tony Beale, said, "There are six grades of API11D1 and we have qualified for all six grades, proving we have a first-class QMS."

API 11D1 ensures customers of Saga's unwavering commitment to excellence, quality and reliability. PT Sagatrade Murni is the first company to be awarded the API 11D1 certification awarded in Indonesia, a considerable achievement and a major stepping-stone to opening new markets for customers who demand high quality specifications.

Saga is expanding its facilities to meet increased demand.

Image Credit : Saga Group

Recently, Saga has won new contracts supplying liner hanger equipment and services in the Middle East, and has augmented its manufacturing capacity in the Samarinda facility to meet the increased demand. As Kim Sadler, Saga's director Middle East & Africa points out, "The need for increased range and higher specifications never ceases, and gaining API 11D1 is another step we've taken to ensure our products are meeting the highest quality and consistency."

For more information regarding Saga PCE liner hanger equipment and services, contact Kim Sadler at kims@sagapce.com. Regarding Lancaster Flow Automation chokes, Gerardo Haro-Valdez can be contacted at gerardo@lancasterflow.com or Melvin Sng at melvinsng@sagapce.com.

KELLER introduces new high-resolution digital manometer

KELLER AG FUR Druckmesstechnik has introduced the first of a new generation of high-resolution digital manometers. The LEO 5 features precise sensor technology, fast, high-resolution signal processing, peak recording and data storage with a time stamp. Designed for deployment in hostile environments, the LEO 5 features a robust stainless steel housing, safety glass front, a 16 mm backlit display and capacitive touch controls.

Undetected pressure "spikes" are one of the common causes of premature wear and untimely failures in pneumatic and hydraulic systems. In freshwater systems, this phenomenon is sometimes called "water hammer". The LEO 5, with its pressure peak analysis mode, will sample and record system pressure at a rate of 5 kHz and with 16 bit resolution, enabling the troubleshooter to positively characterise system behaviour. With storage capacity for more than 50,000 peak values, including temperature and time stamp, data from the LEO 5 is exportable for detailed analysis via the included USB interface.

In the standard measurement mode, the LEO 5 operates at a sampling rate of 2 Hz and with an A-to-D resolution of 20 bits. The LEO 5 lineup includes seven standard full scale pressure ranges between 3 and 1,000 bar. In the temperature range of 0…50°C, the TEB (Total Error Band) for pressure is ± 0.1 %FS. When temperature conditions are stable, the LEO 5 is capable of achieving a TEB accuracy of ± 0.01 %FS.

Easy to upgrade thanks to its modular design, the LEO 5 is available with a wide range of optional features, including a standard radio interface for measurements in inaccessible or mobile locations. Traditional analog outputs of 4…20 mA and 0…10 VDC and up to two switch outputs for process control and monitoring can also be provided. Configuration and data transmission take place via USB or RS485 interface. Special housing materials, pressure connections and other user-specific options are available.

The LEO 5 digital manometer.

Image Credit: KELLER AG für Druckmesstechnik

With high resolution for accurate measurement, pressure peak analysis and measurement data recording, the LEO 5 can be quickly adopted as an indispensable tool by the pneumatic or hydraulic system mechanic.

Contact your local Keller office for more assistance regarding specials.

Johnson Arabia introduces new fleet of GROVE RT550E cranes

AS MARKET CONDITIONS improve, Johnson Arabia is hoping to benefit from new exploration efforts in the UAE oil and gas sector. According to market research.com, "Natural gas has become a key strategic priority, and the UAE is planning a string of new investments to further develop its large sour gas resources and meet rising domestic consumption."

With this in mind, the company has introduced a fleet of ten new GROVE RT550E cranes to support its projects in the oil and gas sector as well as other industries. "The Grove RT 550E fits our needs for this market perfectly," said managing director Martin Kirby. "Its compact design, higher lifting capabilities and manoeuvrability in tight spaces makes it a versatile crane for the UAE market for oil and gas projects and urban development where space is limited."

The Grove RT550E can lift up to 45 tonnes of load, measures only 11.7 metres long, is 2.53 metres wide with a six metre footprint and weight less than 29 tonnes. This lends itself to being well under heavy machinery regulations for many of the company's offshore projects.

The GROVE RT550E cranes are ideally suited to oil and gas projects.

Image credit: Johnson Arabia

Mark Bedderson, who manages the Abu Dhabi office and is an expert in the oil and gas market, added, "There was a serious need for compact machines for offshore projects, and our recent purchase of these new Grove RT550E units coupled with our Spider cranes gives us an edge over our competitors. We are their one-stop solution providers for projects that need heavy lifts and have space/weight constraints."

"The GROVE RT550E is the choice of many industries here and in all the Northern Emirates too. It provides reliable service without compromising on power and security. The all-wheel drive and steering modes give it the ability to navigate on uneven ground, steep grades, muddy terrain and other obstacles which makes it the preferred choice for quarry and hydro plant projects," said executive manager for Dubai, Mohammed Fareed. He added, "The one-cab operation makes it easier and faster when relocating on sites, and the 39 metre main boom is an added value when a higher reach is required."

Rising to the Challenges

Stanford Marine operates an extensive fleet of offshore supply vessels.

Image Credit : Stanford Marine

STANFORD MARINE, A leading supplier of offshore support services, is rising to the challenges posed by the COVID-19 pandemic.

Established in 1997, Stanford Marine operates an extensive fleet of offshore supply vessels that service the oil and gas industry in the Middle East, South East Asia and West Africa. With its headquarters in Dubai, it also has offices in Abu Dhabi, KSA, Singapore and Malaysia.

ISO 9001, ISO14001 and OHSAS 18001 certified, the company offers a broad scope of services and has amassed a wealth of experience in chartering vessels for support activities in all kinds of offshore projects ranging from towing and rig move operations to drilling support services, offshore construction services and offshore accommodation.

When the pandemic struck, Stanford Marine, in common with many other companies, took a hit financially due to the steep fall in the oil price, delay and postponement of new projects and cancellation of contracts of operating vessels. Maintaining utilisation at an acceptable level has been very challenging, the company says. At the same time, operating costs have increased due to additional precautions and safety measures required to curb the spread of the pandemic.

"There was a huge impact as lockdowns were imposed," the company says. "Operationally, crewing has been one of the major challenges, with contracts of crew having to be extended due to lockdowns and issuance of visas being temporarily withheld, thereby halting crew changes. We had difficulties in convincing some crew members to continue operations beyond their contracts, as they were worried for their families back home."

Stanford Marine has taken a proactive approach with respect to crew welfare and related operational challenges to address the current challenging environment. This has enabled Stanford Marine to remain resilient in these difficult times to ride out the storm, as it did previously when it faced the fallout from the 2014 oil price crash. The company remains steadfast in its resolve to come out stronger from this challenge and looks forward to a recovery in activity in the future.

Leading in tubular products for oil and gas

TMK's focus on premium steel pipe products is standing it in good stead in the demanding oil and gas environment of the Middle East.

TMK IS ONE of the world's leading producers of tubular products for the oil and gas industry, with shipments totalling 3.83 million tonnes in 2019. Operating production sites in Russia, Romania and Kazakhstan, TMK manufactures steel pipe, with the largest share of sales dedicated to oil country tubular goods (OCTG). The company has a 23% market share in Russia, including 63% of the seamless OCTG market. TMK is focused on meeting the demands of the global oil and gas industry, which makes up approximately 78% of its customer base.

TMK Russia Division, the biggest pipe producer in the region, has plants in Russia and the CIS countries. Its enterprises manufacture almost all types of pipe products: seamless oil country tubular goods (OCTG), seamless and welded line pipe, seamless and welded industrial pipe and welded large diameter pipe.

Focusing on premium connection pipe

"TMK's priority is to produce high-tech and high value-added products such as premium connection pipe including our GREENWELL lubricant-free coating for threaded connections – as well as vacuum insulated and plain-end tubing made of 13 Cr super-chrome steel with gas-tight premium threaded connections," explains the company.

Pipes with premium connections are designed for oil and gas wells in challenging exploration and production conditions, including offshore, deep-sea and the Far North locations, as well as for horizontal and directional wells. The products offer high strength, tightness, excellent bending capacity, and good resistance to other negative external factors.

TMK UP premium threaded connections are used for construction of ERD, SAGD and HPHT wells, facilitating operations such as lowering with turning and casing drilling. The wide range of products makes it possible to facilitate the optimal technical and commercial solution for every project. The gas-tight connections have been tested in compliance with the ISO 13679 and API 5C5 CAL IV, allowing TMK to confirm operability of the joints under high intensity of wellbore deviation, high internal/external pressures and axial loads.

Image Credit : TMK

The TMK UP Centum connection is highly resistant to compression and bending loads at excessive pressures.

> "TMK's priority is to produce high-tech and high value-added products."

There are four categories of connections:

- The LITE Series boasts a comprehensive line of semi-premium connections designed to outperform standard API connections (TMK UP Simplex, TMK UP CWB, TMK UP Magna);
- The CLASSIC series (100/60) – connections with gas-tight metal-to-metal unit, which facilitate reliable operations in wells of difficult geological conditions (TMK UP PF, TMK UP PF ET); compression efficiency: 60%;
- The PRO series (100/100) – these are specialised for extreme resistance to compression and bending loads at excessive internal and external pressures (TMK UP Centum); compression efficiency: 100%;
- The TORQ series – a line of high-torque premium connections capable to withstand increased torques (TMK UP Moment).

When building modern gas wells it is necessary to use gas-tight connections with at least 80% compression efficiency and relatively high operation torque. TMK UP Centum, with compression efficiency of 100% and operation torque, makes it possible to conduct string rotation while cementing. It offers a sealability envelope equal to 100% of pipe body strength, and is the fastest assembling premium connection. This makes it possible to achieve enhanced performance characteristics such as quickness and stability of joint assembly, even in the case of considerable skew of pipe and coupling axes.

In order to decrease the total time of drilling tool round trip operations, TMK has developed the lubricant-free GREENWELL coating that eliminates the application of preservation and thread-tightening lubricants, thus reducing waste and increasing well health.

To date, TMK has supplied more than one million tonnes of OCTG with TMK UP connections to oil and gas projects, and more than 100,000 tonnes of OCTG with GREENWELL. ■

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SINCE 1976, PELICAN has grown to be the trusted expert in safety approved LED lighting products, fully complying with the latest directives to ensure worker safety.

To meet the exact requirements of ATEX, IEC (Europe) and UL/FM (U.S.) directives, PELICAN lights are tested to ensure that they pose no threat of ignition when operating within hazardous locations. Moreover, using approved laboratories, the lights are tested to ensure that they will withstand rigorous impact and drop tests, severe environmental exposure and meet a minimum of IP54 water and dust ingress protection. Longevity and safety are assured by design.

Pelican's trusted range of intrinsically safe flashlights and headlamps for hands-free use, also includes a selection of portable, self-contained floodlights – RALS – to illuminate larger work areas and confined spaces in potentially hazardous environments, including the 9455 RALS - the world's first portable floodlight with three global safety certifications: ATEX European Zone 0 (Cat.1), IECEx ia and CI, D1.

The handheld lights range features lights of up to 588 lumens with a large variety of unique features. It includes the PELI 3345Z0, the first professional torch that automatically adjusts brightness. The Variable Light Output sensor (VLO) examines the ambient light/proximity and instantly adjusts its lumens to the most effective level. The Variable Light Output sensor also makes the Pelican 3345 VLO one of the company's most energy efficient flashlights, preserving power and stretching battery life. Additionally, the secondary flood beam illuminates potential trip hazards like loose cables, while the primary spot beam brightens long tunnels.

As with all other PELICAN handheld torches, this light comes with the legendary PELICAN Lifetime Guarantee.

PELICAN's safety lights are designed for use in hazardous areas.

Image Credit: PELICAN

The company offers more than 60 lights with USA Safety approvals and European ATEX certification.

For more information on ATEX lighting:
https://www.peli.com/eu/en/products/flashlights/atex-lights
For more information on US safety lighting:
https://www.pelican.com/us/en/products/flashlights/safety-lights
For more information about the RALS please check:
https://www.pelican.com/us/en/products/remote-area-lights

Weatherford introduces new reservoir monitoring solution

WEATHERFORD INTERNATIONAL HAS launched ForeSite Sense, a comprehensive reservoir monitoring solution that shows, in real-time, critical downhole data such as pressure, temperature and flow.

"Data tells the story of reservoir behaviour, and reservoir behaviour determines production efficiency and cost of asset ownership," said Brent Baumann, president, completions and production, Weatherford. "Without question, intelligence drives profitability. ForeSite Sense empowers operators to monetise their data because it creates continuous, actionable intelligence for any well, in any environment and for every budget."

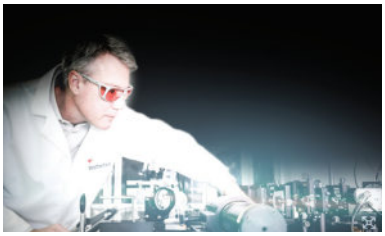

Image credit: Weatherford International

ForeSite Sense shows critical downhole data in real time.

From single production zones in mature fields to distributed sensing arrays in deepwater basins, Weatherford combines single-cable simplicity, proven sensor reliability, and unprecedented data quality. ForeSite Sense matches data needs with well complexity and economics to deliver a life-of-well solution that draws from a comprehensive selection of optical, quartz, and piezo-electric gauges, paired with optical flowmeters and intelligent capillary and coiled-tubing remediation services.

DOMO Chemicals unveils carbon replacement for submersible pumps

DOMO CHEMICALS HAS expanded its THERMEC range of enhanced polymers, with the introduction of a new solution for the replacement of sintered carbon in submersible pump thrust bearings applications.

THERMEC S is a glass and mineral filled, lubricated polyphenylene sulfide (PPS) based material that offers outstanding abrasion and wear resistance properties to improve tool life.

"Sintered carbon thrust bearings have a long tradition of use within submersible pumps, but there is a risk of easy breakage during handling," said Tushar Parida, country manager, India at DOMO. "THERMEC S overcomes these issues by delivering on high compressive strength and temperature resistance, while also offering excellent mechanical performance, and low creep. It's an excellent addition to the THERMEC portfolio."

Submersible pumps are typically placed at several metres below the earth's surface for water extraction. Thrust bearings are highly critical to the life and performance of these pumps. Since these bearings undergo continuous rotation, they will rub against sand, mud, and the metal stationary surface of the bearing housing.

Siemens Energy and Bentley Systems introduce APM solution for oil and gas operators

SIEMENS ENERGY AND Bentley Systems, Inc have announced a joint solution to deliver intelligent analytics derived from domain experience to reduce operating expenditures associated with oil and gas assets.

The Asset Performance Management for Oil & Gas (APM4O&G) service incorporates major complementary offerings from both companies to help operators enhance asset performance, eliminate downtime, and reduce maintenance costs.

The APM4O&G solution combines Bentley's advanced asset performance software capabilities (AssetWise) with Siemens Energy's technology and service expertise to empower operators to improve maintenance operations and planning.

Image credit: DesignsWithDani/Pixabay

The aim is to help operators enhance asset performance, eliminate downtime and reduce maintenance costs.

The solution, part of Siemens Energy's Omnivise digital solutions portfolio, is set to support maintenance activities across several assets, including onshore compressor stations and gas processing plants, as well as offshore production platforms and floating production, storage, and offloading (FPSO) vessels.

The APM4O&G solution adopts smart, condition-based strategies based on predictive analytics to optimise maintenance schedules in compressor stations and gas processing plants, helping extend asset life and keeping maintenance costs down. Offshore, the solution helps operators reduce logistics costs associated with unplanned maintenance activities.

Underwater survey robot on target after successful trials

A STATE-OF-THE-ART UNDERWATER survey robot being developed by a collaboration of companies from across the UK is on schedule for completion next spring after a successful first demonstration.

Forth Engineering in Cumbria hosted Drop One Trials of the autonomous underwater system for nuclear inspection at its headquarters in Cumbria in August.

Drop Two Trials are now being planned for the beginning of next year with the project on target to be completed in March 2021. It is part of the Autonomous Aquatic Inspection and Intervention (A2I2) collaborative R&D project supported by Innovate UK under the Industrial Strategy Research Fund.

The A2I2 consortium, led by Rovco, is developing various world-leading technology for use across multiple sectors, including offshore wind, nuclear, oil and gas and other industries, which aims to improve safety by reducing risks when working in challenging and hazardous environments.

Forth, Rovco, D-RisQ, the National Oceanography Centre (NOC), Thales UK and The University of Manchester, have been developing autonomous underwater systems as part of a cross-cutting programme, which brings together expertise from multiple industries and academia.

Rovco has been supporting each work stream with its groundbreaking, artificial perception technologies including 3D Computer Vision, Simultaneous Location and Mapping (SLAM), autonomous path planning and scene understanding using Machine Learning (ML). Rovco's Intelligent Data Collection System can be integrated into any subsea vehicle to enhance its capability.

D-RisQ brings advanced automated software development tools to safety-critical, security-critical and business-critical systems developers.

The University of Manchester is developing wireless underwater communications, which will ultimately eliminate the need for a tether, allowing the robots developed in A2I2 to operate more freely in hazardous environments.

Forth, which has bases at Maryport, Cleator Moor and Barrow, has built a global reputation for working collaboratively to develop world-first technologies, providing cutting edge solutions to complex industrial challenges.

PulseEight EAV puts the beat back into the heart of failed wells

AS THE WORLD'S first re-deployable wireless completion, Tendeka's PulseEight dynamic downhole reservoir management system is the right choice to safely produce wells with failed safety valves and reduce environmental impact.

The PulseEight Electronic Ambient Valve (EAV) has control, power, monitoring and communications built in. It is designed to conduct downhole shut-ins and re-establish lost well control with fewer of the constraints of insert valves and storm chokes.

It operates by sensing changes in flow that signal fluid losses or emergency shutdown, and takes immediate remedial action. The self-monitoring device also uses a subset of Tendeka's Fluid Harmonics wireless telemetry to send a daily health-check to surface, thereby removing the uncertainty associated with traditional tooling. With increased functionality, the tool can respond to more trigger events over a broader range of flowing conditions that restricted the functioning of traditional storm chokes.

The self-powered system is simple and quick to install, set and operate, with no requirement for additional surface infrastructure. As it can be set at any depth, it can essentially supplement a fully functioning safety valve and be used as a shut-in device below areas of integrity concern across the tubing to the annulus barrier.

Being able to return shut-in wells back to production without the need of a full workover is key to being able to efficiently and economically produce reservoirs. As a more agile and sustainable completions approach, the PulseEight EAV is a re-usable, intervention-based system proven to return several PDNP (Proved Developed Non-Producing) assets back to revenue generation.

PulseEight operates by sensing changes in flow that signal fluid losses or emergency shutdown, and takes immediate action.

Pipeotech offers 10-year gas-tight operation on its DeltaV-Seal

NORWAY'S PIPEOTECH IS offering a 10-year gas-tight guarantee as standard on its innovative DeltaV-Seal, a CNC-manufactured one-piece metal gasket featuring sharp sealing rings that deform upon installation to form a perfect fit with flanges.

"The DeltaV-Seal is unique, and that means we can promise our global customers unique performance, unique durability and a truly unique guarantee," said Henrik Sollie, CEO of Pipeotech.

DeltaV-Seal is suitable for applications in sectors including oil and gas, to chemical processing, maritime, pharmaceuticals, and food and drink production.

Its construction from the same metal as the flanges it mates with ensures a permanent seal that is gas tight, fire and blow-out safe, capable of withstanding any temperature (both high and cryogenic), and one that will not disintegrate over the long-term. It never needs re-tightening, ensuring less pipeline maintenance, according to the company.

"We want to simplify pipeline sealing," Sollie adds. "By giving our customers a solution they can essentially 'install and forget' it allows them to focus on core operations and business, rather than gauging what levels of leakage are acceptable and worrying about seal maintenance and replacement. DeltaV-Seal gives companies, even those in the most demanding industrial segments, the performance they need to maintain safe, sustainable, and optimally productive operations for the long-term."

Image credit: Pipeotech

DeltaV-Seal

The DeltaV-Seal is type approved by DNV GL and trusted by a range of market leading industrial players, including VARD, Avista Oil, GE Healthcare, Quantafuel and Primagas.

Pipeotech's 10-year gas tight guarantee covers all gaskets made in the materials, size and pressure classes covered by DNV GL certification. It is available on all approved DeltaV-Seal installations worldwide.

Novosound introduces range of NDT products

SCOTTISH TECHNOLOGY START-UP Novosound has launched a range of non-destructive testing (NDT) products, providing technological progress that can improve the inspections process.

Novosound's products, which have all been developed and produced in Scotland, can solve the issues facing the NDT market, with current technology hindered by poor signal conduction with sensors unable to fit curved surfaces or unusual geometries, an inability to work at high temperatures and the difficulties of manufacturing reliable high-resolution ultrasound probes at scale from ceramics and polymers.

Named after Celtic legends – the Kelpie, Belenus and Nebula – Novosound's new three NDT products are suitable for oil and gas, renewables, and energy sectors.

Dr Dave Hughes, founding director and chief technology officer of Novosound, said, "The technology we have developed is the dawning of a new era in NDT, saving organisations time and money, as well as improving safety.

"When the Covid-19 pandemic struck, we looked at how we could take all the learnings from taking our prototypes to global trade shows and encapsulate this into these new products."

The range of products can enable energy companies to do their inspections once a week instead of in a once a year cycle.

Image credit: Novosound

Novosound Kelpie at the Kelpies sculpture near Falkirk.

"With the shutting down of an oil pipeline costing the industry around US$1mn a day, our technology means that unplanned inspections won't have the same economic impact," Dr Hughes added. The three products are:

- The Kelpie, which carries out corrosion mapping or wall thickness measurements via its innovative thin-film probes, which can inspect pipes regardless of their size or across unusually shaped geometries
- The Belenus, a match-boxed sized sensor for continuous corrosion monitoring in higher temperature enclosed environments. It enables weekly data capture instead of the current annual inspection most firms do
- The Nebula, which enables the continuously monitoring of results to be remotely reported via the cloud.

Interactive well path planning technology from CGG GeoSoftware

CGG GEOSOFTWARE HAS launched WellPath, a new interactive 3D well path planning solution for optimal well planning in unconventional and fractured reservoirs as well as offshore development platforms, as part of its InsightEarth 3D visualisation and interpretation software suite.

WellPath shows the complexity of the subsurface drilling environment in 3D so that drillers can quickly plan and QC horizontal wells on high-density, multi-lateral pads or large offshore platforms. Drilling engineers now have the power to perform interactive directional well path planning while adhering to the constraints of geological targets and engineering design. Drillers can optimise plans based on fractures, facies, geobodies, and reservoir attributes, while avoiding hazards, legacy wells, and recent completions prevalent in certain areas, such as the Permian Basin of west Texas.

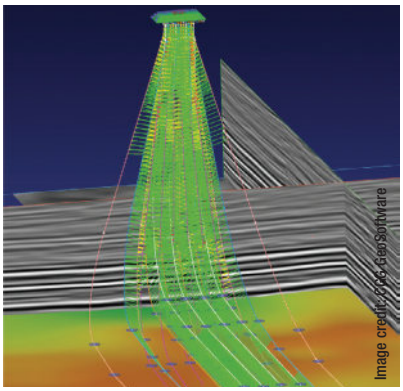

Image credit: CGG GeoSoftware

A 24-well pad is planned to hit the geoscience targets all at once while adhering to engineering constraints. Anti-collision lines are shown and coloured for the various collision risk thresholds.

A significant feature of WellPath is the ability to integrate all available geological and geophysical data and interpretations, locations and paths of planned and existing wells, and cultural data to find the optimal solution to well planning in unconventional and fractured reservoirs.

Planners can use the functionality within the new technology to perform accurate anti-collision calculations and generate reports for all wells and scenarios.

Kamal al-Yahya, senior vice-president, GeoSoftware & Smart Data Solutions, said, "With our new WellPath capability, planning engineers can quickly guide the well path, test multiple targets in 3D, and finalise path design."

Amarinth expands its vertical inline pumps range

AMARINTH, WHICH SPECIALISES in the design, application and manufacture of centrifugal pumps and associated equipment to the oil & gas, petrochemical, LNG, chemical, industrial, power and desalination markets, has expanded its range of single stage vertical inline overhung single stage centrifugal pumps in API 610 11th edition OH3 and OH5 standards for use in the oil and gas industry, and in ISO 5199 standard for process and industrial duties.

All pumps are available in a wide variety of materials from carbon steel to exotic alloys, including NACE compliant materials, to suit any requirement. Additionally, pumps can be supplied as close coupled or long coupled. Both API 610 and ISO 5199 pumps are designed to comply with ATEX specifications and furthermore will shortly conform to the new IECEx certification for centrifugal pumps as soon as the relevant audits can be conducted, which have been delayed due to the Covid-19 pandemic.

The vertical inline pumps utilise the same proven hydraulics as Amarinth's horizontal pumps that are used on many of the world's most demanding pump projects. Advanced computer techniques, including 3D modelling, finite element analysis and computation fluid dynamics, were used to ensure the high reliability and maintainability.

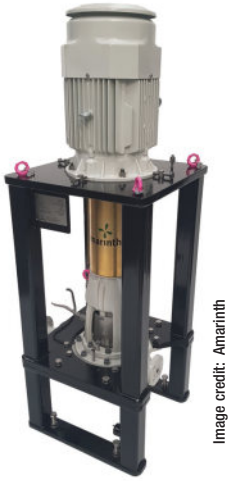

Image credit: Amarinth

Amarinth API 610 OH3 long coupled pump

All pumps feature a back pull-out with metal to metal fits. "API 610 OH3 and OH5 pumps are designed for 30 years (three years uninterrupted operation) life and ISO 5199 pumps for 20 years (two years uninterrupted operation) life," says the company.

- The Amarinth F Series is a range of API 610 OH3 long coupled pumps and the Amarinth G Series is a range of API 610 OH5 close coupled pumps. Both the F and G Series pumps have a standard design pressure rating of 20 bar g at 20C.
- The Amarinth I Series is a range of API 610 OH3 long coupled pumps and the Amarinth J Series is a range of API 610 OH5 close coupled pumps. Both the I and J Series pumps have a standard design pressure rating of 51.8 bar g at 38C.
- Finally, the Amarinth K-Series comprises of ISO 5199 vertical inline close and long coupled pumps with a standard design pressure rating of 20 bar g at 20C.
  Standard documentation, testing and NDT packs are offered with all API 610 and ISO 5199 vertical inline pumps.

Siemens new 80 GHz compact radar transmitters for level measurement offers easy configuration

SIEMENS PRESENTS TWO new additions to the Sitrans LR100 series of 80 GHz radar transmitters. These high-frequency, compact transmitters can deliver robust, reliable measurements even in the most challenging environments. Both deliver fast and easy set-up.

Sitrans LR140 features 4-20 mA simplicity and is configured via Bluetooth wireless technology and the Sitrans mobile IQ App.

Image credit: Siemens

High-frequency radar ensures reliable readings in challenging environments.

Sitrans LR150 offers a four-button user interface on an optional HMI for configuration or monitoring. Configuration is also available via Bluetooth wireless technology and the Sitrans mobile IQ App or remotely with 4-20 mA/HART using Simatic PDM.

The easy-to-use quick start wizard will have the transmitter operational in minutes. Custom microchip technology can deliver fast response and extremely high sensitivity to detect even the weakest of signals.

Reliable readings mean reduced operator exposure to hazardous situations: no need to climb tanks, lean out over sumps, or crawl into confined spaces to maintain instruments. Zero blanking distance allows measurement right up to the sensor, thereby avoiding costly overfilling. And two-millimeter accuracy enhances operational safety through precise measurement through the full range of the application.

All this robust performance is wrapped in a submersible housing constructed of corrosion-resistant materials.

Integrating critical level readings or process control data into operations can unlock new opportunities to react to safety concerns, analyse processes and identify areas for improvement. Users can monitor level measurements or diagnostic and maintenance information from the comfort of the control room, or connect to Siemens MindSphere, the cloud-based, open IoT operating system or any other IoT solution of the user's choice.

Nanotechnology project to boost North Sea gas production

SCIENTISTS FROM THE University of Aberdeen are developing new technology they claim will be a "game-changer" in enhancing production from North Sea gas fields. Nanotechnology is more commonly associated with medical sciences, with limited application in the oil and gas sector. But now, academics are pioneering a new method that harnesses nanotechnology to enhance the production efficiency of cyclic gas wells.

The project is being led by Dr Roozbeh Rafati and Dr Amin Sharifi from the University's School of Engineering. It is supported by the Oil and Gas Technology Centre (OGTC) and three industrial partners - Chrysaor Production UK Limited, Schlumberger and ChampionX.

The work is based on the development of so-called 'smart fluids', using nanoparticles that significantly improve existing techniques that promote well production.

Image credit: C Morrison/Pixabay

Using nanotechnology can provide economic benefits through operational savings.

Dr Sharifi said, "There are challenges associated with the gas production from mature reservoirs where reservoir pressure is low and gas production may become uneconomic using the current technologies.

"We have been discussing these issues with oil and gas companies since 2018, and based on fundamental research has been carried out here at the School of Engineering, we are using nanotechnology to develop smart fluids that have the potential to overcome these challenges.

"Over the next 15 months we aim to prove that this technology will work, and if successful we will then move to a North Sea field trial in 2021."

Dr Rafati added, "The potential for this technology is huge, with significant annual production improvements foreseen per gas well. Not only will it provide economic benefit through operational savings, but it will also offer an environmentally friendly solution compared to current technologies."

Project Databank

Compiled by Data Media Systems

OIL, GAS AND PETROCHEMICAL PROJECTS, UAE

Project Name	City	Facility	Budget (US$)	Status
ADNOC Sour Gas - Hail and Ghasha Megaproject - Package 4	Ghasha	Oil & Gas Field	6,000,000,000	EPC ITB
ADNOC Sour Gas - Hail and Ghasha Megaproject - Package 3	Ghasha	Oil & Gas Field	2,000,000,000	EPC ITB
ADNOC Sour Gas - Hail and Ghasha Megaproject - Package 2	Ghasha	Oil & Gas Field	2,000,000,000	EPC ITB
ADNOC Sour Gas - Hail and Ghasha Megaproject - Package 1	Hail	Oil & Gas Field	4,000,000,000	EPC ITB
ADNOC Sour Gas - Hail and Ghasha Megaproject - Overview	Abu Dhabi	Oil & Gas Field	14,000,000,000	Construction
ADNOC Offshore - Umm Shaif Gas Cap Condensate Development	Abu Dhabi	Gas Processing	1,500,000,000	EPC ITB
Total - Diyab Gas Export Pilot Project (Unconventional Gas)	Ruwais	Gas Exploration	1,000,000,000	Construction
Fujairah Oil Terminal (FOT) - Fujairah Oil Terminal Modifications	Fujairah	Very Large Crude Carriers (VLCCs)	200,000,000	Engineering & Procurement
ADNOC - Borealis - Polypropylene (PP) Plant	Abu Dhabi	Polypropylene	550,000,000	Construction
AD Ports - ACT - Khalifa Port Liquid Storage Facility - Phase 1	Abu Dhabi	Gas Storage Tanks	400,000,000	FEED
ADNOC Onshore - Jebel Dhanna Crude Receiving Facility Upgrade	Jebel Dhanna	Oil Storage Terminal	120,000,000	Engineering & Procurement
Borouge - Ruwais Polypropylene Plant 5 (BPP5)	Ruwais	Polypropylene	575,000,000	Construction
BPGIC - Fujairah Oil Terminal - Overview	Fujairah	Oil Storage Terminal	561,000,000	Construction
BPGIC - Fujairah Oil Terminal - Phase 2	Fujairah	Oil Storage Terminal	161,000,000	Commissioning
ADNOC - Borealis - Borouge 4 Complex	Abu Dhabi	Petrochemical Plant	4,500,000,000	FEED
ADNOC Onshore - Asab Full Field Development II - Overview	Asab	Oil Field Development	250,000,000	Construction
ADNOC Onshore - Asab Full Field Development II - Stage 2	Asab	Oil Field Development	150,000,000	EPC ITB
ADNOC Gas Processing - Habshan 5 Debottlenecking for Associated Gas	Habshan	Gas Production	250,000,000	Engineering & Procurement
ADNOC Onshore - Al Dabb'iya Thamama B Transition Zone B - Phase 2	Thamama	Oil Field Development	200,000,000	EPC ITB
ADNOC - Umm Shaif Long Term Development - Phase 1	Umm Shaif	Oil Field Development	400,000,000	EPC ITB
ADNOC Sour Gas - Hail and Ghasha Megaproject - Package 5	Ghasha	Oil & Gas Field	150,000,000	Construction
ADNOC Onshore - Bu Hasa Tie - in Wells (Call-Off)	Bu Hasa	Oil Field Development	200,000,000	EPC ITB
ADNOC Onshore - Jebel Dhanna Replacement of Main Oil Lines (MOL) 1.2 & 3.5	Jebel Dhanna	Pipeline	225,000,000	Engineering & Procurement
Al Yasat Petroleum - Belbazem Oil Field Development	Abu Dhabi	Oil Field Development	1,000,000,000	EPC ITB
ADNOC Sour Gas - Dalma Field Development - Offshore Package	Dalma	Oil Field Development	750,000,000	EPC ITB
ADNOC Sour Gas - Dalma Field Development - Onshore Package	Dalma	Oil Field Development	1,100,000,000	EPC ITB
ADNOC Sour Gas - Dalma Field Development - Overview	Dalma	Oil Field Development	2,000,000,000	EPC ITB
ADNOC - Deep Gas Project	Abu Dhabi	Gas Field Development	1,200,000,000	PMC
ADNOC Gas Processing - Northern Emirates Gas Network Upgrade	Various	District Gas Network	1,600,000,000	FEED ITB
ADOC - Hail Oil Field Water Injection System	Hail	Water Injection	120,000,000	FEED
BPGIC - Fujairah Oil Terminal - Phase 3	Fujairah	Oil Storage Terminal		FEED
ADNOC Onshore - Bab Field SIMGAP EOR Project	Bab	Enhanced Oil Recovery (EOR)	100,000,000	Design
ADNOC Onshore - Bab Gas Compression - Phase 3	Abu Dhabi	Gas Compression	220,000,000	EPC ITB
ADNOC Refining - Crude Flexibility Project (CFP)	Ruwais	Oil Pipeline	3,100,000,000	Construction
ADNOC Offshore - Umm Al Dalkh Field Development	Abu Dhabi	Oil Field Development	100,000,000	EPC ITB
ADNOC - Al Dhafra Petroleum - Haliba Oil Field - Overview	Haliba	Oil Field Development	1,350,000,000	Construction
ADNOC - Al Dhafra Petroleum - Haliba Oil Field - Phase 1	Haliba	Oil Field Development	500,000,000	Commissioning
ADNOC Offshore - Upper Zakum Facilities Expansion - Phase 1	Abu Dhabi	Flowlines	8,000,000,000	PMC ITB
ADNOC - Al Dhafra Petroleum - Haliba Tie - in Wells	Haliba	Oil Field Development	130,000,000	Engineering & Procurement
ADNOC Onshore - Qusahwira Field Development - Phase 2	Abu Dhabi	Oil Field Development	600,000,000	Construction
ADNOC LNG - Integrated Gas Development (IGD) - Expansion - Overview	Das Island	Gas Field Development	1,370,000,000	Construction
ADNOC LNG - Integrated Gas Development (IGD) - Expansion (Phase 2)	Das Island	Gas Field Development	450,000,000	Construction
ADNOC - Dusup - Jebel Ali Gas Reservoir	Jebel Ali	Gas Production		Pre-FEED
ADNOC Offshore - Umm Shaif & Zakum - Application of DOF	Abu Dhabi	Oil Field Development	120,000,000	Engineering & Procurement

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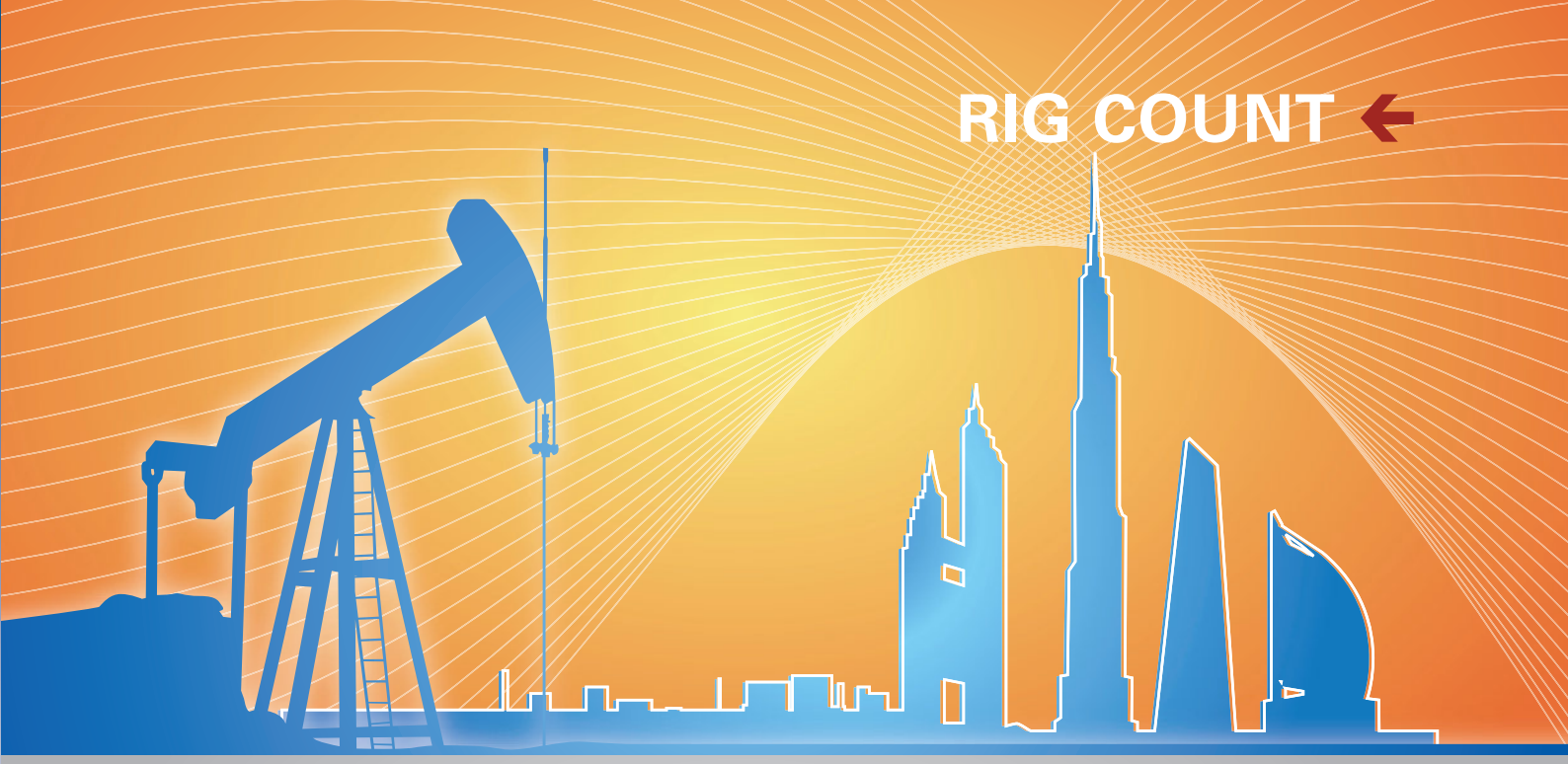
The DNA for Success

Project Databank

Compiled by Data Media Systems

OIL, GAS AND PETROCHEMICAL PROJECTS, UAE

Project Name	City	Facility	Budget (US$)	Status
ADNOC - Fujairah - Midstream/ Downstream Facility	Fujairah	Oil & Gas Field		Project Announced
SNOC - Moveyeid Gas Storage Surface Facility	Sharjah	Oil Storage Tanks	70,000,000	Engineering & Procurement
ADNOC Gas Processing - Ruwais Capacity Enhancement - NGL Trains 1,2,3 & 4	Ruwais	Natural Gas Liquefaction (NGL)	300,000,000	EPC ITB
SNOC - ENI - Onshore Acreage Exploration (Areas A, B and C)	Sharjah	Exploration	1,000,000,000	Construction
Shaheen Chem Investments - Ethylene Dichloride & Caustic Soda Plant	Taweelah	Caustic Soda	1,000,000,000	Feasibility Study
ADNOC Refining - Gasoline and Aromatics Project	Abu Dhabi	Aromatics	2,500,000,000	EPC ITB
ENOC - Horizon Terminals - Jebel Ali Refinery Capacity Expansion	Dubai	Petroleum Oil Refinery	1,000,000,000	Commissioning
ADNOC - Fujairah Mandous Field	Mandous	Oil Storage Tanks	2,200,000,000	Construction
ADNOC - Al Dhafra Petroleum - Haliba Oil Field - Phase 2	Haliba	Oil Field Development	800,000,000	FEED
ADNOC Gas Processing - Bu Hasa Debottlenecking & Associated Pipeline	Bu Hasa	Gas Production	300,000,000	Construction
ENOC - Al Maktoum Airport - Jet Fuel Pipeline Expansion	Dubai	Jet Fuel Pipeline	250,000,000	Construction
ADNOC Offshore - Zirku Facilities Capacity Enhancement	Zirku	Oil Field Development	410,000,000	Construction
RAK Gas - LPG Storage Terminal - Overview	Ras Al Khaimah	Liquefied Petroleum Gas (LPG)	300,000,000	EPC ITB
ADNOC Offshore - Bu Haseer Field	Bu Haseer	Pipeline	155,000,000	Commissioning
ADNOC Onshore - Bab Integrated Facilities Project	Bab	Oil Field Development	3,000,000,000	Commissioning
ADNOC Gas Processing - Ruwais Train 1 & 2 Process Cooling Fire Water Pumps Replacement	Ruwais	Gas Processing	80,000,000	Construction
ADNOC Onshore - South East Asset - Tie - in Project (A,B, C & D)	Asab	Oil Field Development	650,000,000	Construction
ADNOC Refining - Ruwais Complex Upgrade - New Refinery	Ruwais	Petrochemical Plant	45,000,000,000	Pre-FEED
ADNOC Onshore - Asab Full Field Development II - Stage 1	Asab	Oil Field Development	100,000,000	Construction
ADNOC Onshore - Bab Process Control and Power System Upgrade	Bab	Water Injection	300,000,000	Construction
ADNOC Refining - Waste Heat Recovery	Ruwais	Petroleum Oil Refinery	263,000,000	Construction
ADNOC Onshore - 1.8MBPD Development - Bab Artificial Lift Wells	Abu Dhabi	Artificial Lift	100,000,000	EPC ITB
AquaChemie - Jebel Ali Port Chemical Terminal Facility	Jebel Ali	Terminal	40,000,000	Design
ADNOC Gas Processing - Integrated Gas Development (IGD) - Expansion (Onshore Pipeline)	Abu Dhabi	Gas Production	710,000,000	Commissioning
ADNOC Onshore - Rumaitha, Shanayel and Northeast Bab Tie In	Abu Dhabi	Oil Field Development	350,000,000	Construction
ADNOC Onshore - Buhasa Integrated Facilities Project	Bu Hasa	Oil Production	3,000,000,000	Construction
ADNOC Onshore - Buhasa Wellhead Remote Monitoring	Abu Dhabi	Oil Field Development	100,000,000	Construction
ADNOC Refining - Ruwais Refinery East - SRU Replacement	Ruwais	Sulphur Recovery	100,000,000	Construction
ADNOC Offshore - 750 West Region - Capacity Expansion & Sulphate Reduction Plant - EPC 3	Abu Dhabi	Sulphur Recovery	300,000,000	Commissioning
ADNOC - Al Yasat Petroleum - Bu Haseer Field Development Package 2 & 3	Bu Haseer	Oil Field	300,000,000	Commissioning
ADNOC Onshore - Bab 485 MBD Sustainable Facilities	Bab	Artificial Lift	500,000,000	Engineering & Procurement
ADNOC Offshore - Upper Zakum Full Field Development - 750 Project - Surface Facilities - EPC 2	Zakum	Oil Production	3,840,000,000	Commissioning
ADNOC Refining - BEAAT Ruwais - Expansion	Abu Dhabi	Waste Management	250,000,000	Commissioning
Borouge - Ruwais Pelletizing Plant - Bagging Lines Addition	Ruwais	Polymers	100,000,000	Feasibility Study
ADPC - Fujairah Port Expansion - Overview	Fujairah	Oil Storage Terminal	160,000,000	Construction
ADPC - Fujairah Port Expansion - Container Terminal	Fujairah	Oil Storage Terminal	60,000,000	Construction
ADNOC Offshore - Satah Al Razboot (SARB) Deep Gas Development	Satah Field	Offshore Platform	1,000,000,000	Feasibility Study
Port of Fujairah - Dibba Port	Fujairah	Oil Storage Terminal	100,000,000	EPC ITB
ADNOC Gas Processing - Ruwais Sulphur Handling Terminal Expansion (SHT 1)	Ruwais	Terminal	200,000,000	FEED ITB



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.

	SEPTEMBER 2020			VARIANCE		AUGUST 2020		
Country	Land	Offshore	Total	From Aug. 2020	From Sept. 2019	Land	Offshore	Total
Middle East								
ABU DHABI	33	14	47	-4	-18	36	15	51
DUBAI	0	0	0	0	-2	0	0	0
IRAQ	28	0	28	-1	-49	29	0	29
KUWAIT	41	0	41	-2	-5	43	0	43
OMAN	39	0	39	-5	-14	44	0	44
PAKISTAN	12	0	12	-3	-10	15	0	15
QATAR	1	5	6	-1	-6	1	6	7
SAUDI ARABIA	65	20	85	+2	-29	69	14	83
YEMEN	1	0	1	0	+1	1	0	1
TOTAL	220	39	259	-4	-132	238	35	273
North Africa								
ALGERIA	22	0	22	-8	-20	30	0	30
EGYPT	19	3	22	-5	-9	23	4	27
LIBYA	9	0	9	-4	-7	13	0	13
TUNISIA	1	1	2	+1	0	1	0	1
TOTAL	51	4	55	-16	-36	67	4	71

Source: Baker Hughes

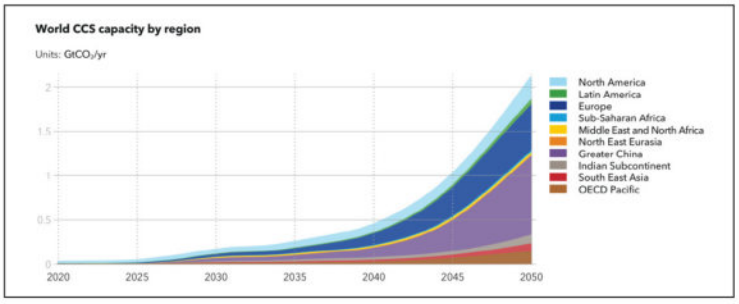
الحالي، ومن بين أعلى المعدلات بين جميع المناطق. فهذه المنطقة الغنية بالأحفوريات تمر بمرحلة انتقالية بطيئة نسبيا، مع انخفاض الانبعاثات بنسبة أقل من المناطق الأخرى التي تتمتع بنفس مستويات المعيشة».

الحاجة إلى تكثيف جهود إزالة الكربون

يسلط التقرير الضوء على الحاجة الملحة إلى تكثيف جهود إزالة الكربون في صناعة النفط والغاز، مع توقعات باستمرار ارتفاع انبعاثات الكربون بشدة حتى منتصف العقد المقبل. ومن بين العوامل المساهمة في انخفاض انبعاثات الكربون في منتصف العقد المقبل توسيع نطاق إزالة الكربون من الغاز الطبيعي، وتعزيز استخدام الغاز الصديق للبيئة المنتج باستخدام مصادر متجددة.

ويؤدي تزايد الوعي بمدى إلحاح وحجم تحدي تغير المناخ إلى زيادة الضغط على صناعة النفط والغاز لإزالة الكربون، مع تحويل العديد من شركات النفط والغاز الكبرى نفسها إلى شركات طاقة واسعة النطاق. إذ أن التقارير تشير إلى أنه «قد يعتمد نجاح القطاع على المدى الطويل على قدرته على القيادة الاستباقية لعملية التحول الضرورية بدلا من الاستجابة للضغط المجتمعي بشكل سلبي». فالحد الأدنى من الانبعاثات يهيمن على جدول أعمال إزالة الكربون في الصناعة على المدى القصير، مع حلول رئيسية تشمل كهربة المنصات البحرية وأصول النفط والغاز، والحد من الاحتراق والتنفيس، وزيادة الجهود للكشف عن تسرب غاز الميثان ووقفه، ومكاسب الكفاءة من خلال رقمنة سلسلة القيمة لقطاع النفط والغاز. ومع ذلك، يشير التقرير إلى أن تقنية احتجاز الكربون وتخزينه (CCS) لديها القدرة على إزالة الكربون من الوقود الأحفوري بشكل أعمق.

وقد صرح ليف هوفيم، الرئيس التنفيذي لشركة «دي إن في. جي إل» للنفط والغاز قائلا: «سيؤدي التحول إلى الطاقة المتجددة والجهود المبذولة لخفض كثافة الكربون إلى تقليل الانبعاثات بشكل كبير، لكنه لن يؤدي إلى إزالة الكربون من الغاز الطبيعي بشكل كبير». وأضاف: «يمكن لصناعة النفط والغاز إزالة الكربون بصورة كبيرة، والوصول إلى القطاعات التي يصعب تخفيفها في جميع أنحاء سلسلة القيمة، فقط عن طريق إزالة الكربون من الغاز الطبيعي، قبل الاحتراق أو بعده».



مناطق تقنية احتجاز الكربون وتخزينه حول العالم

ومن بين العوامل المساهمة في خفض انبعاثات الكربون، بداية من منتصف العقد المقبل، هي عملية توسيع نطاق إزالة الكربون من الغاز الطبيعي، وتعزيز استخدام الغاز الصديق للبيئة المنتج باستخدام مصادر متجددة. ويتوقع التقرير إزالة الكربون من 13 في المائة من الغاز بحلول عام 2050، بعد النمو السريع في إنتاج الهيدروجين من الغاز الطبيعي، وإنتاج الغاز الطبيعي باستخدام تقنية احتجاز الكربون وتخزينه في قطاعات الطاقة والصناعة.

ويشير التقرير، في سياق اتفاقية باريس، إلى أن «عمليات التحول إلى الغاز الخالي من الكربون والغاز الصديق للبيئة، مع التحجيم المرتبط باحتجاز الكربون وتخزينه والهيدروجين لن تكون بالسرعة الكافية». ويتنبأ بأن استخدام تقنية احتجاز الكربون وتخزينه والهيدروجين لن يبدأ في التوسع لمدة 15 عاما أخرى. ويعلق التقرير: «في حين أن التكنولوجيا الخاصة بتوسيع نطاق الغاز الخالي من الكربون والغاز الصديق للبيئة متاحة وقابلة للتطبيق، إلا أن إطار السياسة لتوسيع نطاقها لا يزال في مرحلة التكوين فقط، ويقتصر على بعض المناطق». وكذلك «تحتاج عملية دعم السياسات لتقنية احتجاز وتخزين الكربون والهيدروجين وحلول القطاعات التي يصعب تهدئتها إلى تسريع عاجل إذا أرادت تلك المناطق والعالم تحقيق أهداف الانبعاثات».

وقد علق السيد/هوفيم قائلا: «سيكون تكوين شراكات بين الحكومات والصناعة والمنظمات أمراً حاسماً في توسيع نطاق الابتكار والتقنيات الجديدة لإزالة الكربون. كما أن التعاون في أطر عمل جعل تقنيات احتجاز وتخزين الكربون والهيدروجين آمنة وفعالة ومجدية تجاريا سيعطي صناعة النفط والغاز اليقين الذي تحتاجه لإدارة المخاطر الجديدة وتسريع تحولها نحو مستقبل منخفض الكربون».

ويشير التقرير إلى أن بعض سياسات التحول ستؤثّر في مصادر الطاقة على الطلب على منتجات النفط والغاز الحالية، بينما ستدفع الشركات - في المقابل – إلى تقليل انبعاثات الكربون. في حين أن سياسات أخرى قد تعمل على تحويل صناعة النفط والغاز بكاملها.

مفكـرة الفعـاليات 2020

نوفمبر/تشرين الثاني			
3 ـ 2	لقاء الطاقة في منطقة الشرق الأوسط وشمال أفريقيا	افتراضي	www.menaenergymeet.com
12 ـ 9	مؤتمر ومعرض أبوظبي الدولي للبترول ـ ADIPEC	افتراضي	www.adipec.com
16 ـ 17	مؤتمر الشرق الأوسط للنفط والغاز	افتراضي	www.mpgc.cc
18 ـ 17	المنتدى الاقتصادي لكردستان العراق	افتراضي	www.kurdistan-economic.com
ديسمبر/كانون الأول			
10 ـ 8	مؤتمر تقنية قاع البرميل والمحفزات في منطقة الشرق الأوسط وشمال أفريقيا	افتراضي	www.europetro.com/event/355

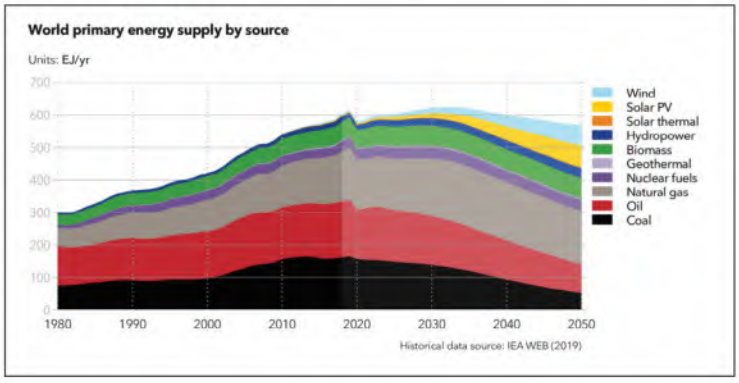
تسليط الضوء على تحول مصادر الطاقة

يتوقع تقرير آفاق التحول في مجال الطاقة لعام 2020 ، والصادر عن مؤسسة «دي إن في جي إل»، عالماً خالياً من الكربون. إذ ينمو الطلب على الطاقة النظيفة، ومصادر الطاقة المتجددة بشكل كبير، ليحتل الغاز الطبيعي الصدارة على مستوى العالم كأكبر مصدر للطاقة، وفي الوقت نفسه لا يصل الطلب على النفط مرة أخرى إلى مستوياته كسابق عهده في عام 2019.

بحلول عام 2050، سيشكل الوقود الأحفوري 54 في المائة من إمدادات الطاقة الأولية، بينما سيشكل الوقود غير الأحفوري 46 في المائة من المزيج. فسوف يتبع الفحم والنفط مسارات هبوطية، بينما يشهد الغاز الطبيعي نمو حصته من إمدادات الطاقة الأولية بشكل متواضع من 26 في المائة عام 2018 إلى 29 في المائة بحلول عام 2050، ليصبح أكبر مصدر للطاقة في العالم اعتبارا من منتصف العقد الجاري. ويتنبأ التقرير بالعديد من عمليات التحول في مجال الطاقة المترابطة التي تحدث على مستوى العالم؛ ومنها التحول من الوقود الأحفوري إلى مصادر الطاقة المتجددة، ومن الفحم والنفط إلى الغاز الطبيعي، ومن الوقود الأحفوري إلى الغاز الخالي من الكربون. كما يتنبأ التقرير أيضا بأنه «من المقرر ألا يتعافى النفط تماما من الصدمة التي أصابت الأسواق الناجمة عن فيروس كوفيد 19- في عام 2020». مضيفا أن الاستثمار المستمر في النفط والغاز سيصبح أمراً ضرورياً للحفاظ على الإنتاج عند المستويات المطلوبة لتلبية الطلب العالمي.

ووفقا لهذا التقرير، من المقرر أن تهيمن منطقة الشرق الأوسط وشمال أفريقيا وشمال شرق أوراسيا وأمريكا الشمالية على إنتاج النفط خلال العقود الثلاثة المقبلة. وستكون هيمنة هذه المناطق ناتجة عن التحول من إنتاج «المزيد من النفط» إلى إنتاج «أرخص نفط»، مما يزيد الضغط على إنتاج النفط غير التقليدي في حقول النفط البرية والبحرية حتى عام 2050.

كما يتوقع التقرير أن تشكل منطقة الشرق الأوسط وشمال أفريقيا 85 في المائة من إنتاج النفط التقليدي في حقول النفط البرية، وذلك بحلول منتصف القرن. كما سيظل إنتاج النفط في المنطقة مستقرا نسبيا حتى عام 2050، مدعوما بإضافات كبيرة في الطاقة الإنتاجية من منتصف العقد الثالث من القرن الحالي. وستأتي جميع إضافات الطاقة الإنتاجية التقليدية في حقول النفط البرية في العالم تقريبا من منطقة الشرق الأوسط وشمال أفريقيا اعتبارا من عام 2035 فصاعدا. وفي المقابل، ستشهد كل من أمريكا الشمالية وشمال شرق أوراسيا انخفاضا في الإنتاج اعتبارا من منتصف العقد الثالث من القرن الحالي.



مصادر إنتاج الطاقة الرئيسية حول العالم

كذلك سيلعب الغاز الطبيعي دوراً بارزاً في تحول الطاقة، ليصبح أكبر مصدر للطاقة في العالم بداية من منتصف العقد الجاري. وستشكل الصين وشبه القارة الهندية أكثر من 75 في المائة من واردات الغاز اعتبارا من عام 2030، مع توقع حدوث زيادات كبيرة في التجارة بين الأقاليم، معظمها في شكل غاز طبيعي مسال، مع زيادة صادرات الغاز الطبيعي المسال إلى أكثر من الضعف خلال الفترة المتوقعة حتى عام 2050. كما سيكون الشرق الأوسط ثاني أكبر مورّد بعد الولايات المتحدة الأمريكية، ومن المقرر أن يسيطر، إلى جانب منطقة شمال شرق أوراسيا، على إنتاج الغاز التقليدي في حقول النفط البرية، بينما سيتوزع إنتاج الغاز في حقول النفط البحرية بشكل أكبر.

وسيهيمن الغاز الطبيعي والنفط على مزيج الطاقة المستخدمة في الشرق الأوسط وشمال أفريقيا حتى عام 2050، وفقا للتوقعات. في حين أن استخدام النفط سيشهد انخفاضا طفيفا بعد عام 2040، وستظل مساهمة الغاز الطبيعي ثابتة إلى حد ما عند مستويات عام 2018، حيث يذهب حوالي 40 في المائة من الغاز إلى قطاع الطاقة. كذلك سوف يزداد استخدام الطاقة الشمسية من خلال الألواح الكهروضوئية وطاقة الرياح، لكنه سيظل محدوداً للغاية قبل عام 2030. ومع ذلك، من المتوقع زيادة قدرها 178 ضعفا في استخدام الطاقة الشمسية من خلال الألواح الكهروضوئية بين عامي 2018 و2050، لتصل إلى 35 في المائة من مزيج الطاقة المتولدة بحلول عام 2050.

إن الحصة الكبيرة من الوقود الأحفوري في مزيج الطاقة في المنطقة ستعوض المزيد من التخفيضات في كثافة الكربون. ويقول التقرير:«تمثل توقعات الانبعاثات في الشرق الأوسط وشمال أفريقيا، البالغة 3,4 طن من ثاني أكسيد الكربون للفرد في عام 2050 ثلثي المستوى

المحتويات

القسم العربي

ملخص محتويات القسم الإنجليزي:

تقارير خاصة: تقرير أدنوك، التقرير الافتراضي لمعرض أديبك، الإمارات العربية المتحدة.

استطلاعات: المعدات الثقيلة والمركبات.

تقنيات: أتمتة المعالجة، التحكم في التآكل، الاتصالات عبر الأقمار الصناعية.

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المجلد 23 العدد السابع 2020

تسليط الضوء على تحول مصادر الطاقة

تنبؤات بإخلاء العالم من الكربون