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DAY 2 WEDNESDAY, 4 SEPTEMBER 2019

# OFFICIAL SHOW DAILY



World Oil

**ABERDEEN, UK** 

PETROLEUM ECONOMIST

SAMI ALNUAIM of Saudi Aramco and 2019 SPE President

Total Chief Executive PATRICK POUYANNÉ

# Making the industry part of the solution

# IAN LEWIS, Contributing Editor

**Offshore Europe** 

PUBLISHED BY

The North Sea industry's drive towards greater efficiency and lower-carbon operations over recent years reflects the sector's willingness to play its part in meeting the world's sustainability and climate change goals. But more needs to be done, if oil firms are to be seen as a part of the solution to these challenges, rather than part of the problem itself, keynote speakers told the Offshore Europe (OE) 2019 opening session on Tuesday.

**Remaining relevant.** Improved collaboration within the industry, and between the industry and other stakeholders, was needed to tackle these challenges, if companies were to retain their "license to operate," Total Chief Executive Patrick Pouyanné told delegates. "There are a lot of stakeholders today, who look at us as dinosaurs... The only way not to become a dinosaur is to act, to invest, to progress together," he said. That sentiment was echoed by Michael Borrell, OE chairman and Total's senior vice president, North Sea and Russia, who said OE offered a "superb opportunity" to debate the main issues facing the industry. He identified three key areas to be addressed, as climate change, achieving technical excellence and the challenge of future recruitment. "We must show that we, as an industry, are serious about the energy transition. And I believe one of the ways of doing that is not to look at our feet, as we do this, but to look forward, be ambitious, and look at the horizon-and to know how our future portfolio can evolve. We can use our expertise to make sure that it evolves in the right way," he said.

The sharing of ideas, experience and data were vital for achieving technical excellence, he added. "We've had a really impressive story, reducing costs, increasing productivity over the last five years. We should be proud to share it and learn from each other to continue to do better. This has to be part of our conversation at Offshore Europe," he said.

To recruit the next generation of oiland-gas sector employees, the sector needs to put the positive case for the future of oil and gas, addressing climate change measures, if it is to compete with new industries, he said. A lack of diversity in its ranks is another problem to be addressed, he added.

SPE President Sami Alnuaim, from Saudi Aramco, noted that energy firms' activities were vital to the process of ensuring that UN Sustainable Development The ability of the North Sea industry to introduce new technology rapidly had helped to keep it competitive and had stimulated innovation, Pouyanné said, noting the work of the Scottish and UK government-backed Oil and Gas Technology Centre, based in Aberdeen, in promoting collaboration between the industry and researchers.

Total has collaborated with the OGTC in areas such as the development of robots and digital tools for asset integrity and inspection. The French company plans to deploy an autonomous ground robot at its onshore Shetland gas plant later this year—a world first— and then, potentially, at its offshore Alwyn platform. This pioneering project could start a revolution in robotics offshore that improves safety, enhances productivity and reduces costs, according to the OGTC.

# **INSIDE THIS ISSUE**



1 North Sea industry to support net zero carbon OGUK unveils a plan to contribute to pledges for the UK to be a net zero carbon economy by 2050.



6 Breakfast speakers chart course for low-carbon future Three very different speakers gave their thoughts on how to achieve a low-carbon industry



16 Aker BP: Tech, data-sharing are key to industry's survival Oil and gas firms need to share more data and adopt new tech to meet the various challenges

Goals were met in Africa and elsewhere,

by facilitating economic growth through greater access to power from gas and renewables. Potential new recruits to the industry needed to be aware of the industry's important role in this process, he said.

**North Sea successes.** Pouyanné praised the UK's approach to extending the life of the North Sea sustainably. He said UK carbon pricing policy had shown that it was possible to successfully use pricing at a moderate level to lower emissions, without deterring investment. Total's acquisition of Maersk Oil, completed early in 2018, reflected his company's commitment to the North Sea, where it is now the second largest operator, as well as being the fourth-largest producer on the UKCS, he said.

**Decommissioning** is never far from the minds of many delegates at OE. Pouyanné warned that to make a success of it, urgent cooperation was needed between firms to share lessons learned in this fast-evolving specialist area and keep costs down for a decommissioning process that could cost \$50 billion before North Sea production comes to a close entirely.

"We need to make the most of opportunities for partnership and cooperation whenever possible. This is not the moment for competition," he said. As fields close, so opportunities open up for carbon capture and storage in the North Sea. Pouyanné said he could see the North Sea" becoming a sort of giant cave of  $CO_2$ ," in the future, but said it would require more research and development and investment.



# 17 Majors warned on capital flight threat

IOCs face a challenge, as investors pull out of fossil fuels, but can still shape public perceptions.

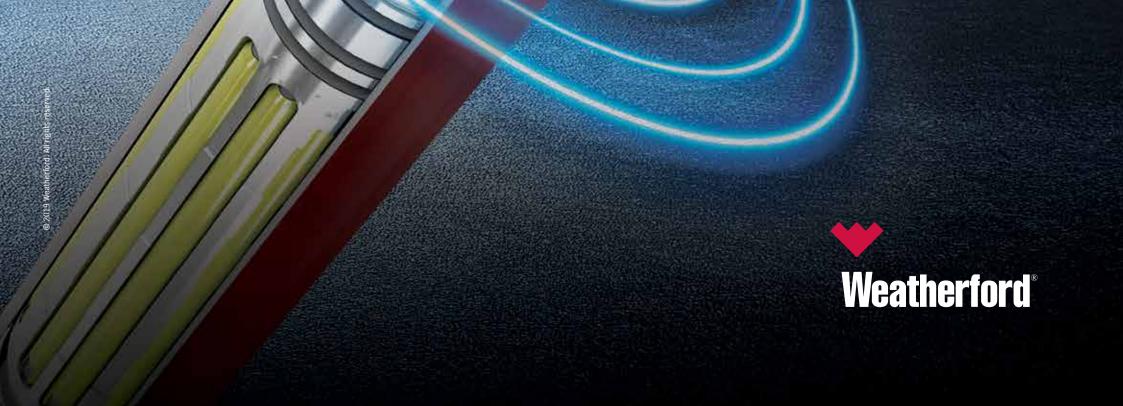
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# **SCHEDULE OF SESSIONS AND SPECIAL EVENTS**

WEDNESDAY, SEPTEMBER 4, 2019		for C
07:00-09:30	<ul> <li>OGUK Economic report 2019—at P&amp;J Live</li> <li>A comprehensive insight into how the UK oil and gas industry is performing and positioning itself</li> </ul>	
09:00-15:30	<ul> <li>SPE Inspire—Careers Advisor Day and OE Show Around (Invite only)</li> <li>SPE Aberdeen provides guidance in secondary schools to teach students how companies recruit graduates.</li> </ul>	
10:00-12:00	<ul> <li>Decommissioning—Now's the Time</li> <li>Highlighting new opportunities to innovate and reduce costs on decommissioning.</li> <li>Session Managers: Andy Samuel, OGA; and Geir Tuft, Ineos</li> <li>Presentations by BCG, CNRL, ConocoPhillips, EY and OGTC</li> </ul>	
10:00-12:15	<ul> <li>Underwater Innovation (next Gen)</li> <li>The underwater industry is undergoing a dramatic change that will transform the systems which are deployed across the sector.</li> <li>Session Managers/Moderators: Peter Blake, Chevron; and Bill Morrice, TechnipFMC</li> <li>Keynote address: Peter Jones, UK Managing Director, Neptune Energy</li> <li>Presentations by BHGE, CEA tech, Chevron, Equinor and TechnipFMC</li> </ul>	
10:00-12:00	<ul> <li>Next-Generation Reservoir Analytics</li> <li>Reservoir characterisation has been at the vanguard of exploiting high-performance computing to integrate and extract understanding from large and complex datasets for decades.</li> <li>Chairpersons: Grant Affleck, Weatherford; and Jonathan Copp, Equinor</li> <li>Presentations by CNPC, Dassault Systèmes, Equinor and University of Leeds</li> </ul>	FIG. 1. Sembcor Image: Sevan S Sembcorp I Ltd. said rece an exclusive I
10:00-12:00	<ul> <li>Enabling Data Analytics</li> <li>Data analytics require strong building blocks to enable information to be processed in a meaningful manner.</li> <li>Chairpersons: Lindsay Grant, Wood Mackenzie; and Stephen Holtz, Halliburton</li> <li>Presentations by Aker BP, Halliburton, SecondSight, Siemens, University of Stirling and University of Strathclyde</li> </ul>	Design (FEEI Energy E&P I duction, stora design solutio field on the U The solutio
10:00-12:00	<ul> <li>Developments for a low-carbon future.</li> <li>Chairpersons: Richard Wyness, Shell; and lain Percival, University of Aberdeen</li> <li>Presentations by ABB, Deep Science Ventures; Oil &amp; Gas UK, Siemens and The Oil &amp; Gas Technology Centre</li> </ul>	Marine's prop circular hull ( native to trad ret-moored de hull eliminate while accomm risers and flex
14:00 - 17:00	<ul> <li>SPE Inspire—The Young Diverse Workforce</li> <li>Various issues faced by the new, young workforce will be discussed in roundtable discussions.</li> </ul>	"We are v Siccar Point i
14:30 - 16:30	<ul> <li>Smarter Innovation, Smarter Basin</li> <li>A "smart basin" concept, an integrated platform that accesses data from all assets in the UKCS—fixed, floating and mobile, human, machine and environmental—will be discussed.</li> <li>Session Chairs: Russell Stevenson and Roger Esson, OGTC</li> <li>Presentations by Offshore Stimulation Centre, OGA, OGTC and University of Aberdeen</li> </ul>	cylindrical F said Sembcor Floaters,Willi hull is a prove harsh and ulti Coupled with ment and cons
14:30-16:30	<ul> <li>Digitalisation</li> <li>Digital transformation is not a new concept, but the oil and gas industry has been slow to adopt and prone to opting for proof of concept or small-scale digital deployments.</li> <li>Session Managers: Zvonimir Djerfi, BHGE; and Morten Kelstrup, Maersk Drilling</li> <li>Presentations by BP, Cognite, Equinor and Shell.</li> </ul>	confident of p
14:30-16:30	<ul> <li>Securing Generation 2035</li> <li>New technology and the energy transition are transforming the roles and skills needed in the global oil and gas industry.</li> </ul>	Offshore

# Sembcorp Marine secures Siccar Point FEED contract Cambo field FPSO



p Marine's Sevan circular hull will be the basis for the Cambo field FPSO design. SP.

Marine Rigs & Floaters Pte. ently that it has entered into Front-End Engineering and D) contract with Siccar Point Ltd, to deliver a floating proage and offloading (FPSO) on for the operator's Cambo K Continental Shelf.

on will be based on Sembcorp prietary Sevan geostationary FIG. 1), a cost-effective alteritional ship-shaped and turesigns. The Sevan cylindrical es the need for a costly turret nodating a larger number of kibility for future tie-ins.

very pleased to work with in developing an innovative PSO for the Cambo field," rp Marine Head of Rigs and am Gu. "Our Sevan circular en design for safe operation in ra-deepwater environments. our engineering, procurestruction capabilities, we are presenting a robust, reliable



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and competitive FPSO solution that will support Siccar Point's final investment decision for the Cambo field."

Located 125 km northwest of the Shetland Islands, Cambo field has a water depth of 1,100 m. Shell acquired a 30% working interest stake in the field from Siccar Point in 2018. Siccar Point CEO Jonathan Roger commented, "This is another important milestone for the Cambo project, and we look forward to working with our partner Shell as we progress towards formal project sanction next year."

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release, please contact the editor via email at Kurt.Abraham@WorldOil.com. PUBLISHER Andy McDowell **OFFSHORE EUROPE CONTACTS** 

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14:30-16:30

#### **Improving Safety Performance**

Robert Gordon University and Wood

 Continuous improvement in safety performance is a top agenda item across all companies working in our industry today and this session aims to provide insights

Session Manager/Moderator: Deirdre Michie, Oil & Gas UK

Presentations by Equinor, Kellas Midstream, Oil & Gas UK, OPITO,

- Chairpersons: Steve Abercrombie, CNOOC International; and Trevor Stapleton, Oil & Gas UK
- Presentations by BP, Equinor, QHSE Data Analytics and SaltGrid

#### **Data Analytics Applications in Use Today** 14:30-16:30

- New data management and machine learning techniques with cloud computing have created insights and business value opportunities.
- Chairpersons: Mike Galiunas, BP; and Stephen Holtz, Halliburton
- Presentations by EV, Laserstream LP, Oceaneering, RAB Microfluidics R&D, Stress Engineering Services and University of Aberdeen.

#### 14:30 - 16:30 **Decarbonisation II**

- The energy transition towards a low carbon future is underway. These sessions will describe some interesting developments in the oil and gas industry in response.
- Session Chairs: Richard Wyness, Shell; and Iain Percival, University of Aberdeen
- Presentations by Advisian-Worley, Pale Blue Dot Energy, The Oil and Gas Technology Centre; Total E&P UK and University of Aberdeen

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Offshore Europe 2019 Show Daily

# North Sea Industry sets out plan to support net zero carbon as recovery takes shape

## ERIKKA ASKELAND, Contributing Editor

Oil and Gas UK (OGUK), the North Sea trade body, has unveiled a plan on how it will contribute to pledges for the UK to be a net zero carbon economy in 2050. At Offshore Europe 2019, OGUK released Roadmap to 2035: A Blueprint for net-zero, which sets out how the North Sea industry can support net-zero ambitions while also ensuring secure energy supply and remain a vital contributor to the UK economy.

Deirdre Michie, CEO of OGUK said, "The offshore oil and gas industry currently meets 45% of the UK's overall energy needs and will continue to provide energy security for decades to come. Having an indigenous energy resource helps to ensure an energy supply we can control, regulate and access. It also brings with it a range of economic benefits. Production of domestic oil and gas directly accounts for around 1.2% of the UK's GDP and will continue to contribute billions of pounds of taxes in the future, as well as securing hundreds of thousands of skilled jobs. It is an important contribution that is key to the well-being of the UK's economy and one that industry is proud to make."

She added: "Roadmap 2035 shows an industry in action with a credible plan for the future. While we don't have all the answers to the big challenges we face, we have started work on what we know can be done. We are ready to work with others in developing some of the new solutions the UK needs, and the Net Zero Solutions Centre is a great example of this. "The facts outlined in our report are evidence that our industry remains a vital economic asset and is uniquely positioned to help the UK meet its net-zero ambitions and energy needs in the years to come. We now need a comprehensive UK energy strategy which recognises the continued role of oil and gas in a diverse energy mix and positions us to support net zero."

The North Sea is responsible for 3% of UK total greenhouse gas emissions, the report said. Its strategy includes co-ordinating activities to reduce emissions from the production of oil and gas ramping up efforts, so the UK oil and gas industry can play a key role in developing and commercialising low-carbon technologies, including carbon capture usage and storage (CCUS) and hydrogen.

The report further highlighted that the Climate Change Committee, which inspired both the UK and Scotland to set the ambitions net zero targets, forecasts that the UK will still consume around 65 million tonnes of oil equivalent per year (roughly 45% of current demand) in 2050, making carbon capture and development of hydrogen essential. OGUK hailed the roadmap as one of the first major industrial responses to government plans to reduce or offset carbon emissions to net zero by 2050 in the UK, and 2045 in Scotland.

**Economic Report findings.** The report was published alongside the trade body's annual Economic Report 2019

(FIG. 1), which confirmed that exploration and drilling activity has been on the increase in the UK Continental Shelf (UKCS).

OGUK expects that production will remain stable in 2020 but that it will then move into "managed decline" in line with Roadmap 2035. This is expected to be caused by a reduction in the number of new field start-ups expected in the early 2020s—the result of the low levels of new investment approvals during the downturn.

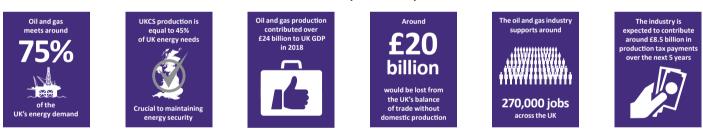
Having warned that the maintenance of a steady stream of new field investments is "crucial" to support production levels, the report welcomed the range of new investors that have been attracted to the basin, with almost \$5.5 billion of assets changing hands so far this year. As a result, drilling activity began increasing following recordlow levels in recent years. There was a further increase in exploration activity in the first half of 2019. Eight exploration wells commenced drilling in the first seven months of the year—the same number as those drilled during the whole of 2018.

OGUK hailed the North Sea's increasing competitiveness, with almost £3 billion having been taken out of UKCS total operating expenditure between 2014– 2018 (from £10–7.1 billion). Production has increased 20% during the same period, while production efficiency is at its greatest level for a decade. However, the body warned costs in the UK remain comparably high internationally, mainly due to the maturity of the basin. **Supply chain.** The supply chain remains "fragile," as estimated revenues fell by around one-third, from almost £40 billion in 2014 to £27 billion in 2017, as a result of lower investment levels, reduced contract rates and a drive to improve efficiency. However, OGUK anticipates that supply chain revenues will have largely stabilised in 2018, and some growth may be seen in 2019, reflective of wider industry expenditure and investment levels. Meanwhile, OGUK has developed a new set of "supply chain principles" with its members that will underpin how both operators and contractors can work together to ensure an appropriate balance of risk, and that all companies realise value from their investments.

**Brexit effects.** OGUK admitted that the prospect of a no-deal outcome to UK government negotiations with the European Union was "becoming more likely," highlighting this was not in the best interests of the industry, or the wider economy. It has outlined the key priorities for the UK's offshore oil and gas industry and its supply chain post-Brexit.

It is estimated that reverting to World Trade Organization (WTO) rules may cause the cost of trade for the oil and gas industry to increase by around £500 million per year. Whereas a scenario where the UK can negotiate new free trade deals and has minimal EU tariffs could result in a fall in trading costs of around £100 million per year.





## Business Environment and Industry Performance





## Oil and Gas Industry Roadmap: A Blueprint for a Net Zero Future



FIG. 1. Facts and figures from the OGUK Economic Report 2019.



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# University moves to embrace energy transition opportunities

# **UNIVERSITY OF ABERDEEN**

The University of Aberdeen is showcasing its expertise in energy research at this year's SPE Offshore Europe, as it announces its ambition to create a new Centre for Energy Transition. The Centre—which aims to build on the University's status as a global leader in energy research and teaching—will align research and education programmes with opportunities presented by the net zero agenda.

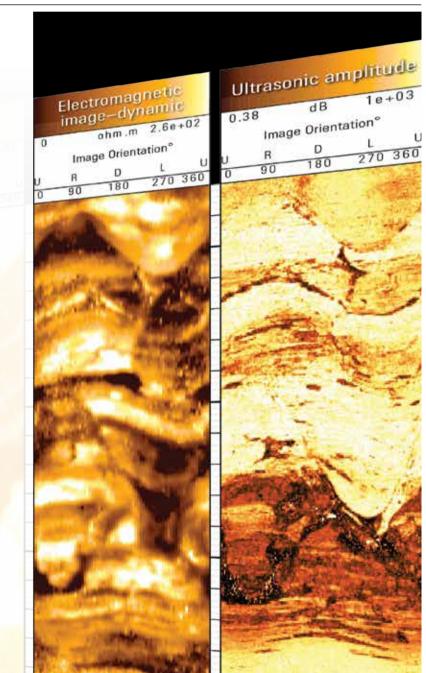
**The mission.** Inspired by the far-sighted vision of Sir Ian Wood's report into the future of the oil and gas industry, it will provide a focus for all areas of energy-related research, with an emphasis on supporting industry in the transition to clean energy and renewables. The plans align with a new 20-year strategic plan for the University, currently under development, with interdisciplinary research and sustainability as key planks of its contribution to the long-term economic future of the north-east of Scotland.

The benefits of this approach have already been seen in the university's partnership with the Oil and Gas Technology Centre on the new National Decommissioning Centre (NDC), where academics are working across disciplines to fully maximise opportunities presented by this emerging sector.

Activities this week. A panel discussion taking place at the NDC today is among a range of activities planned throughout the week of SPE Offshore Europe, including on-stand activities (Stand 2F21), where leading academics will be on hand to discuss the opportunities in research and education offered by the university. This will include information on research in the fields of AI supporting the oil and gas sector, hydrogen, carbon capture and storage, decommissioning, energy law and economics, and enhanced oil recovery (EOR). The university also will host students from its award-winning PrototAU hydrogen racing team following their success in this summer's Shell Eco-marathon, while welcoming schoolchildren as part of skills body OPITO's "Energise Your Future" event.

transition through research and teaching, while nurturing start-ups and spin-outs.

"Our interdisciplinary approach to research," continued Boyne, "means that the university is perfectly positioned as a catalyst for collaboration right across the energy supply chain, and our aim is to work with industry at all levels to support the shift to sustainable energy. Throughout SPE Offshore Europe, our staff will be on-hand to talk about our world-leading energy research, as well as the online and flexible learning opportunities available across our suite of energy programmes. We look forward to welcoming visitors to our stand." •



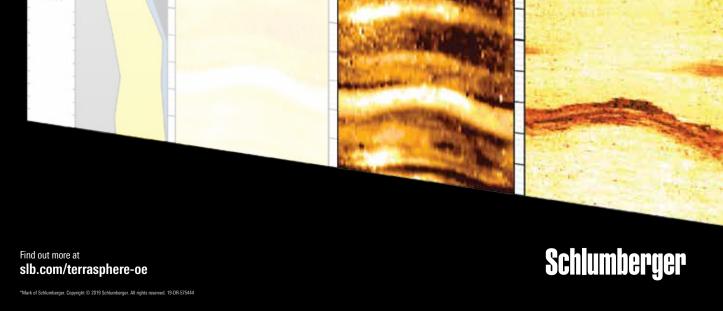


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**Supporting the city and region.** University of Aberdeen Principal, Professor George Boyne, said, "As an Aberdonian, I take pride in our city's status as a global energy capital, and as Principal, I am committed to ensuring that the university helps the region to retain that status for decades to come. Our Centre for Energy Transition will seek to embrace the opportunities that lie ahead for the region in a low-carbon future, supporting the sector in making the



Offshore Europe 2019 Show Daily

# Breakfast speakers attempt to chart course for a low-carbon future

KURT ABRAHAM, Editor



Left to right, PAUL BOGENRIEDER, EY; LIV HOVEM, DNV GL; NEIL SAUNDERS, BHGE; and ANDREW MCCALLUM, Aspect Reputation Management, breakfast chair. Photo: Michal Wachucik.

An overflowing crowd attended the first event of SPE Offshore Europe 2019 in the new P&J Live venue yesterday morning, and they were not disappointed by the theme or speakers. The Business Breakfast got underway with a theme of "Energy Transition: What does low carbon future mean for the North Sea?" And each of the three speakers found his or her unique angle of attacking that subject.

First up was Paul Bogenrieder of EY, who refers to himself as an "economist and energy futurist." He also let the crowd know up front that he is a "believer" in climate change. From that point forward, Bogenrieder described to the crowd how the global community must find a way to adopt a low-carbon future, and, if necessary, government may need to give citizens around the world a "push" in that direction, away from the traditional comfort of fossil fuels.

Although he is a climate change believer, Bogenrie-

der said that he also is a realist, and that change takes time. Accordingly, he says that the shift to a low-carbon energy structure will "be more of an evolution than a revolution." He reminded the audience that at the end of the day, one has to ask the question, "What do people, as consumers, want? What are they willing to buy? As much as we might want to have a quick energy transition, we're not going to live in that world. It will happen, one electric car or one solar panel at a time."

He acknowledged that "the energy system that we have has enabled great improvement, for many people. And, energy, as it is, is very profitable." But he again followed up by saying that nonetheless, the world must transition to a low-carbon energy system, even if people resist the change. "When you have a problem and an obvious solution, you have to ask, 'where is the speed bump?"" Bogenrieder said that obviously, habit is "one of the things that you're going to bump up against. That's an enormous

thing to overcome. The second is finance and capital. When you talk about the energy transition, you're talking about the most enormous capital reallocation of all time.'

Next up was Liv Hovem, CEO for the oil and gas business area at DNV GL. She said that over the past three years, her firm has developed its own "independent model of the world energy system. Every year, we update this model and our forecast." In giving a bit of a sneak preview of the next forecast about due to come out, Hovem said that her firm believes "world demand for oil will peak in the mid- 2020s. Natural gas will be 30% of the energy mix in 2050, with oil at 17%. Electricity will double, with two-thirds to be delivered [by generation] from renewables. There's no single path going forward. It will be a combination of sources."

Hovem said that for natural gas to reach its potential, its production will have to be decarbonized. "The question is how do we get going on this learning curve on costs for CCS? With the current cost structure, CCS will not be implemented before 2040. The future of CCS remains in the hands of policymakers.

A slightly more traditional oil-and-gas viewpoint was espoused by Neil Saunders, President and CEO of BHGE Oilfield Equipment, although he, too, is concerned about reaching a lower-carbon future. "I love the subject of this panel," said Saunders. "I think it's easy for this sector to look at the floor and not talk about issues like decarbonization. Nevertheless, oil and gas are still part of the mix."

Indeed, Saunders even referred to the fact that oil and gas exploration will need to continue for some time to come. "You're going to have a fair amount of depletion, so we're going to have to go out and find some more fossil fuels. That said, we have to do it in the most responsible way possible.'

But decarbonization should proceed, opined Saunders. "One would say we do it, because it's the right thing to do. And second, we have to be relevant, especially in attracting younger talent. And they want to know how we're going to be sustainable."

Saunders pointed out that the upstream industry, particularly in the U.S. and Europe, has actually "done some interesting things. These are things like electric fracing in the U.S. And look at the small pools work being done in the UK. We are working toward lower carbon, just as well as a reduced cycle, and just as well as reduced costs."

# TWMA acquires £20 million of North Sea contracts

## TWMA

During the first eight months of 2019, £10 million into new equipment and specialist drilling waste management company, TWMA, has secured new contracts valued at £20 million in the North Sea. To support the new business won this year, TWMA has invested more than

facilities, FIG. 1.

The contracts, with major North Sea operators, are for TWMA to provide offshore processing of drilling waste, using its innovative TCC RotoMill® technol-

ogy, which allows drill cuttings to be managed safely and effectively onsite.

TWMA has seen a recent shift in the North Sea to companies choosing to process drilling waste offshore. Applying a TCC RotoMill<sup>®</sup> offshore processing

skip and ship method but instead recognising the value that wellsite processing can bring to a project in terms of safety, environment and cost-savings.

"More than 65% of drilling projects in the North Sea are now using offshore processing of drilling waste," continued Innes, "a big shift away from the traditional skip and ship to shore method; offshore processing is now becoming the industry standard in the North Sea. We are pleased to be at the forefront of this change across the industry and will continue to promote the benefits of offshore processing, delivering our service to the highest standard and bringing cost reductions to the industry." TWMA is a market leader in the provision of integrated drilling waste management and environmental solutions to the oil and gas industry. The company delivers operational efficiencies by using the latest technology to optimise drilling operations and effectively process drilling waste to the highest environmental standards.



FIG. 1. Having secured significant additions to its business, TWMA has invested in excess of £10 million into new equipment and facilities. Image: TWMA.

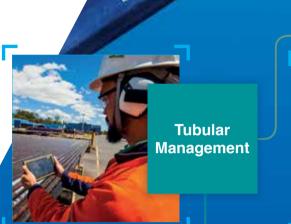
solution allows recovered oil from the drill cuttings to be recycled back into the active mud system, resulting in significant cost-savings.

The TCC RotoMill<sup>®</sup> also eliminates 95% of lifting operations, improving the safety profile on the project, and ensuring drilling operations can take place in all-weather conditions. In addition, removing the need for shipping the drilling waste onshore reduces the need for vessels and port access, reducing associated well costs by up to 50%.

Gareth Innes, chief commercial officer at TWMA, said, "With cost optimisation and HSE at the fore across the industry, we have seen our order book bolstered this year. There has been a real shift in culture in the North Sea, with companies no longer relying on the traditional



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# OPEX Group's Roy Buchan says digitalisation is key to increasing production efficiencies

ROY BUCHAN, Senior Vice President, OPEX Group



ROY BUCHAN, Senior Vice President, OPEX Group

Roy Buchan is Senior V.P. for OPEX Group, a leading provider of predictive analysis services for the oil and gas industry. With over 30 years' experience in the oil and gas sector, his career spans executive leadership roles with a number of operating companies, including Ithaca, Talisman and Shell, as well as a wealth of international experience in operations and asset management.

Mr. Buchan is focused on helping operating companies to maximise the value of their operational data through the application of predictive technologies and data science. He recently offered his thoughts on the technical and operational trends affecting the UKCS/North Sea.

## Q: Since the downturn, what lessons have been learned around operational efficiency?

A: Much good work has gone into operating more safely, reliably and cost-effectively, but there's still opportunities for transformational change. And crucially, the pace of change needs to increase.

We don't have all the answers, and there is a lot we can learn from other sectors by adopting and adapting best practices to suit our industry.

# Q: What have been the most significant areas that needed addressing and optimising?

A: At the last measure, there was a 1% increase in production efficiency across the UKCS, taking the average to 74%. The industry is continuing to improve, and there is scope to do more, but with fewer resources and an aging infrastructure, it is not going to get any easier without changing current practices.

Almost half of all production losses are incurred through plant losses. The industry is capturing a wealth of data from the plant, but we need to get better at using it.

Through new technologies and techniques, this data can now be used in a variety of ways to establish a more proactive approach in operating and maintaining the plant. This significantly contributes to the production efficiency challenge.

## Q: Attracting and retaining a talented and skilled workforce continues to be a challenge. What does the industry need to do to improve its image?

A: Industry and regional bodies are working tirelessly to improve the future of the sector, but collectively, we need to do more to tell the world about its potential. The existing talent within the industry — and the future workforce — want to know they have an attractive, exciting and long-term career ahead of them.

Here in the North Sea, oil and gas production reached a seven-year high last year, and the OGA has revised its estimated production figure upwards to 11.9 Bbbl before 2050. So, it's all still to play for.

We are going to rely on innovation, ingenuity and engineering excellence to create new technologies that will help to extend field life, economically appraise and develop small pools, and improve recovery factors.

### Q: As a company, what areas have you focused on, and what impact has this had? Are there other practical examples you consider to be good practice?

A: OPEX Group provides predictive analysis services to the oil and gas industry. By combining expertise in data science and oil and gas operations with predictive technologies, we work collaboratively with operating companies to maximise the value of their data.

Our X-PAS<sup>™</sup> Predictive Analysis ating models. ●

Service provides data-driven insights that help our customers' asset teams take guided interventions that have a significant impact on production uptime, operational efficiency, and the safety and predictability of offshore operations.

Our customers are achieving substantial reductions in system trips, losses, equipment damage, and maintenance costs. All of this is achieved by working collaboratively and making better use of the data they already have to improve efficiency.

Across the industry, there are numerous new products and services that are having a huge impact. The creation of the Oil & Gas Technology Centre has been a catalyst for new ideas, and there's more entrepreneurial opportunities than ever before.

## Q: Technology and digitalisation will play a key role in improving operational efficiency in the future. What changes do you foresee over the next five years?

A: In the coming years, we will experience not only digital transformation but also a shift in mindset. Organisations will work smarter and more collaboratively by further accelerating the use of data and technology to become less reactive and exploit massive optimisation opportunities.

There will be a step change in asset management as we focus on operating 'Smart Facilities'. Productivity will be significantly increased, and operators will develop new digitally-enabled operating models.

# **TECHNIPFMC GLOBAL WINS LEADERSHIP AWARD FROM CONOCOPHILLIPS**



ConocoPhillips has recognized TechnipFMC's client commitment with a Global

ConocoPhillips UK President Terri King (I) presented TechnipFMC V.P. Bill Morrice with a Global Supplier Recognition Award.

Supplier Recognition Award. The international award goes to businesses that have made an impact on ConocoPhillips' business and shown exceptional leadership and commitment to their SPIRIT values. TechnipFMC was recognized in the "Focus on Doing Business Better" category for its collaborative work with ConocoPhillips and other contractors in the UK. TechnipFMC is a global leader in subsea, onshore/ offshore and surface projects, with more than 37,000 employees worldwide.

TechnipFMC worked collaboratively with ConocoPhillips and its contractors to perform joint estimating assessment of risk for marginal field developments in the UK. This reduced the project's cost of supply and shortened its schedule by 15 months.

Arnaud Pieton, president, Subsea at TechnipFMC, commented: "We are very proud to have our performance recognized in this way by our long-standing partner ConocoPhillips. To be selected from a strong pool of international competitors is further endorsement of our skills and of our unique business offering. Congratulations to our teams for this milestone."

Matt Fox, ConocoPhillips' executive V.P. and COO, who leads the firm's worldwide E&P operations, corporate planning and technology, added: "This programme is one of the ways we celebrate the efforts of our suppliers and the important role they play in helping us deliver on our operational and safety goals."

# Emerson applies digitally integrated approach to optimize offshore production

**EMERSON** 

Even with the influx of digital technologies and software platforms across the oil and gas landscape, offshore producers still struggle to maximize production opportunities. Reservoir and production engineers are having to manage massive amounts of geologic and geophysical data to gain better insight to their oil fields, which can be a difficult and time-consuming process. In addition, the task of identifying, diagnosing and improving underperforming wells, platforms and facilities has become paramount. The lack of data management and analytics expertise is leaving these companies without a clear strategy to address their well production deficiencies.

# Solving the problem. In response,

Emerson's automation solutions business has developed a series of digitally integrated solutions designed to streamline E&P operations, and resolve reservoir and facility issues that could otherwise limit an operation's estimated ultimate recovery, and negatively impact base production.

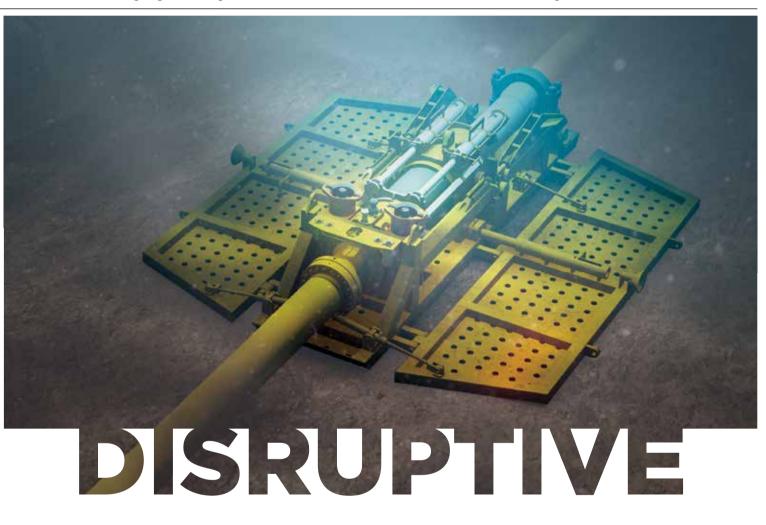
Emerson's approach starts with an automated, ensemble-based workflow, known as the "Big Loop" solution, that tightly integrates the static and dynamic E&P domains, using machine learning for continuous improvement of production forecasting. This solution allows operators to build a digital twin of the reservoir, matching seismic data with three-dimensional predictive earth models and subsurface uncertainties captured at every stage of the modeling process, as part of a repeatable workflow. By adjusting these inputs, an ensemble of models can be created, and their likelihoods constrained by production history and other data to anticipate anomalies. The drawnout process of analyzing, imaging and interpreting subsurface data, that often takes months or even years to complete, can now be completed and stored in a cloud-based environment within a matter of days, FIG. 1.

For more advanced recovery, producers can utilize a variety of solutions for optimizing artificial lift systems that can extend lift reach and distribute lift energy with maximum efficiency. Emerson's SmartProcess well optimizer application, for example, can help operators overcome various constraints to dynamically respond to changing well production compositions. For gas lift and electric submersible pump systems, Emerson offers a model-based dynamic lift optimization solution that automatically allocates lift energy to the most profitable wells while also considering physical and economic constraints in the system.

**Real-time visibility.** From an asset management perspective, Emerson's automated production surveillance solution combines traditional components (RTU, SCADA, historian system) with production management applications, pervasive sensing components and automated workflows to integrate data from multiple sources to provide real-time visibility into asset performance, automated data analysis and a standardized view of well insights in one common language. With preengineered automated workflows, asset managers can map and facilitate an implementation path scaled to their specific business need and facility size. This allows them to not only double the number of wells that can be reviewed in a single well review process, but also manage and improve performance from one well to an entire field.

For offshore platforms, there is also an asset reliability component through remote monitoring and diagnostics to provide real-time heath information for proper analysis of all wells, pumps, valves, and turbines. Because offshore platforms operate in extreme environments, these applications can also measure erosion and corrosion factors, and recommend effective maintenance practices as needed.

Implementation and integration of these systems can be synthesized through Emerson's operational certainty consulting services, which applies cross-functional expertise and consistent methodologies to identify the highest impact opportunities, guided by industry benchmarks and company operational performance. By taking this fully integrated approach, producers can work with Emerson to strategically assess their operational needs and develop a scalable implementation plan that provides them the greatest ROI prospects. For more information, visit www.Emerson.com/ oilandgas.



# Transformative diverless technology means less risk, time and costs.

Improve safety and achieve a 20% cost reduction for subsea pipeline installation with AFGlobal's diverless technologies. Our work on a project offshore Malaysia uses the Stinger Deployed Diverless Connector (SDDC) that transforms subsea installations of step-out wells and tie-in systems – making them easier and less risky. Connected by engineered Retlock<sup>®</sup> clamp technology, SDDC removes the need for critical path diver operations. It delivers significant savings compared to conventional diver-installed pipelines in both deepwater and shallow water applications. Specify our SDDC disruptive technology for a cost effective solution with enhanced safety.



**FIG. 1.** Building a digital twin enables operators to analyze, image and interpret subsurface data in a cloud-based environment, in a few days.

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## Offshore Europe 2019 Show Daily

# HSE disruption in cloud-based technology

## **RESTRATA**

Complexity is a standard when it comes to the business of energy, and it drives the continual challenge of achieving excellence in HSE while delivering operational efficiencies. As such, organisations need to constantly identify potential opportunities for improvement.

The pressure is now on for energy executives to chart their digital strategies. enabling them to continually transform their business and industry, improve operational efficiencies, and most importantly, improve safety. The drive toward goal zero is a growing topic for both the industry and its investment community.

In January 2016, the International Labour Organization released a report, in which they stated "The challenge for the oil and gas industry is to be able to quickly and effectively respond to potentially vast and serious incidents." This remains as true today as it did then.

With Industry 4.0 here to stay, the way we live, work and operate is changing. The Internet of Things (IoT), or Industrial Internet of Things (IIoT), provide connectivity to physical devices and everyday objects. They are pillars of the digital revolution, acting as the fabric of intelligence when combined with other technologies. Restrata has combined this with geolocational information across safe and hazardous environments; in leveraging this technology, we can aim to save lives and save costs.

**Restrata.** Restrata was founded to build client resilience and optimise operations through effective management of safety and security risks, allowing clients to focus on their core mission. Our belief has always been that resilience can be engineered through enabling people, processes and technologies.

Our day-to-day business is to manage incidents and emergencies on behalf of our clients around the world. The aim of our global, 24/7 GOCCs (Global Operations Command Centers) has always been to minimise the time from incident to response, and maximise the information to decide. Knowing how valuable this can be in the most critical moments pushed us to design and build the Restrata Platform.



FIG. 1. The Restrata Platform.

Global view, local control, realtime, seamless access. Industrial environments pose countless risks in working with heavy machinery and highly combustible, toxic products. Restrata has worked within the energy sector for the past 14 years, understanding the need for a solution which delivers a global view with local control, seamless and realtime access, creating complete visibility of people, and enabling organizations to both save lives and to protect the industry's reputation.

With oil refining capacity due to achieve a new high this year, safety is more important than ever. Joe Harrison, asset manager, Shell UAE, recently commented during the Restrata Platform's launch event about Shell's commitment to goal zero, meaning zero harm to their people through their work, and due to their work. In order to achieve this, there is a need for the understanding of cumulative risk in knowing how different components relating to risk on sites are adding up. Without an overarching view of a site, this is difficult to achieve.

The Restrata Platform. The Restrata Platform (FIG. 1) revolutionizes personnel on board (POB) tracking, which remains largely manual or disconnected at present, offering operational efficiency via a centralized system and complete visibility from global, to site level via customizable dashboards. Seamless global access provides the data required to make informed and immediate decisions when mustering or evacuating, in any emergency situation.

Utilising real-time technology provides a truly unified operating picture, with geolocation of people and assets replacing the manual process of completing paper sheets and a lack of visibility of missing personnel. The Restrata Platform enables the means to see where all employees are within a site at any given time, with visibility on each site floor achievable within a meter's radius, making response time in incident or evacuation immediate.

Always connected. Many hydrocarbon facilities and refineries are situated in challenging environments, from offshore sites in rough or territorial waters, to harsh desert climates, to lands of conflict. Coverage of assets must reign further than onsite locations. Not only is the safety of assets important on site, but the protection of travelling personnel also falls under an organization's duty of care to ensure safe arrival in such locations. Cloud-borne and mobile-ready, the SaaS Restrata platform enables visibility of people, whether on- or off-site, anywhere in the world.

The Restrata Platform's technology, enhanced by the IoT, enables mobile apps to deliver on-ground functionality and pinpoint information to a control center responsible for all personnel, including travelers. Managing both day-to-day operations and onsite or offsite incidents, in conjunction with expected arrivals and departures, ensures peace of mind, safer operations and cost-savings.

**Digital transformation.** A digital strategy will, no doubt, realize reductions in operating costs and improve efficiencies. A successfully implemented strategy will enable a shift from reactive solutions to proactive monitoring, by effectively using data and analytics delivered via advanced tools in the market.

There is still much untapped opportunity to be achieved in safety and security management, as well as the recognition of how digital and sensory technologies can drive significant benefit to a business's bottom line.

For a discussion or live demonstration, please visit us at stand #1AB59 •

# **BHGE deploys real-time downhole production** monitoring in North Sea

## **BAKER HUGHES, A GE COMPANY**

Real-time surveillance data in offshore wells is critical to making decisions about optimizing production and reducing risks. But, historically, obtaining that data has A recent technology deployment has been a challenge, due to the complexity of the potential to solve this ongoing issue.

ability concerns in extreme environments.

A solution to the data challenge.

the SureCONNECT downhole intelligent wet-mate system, which enables realtime production monitoring and control

The production monitoring system addresses this by enabling connection and re-connection of the upper completion of the completion system across the entire components and lower completion. It wellbore in multi-trip completions. This offers a modular approach, connecting hydraulic, electronic, and/or fiber with one system design, further driving reliability and consistency across applications. Utilizing the SureCONNECT system, operators can now achieve fiber-optic, real-time distributed temperature sensing and distributed acoustic sensing measurements simultaneously across the entire well, for the life of the well in these complex well designs. The information gathered is processed at surface and turned into actionable, data-driven solutions, FIG. 1. This includes actions like shutting off water and gas-dominant zones through remotely actuated sliding sleeves, to optimize production in real time. The system also enables workover operations without retrieving the lower completion. This significantly decreases rig time, HSE risks, and equipment costs.

running and connecting lines long distances In July, BHGE and a major operator

downhole, and because of long-term reli- offshore Scotland successfully installed

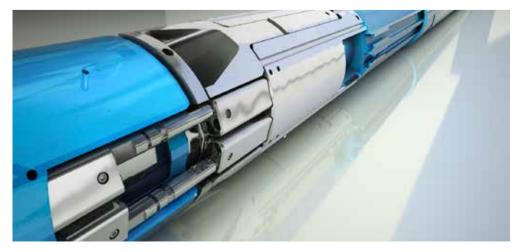


FIG. 1. Real-time downhole temperature measurements are gathered at the surface and turned into actionable, data-driven solutions.

system allows operators to make datadriven decisions to optimize reservoir performance and proactively mitigate risks.

The operations resulted in mating six optical fibers—each the size of a human hair-between the upper and lower completion, more than a mile below the earth's surface. The data gathered will be used in parallel with conventional well surveillance data to provide a better understanding of fracture performance in real time.

A modular approach. Multi-trip completion designs are most often used in offshore, subsea and other complex wells to reliably get the completion assembly to depth without damaging the reservoir. While this addresses the associated risks, it also restricts the ability to run fiber, electronic and hydraulic lines across the full wellbore.

# Pushing processing power to "the edge"

## BEN BISHOP and STIG SETTEMSDAL, Siemens

The Internet of Things (IoT) and Industry 4.0 have opened the door to significant efficiency gains for oil and gas companies that harness the power of operational data. This is particularly the case in the offshore sector, where there is a pressing need to reduce costs and maximize equipment availability, FIG. 1.

When it comes to leveraging digitalization in the offshore environment, one critically important question that must be answered early on is where data will be processed after it is acquired. For this, operators have two options. The first option is to forward the data to a public or private cloud off the physical premises. The second is to process it locally on-premise, at the "edge."

The choice of cloud vs. edge processing is driven by a number of factors, one of which is the volume of data to be processed. In cases where there is limited available bandwidth and large volumes of data being generated, for example, it may not be feasible to perform analytics in the cloud. An offshore platform can generate terabytes of data per day. For communications links with speeds of less than 10 megabytes per second (mbps), which is not uncommon in the offshore environment, it could take more than a week to get a single days' worth of data uploaded to the cloud.

Sensors which generate high-frequency data, such as vibration and electrical system monitoring, may also make it impractical to send the required data to the cloud in a timely fashion. For these applications, it is advantageous to perform the analytics on-premise close to where the data is generated.

Data privacy is another key driver that will dictate the decision to process data at the edge or in the cloud. Most oil and gas enterprises need to protect sensitive operational data like well production or capacities. Governments may even consider the data to be important for national and economic security. In such cases, on-premise edge analytics may be the only viable option to satisfy data privacy requirements.

Choosing an edge deployment doesn't necessarily limit the sophistication of the analytics that can be performed. Advanced technology, such as machine learning anomaly detection and asset health calculations, can be done at the edge. The limitation arises when a company wants to analyze data at scale on the enterprise level, to gain insight into the performance of assets across an entire fleet or a vendor's entire installed base. In these cases, cloud technology can be a powerful complement to the edge. Libraries of analytics can be held in the cloud and then orchestrated to the edge. Cloud orchestrators also can perform edge device management and user management at scale.

Cloud computing ultimately offers the most scalable and easiest visibility into analytics. Creating the servers, databases, calculation engines, analytic libraries, and end-user visualizations within an enterprise can be a costly endeavor. Moving these capabilities to the cloud offers a much lower price point and makes the business case for creating analytics a more compelling proposition. Cloud analytics may be accessed by authorized users anywhere in the world, including on mobile devices. Managers and operational personnel can have transparency into their assets, plants and fleet in a much timelier fashion without being physically present in their facilities. As the move toward minimally manned facilities continues, having remote visibility into operations becomes increasingly important. Ultimately, the choice between edge and cloud is not a binary one. There are trade-offs with each architecture, and because of this, a hybrid infrastructure that examines individual use cases will offer the best solution to satisfy both data privacy requirements and the need for enterprise-wide analytics.

Additional details will be offered at SPE paper 195758 presentation, "When to go with cloud or edge computing in offshore oil and gas," at 11:30 am, Wednesday, 4 September.



**FIG. 1.** Powerful advances in processing technologies enable significant efficiency gains in the offshore sector.

# **A Complete Review**

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## Offshore Europe 2019 Show Daily

# Mitigating flexible flowline buckling with pre-trenching pressurization

**MOSTAFA TANTAWI,** Principal Engineer, Xodus Group

To overcome challenging installation requirements, architectural constraints and corrosive fluid compositions, methodologies and analysis tools for the in-place design of flexible flowlines are quickly evolving, particularly for HPHT applications.

Over the last three decades, several analysis models have been developed for upheaval buckling (UHB) analysis. These approaches have focused largely on rigid



FIG. 1. Flexible pipes consist of different layers of various materials that act together and allow for unique mobility behavior.

pipeline systems, which are more widely used for oil and gas applications, particularly where trenching and backfilling is common practice, and are of a relatively simpler design, FIG. 1.

North Sea case study. To reinstate two existing wells to recover stranded reserves in the North Sea, a major operator commissioned international energy consultancy Xodus to perform in-place design for a new flexible flowline, **FIG. 2.** This would replace the existing decommissioned 5.2-km, 6-in., rigid carbon steel pipeline, extending between the manifold and the isolation valve skid.

Predictive UHB considered a range of load cases to capture all potential pressure and temperature combinations. This was followed by an out-of-straightness (OOS) analysis, post-installation, to establish the soil cover and additional soil requirements. As empirical approaches are not suited to capturing non-linear flexible behavior, both analyses were conducted using an FE approach to avoid either overor underestimation of download.

An effective method that can be used to mitigate UHB for flexibles and avoid an excessive rock dumping requirement is to pressurize-up the flexible, trench the flexible during pressurization, depressurize while the flexible is in the trench to lock some tension in the wall force and, hence, reduce the buckling potential when the flowline is in operation. This is dependent on several parameters, such as wall status (either tension or compression), bore internal and external temperature, and pressure.

Flexible flowlines are generally installed with low touchdown tension and subsequently low residual lay tension. Ignoring such tension yields conservative results for UHB analysis. It is also expected that the process of pressurization on the seabed will relieve any residual tension in the flowline and will subsequently result in lateral/vertical movement to relieve the generated compressive effective axial force

A lateral buckling assessment also was performed during the predictive stage, to estimate the residual compressive effective axial force at buckled sections. This considers non-linear flexible properties and adequate soil modeling (such as variation in axial/lateral friction forces, embedment due to self-weight and during lay, and passive soil resistance).

## **Predictive UHB and detailed OOS**

**analysis.** Comprehensive studies showed that pre-trench pressurization reduces required download by an average of 50%. UHB analysis concluded that a combination of pre-trench pressurization, combined with an increase in depth of cover, will minimize or even eliminate rock dump post-backfill.

Following installation, the flowline was pressurized on the seabed to 1.1 x design pressure (242 barg) and jettrenched prior to tie-in of the flowline ends. A post-lay survey was performed prior to trenching while the flowline was kept pressurized, and a post-trench survey conducted before depressurization.

As there was no as-laid survey performed during the OOS stage, Xodus managed several lateral buckling analyses, covering a range of imperfections and soil axial/lateral resistance combinations. The results were amalgamated, and a conservative relation between the analysis' mobilized curvatures and the residual effective axial force was established. Flowline trenching and backfilling were performed under pressure, and an as-backfilled survey also was conducted.

Results showed that there was no additional mitigation required for the flowline, thanks to three main drivers:

- Achieved depth of cover was higher than anticipated.
- In-situ vertical curvatures are lower than those anticipated during predictive design.
- Pressurization of flexibles significantly lowered net effective axial force, leading to reduced reactions.

Proven field life extension. Prepressurization of flexibles is an effective and robust method of global buckling mitigation. It results in locking tension in the flexible, which effectively reduces the net compressive axial force in the system during operation.

The Xodus project has demonstrated that it is possible to develop an affordable and fit-for-purpose solution to recover trapped reserves from late-life assets.

Since the restart of the field in 2017, production has been up to 20% better than originally anticipated, and has been a catalyst for the operator to redevelop and reinstate other satellite fields that have stranded reserves. Potentially, the overall economic field life can be extended for another three years, and beyond 2030.

Xodus Group is exhibiting at Stand 1Q51 at the SPE Offshore Europe, 2019 conference.



**MOSTAFA TANTAWI** is a Principal Engineer with international energy consultancy Xodus Group.

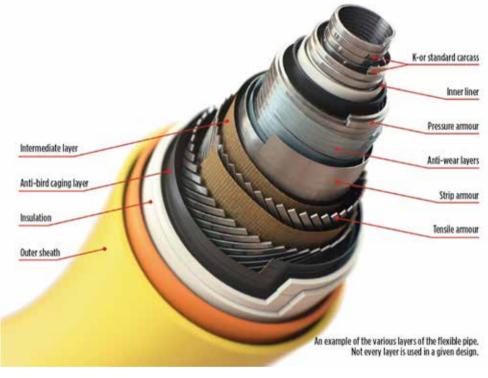


FIG. 2. Typical flexible layers.

# GREEN & BLACK'S CO-FOUNDER TO SHARE CAREER LEARNINGS WITH OFFSHORE INDUSTRY

The co-founder of chocolatier Green and inclusion across the sector, as part & Black's will address an oil and gas of a speaking event hosted by OGUK, Chief Executive Deirdre Michie, who "This event provides our industry with

The event will be opened by OGUK

OGTC CEO Colette Cohen said.

industry audience, to spotlight diversity



JO FAIRLEY, founder, Green & Black's

OGTC and AXIS.

The event, to be held at SPE Offshore Europe 2019 on Thursday, 5 September, will see Jo Fairley present a thought-provoking narrative that acknowledges the challenges and opportunities of thriving as a female leader, while sharing the lessons she has learnt throughout her career.

A broad lineup of speakers will discuss key issues in a panel session moderated by Colette Cohen, chief executive of OGTC. The panel includes Gretchen Haskins of HeliOffshore; John Pearson, COO at Petrofac; Ariel Flores, vice president at BP; Jo Coleman, of Shell; and David Isaac, chair of the Equality and Human Rights Commission and partner at Pinsent Masons LLP.

commented, "This sector has thrived and survived because of our talented and pioneering colleagues. However, if our industry is to remain relevant in a changing and challenging environment, it will need to attract and retain a diversity of talent, skills, experience, and thought, as well as ensure inclusive and collaborative ways of working."

"Fostering a diverse and inclusive working culture is a moral and business imperative that is key to ensuring a competitive and sustainable oil and gas industry that supports the UK's transition to a net zero economy. Our industry supports around 270,000 skilled jobs, but with women representing only one in four of the talent pool, there is clearly still more work to be done."

an opportunity to raise awareness of the ongoing challenge in delivering a truly diverse workforce. We can voice our concerns, while sharing aspirations, ensuring everyone feels empowered to make a difference in their place of work. I look forward to an engaging debate, challenging everyone in the room to leave with a clear personal commitment to improving diversity."

The event will be closed by Karen Blanc, CEO of AXIS Network, who said, "We are passionate about supporting those working in the energy sector to thrive, and to do that, we must create truly inclusive, attractive, modern workplaces. We'd like to inspire everyone who attends to commit to taking positive action to attract, retain and develop a diverse workforce." •

# Well Conveyor receives investments from Chevron, ProVenture and Investinor

Well Conveyor, a Norwegian downhole technology company, has received equity investment from Chevron Technology Ventures (CTV), a division of Chevron U.S.A. Combined with additional investments from existing investors ProVenture and Investinor, the company has raised \$1.8 million.

The money will support the qualification and commercialisation phases for the company's innovative Slim Battery-Powered Conveyor, **FIG. 1**. The new conveyor will be the smallest diameter downhole tractor available on the market, offering access to the increasing number of slim, horizontal and highly deviated wells, which up to now have not been serviceable with wireline type conveyance.

The conveyor has been optimized for running on batteries, with an efficient electro-mechanical design, allowing for extended tractoring distances of more than 15,000 ft. Not being dependent on power and communication from the surface allows operators greater flexibility and lower-priced conveyance alternatives. The conveyor has been designed for simplified operations and reduced maintenance, enabling the service to be provided by the regular wireline/conveyance providers. This translates into less interfacing and manpower being needed for operations.

Well Conveyor was founded in 2015 by Kenneth Fuglestad to pursue the development of a novel downhole tractor that would be more cost-effective, slimmer, simpler to operate, and more power-efficient than existing offerings, allowing for the utilization of downhole battery power. Early support came from angel investors, the Research Council of Norway and Innovation Norway, which took the company through the concept, feasibility and early development phases for the conveyor.

ProVenture and Investinor invested in the company during early 2018, and Chevron Technology Ventures invited Well Conveyor to participate in its catalyst program, which was created to support early-stage technologies that can directly benefit the oil and gas industry. These relationships provided the means to advance the development and qualification phases, and to expand the organization.

Well Conveyor has carried out extensive in-house qualification testing of the technology and is now preparing for first field trials in the U.S. The patented Slim Battery-Powered Conveyor will serve as a platform for additional cost-effective conveyance solutions to be developed by the company.

"We have greatly appreciated the support from Chevron Technology Ventures, since we were accepted to the catalyst program early last year," said Jan Vader, CEO of Well Conveyor. "We are excited and honoured to further strengthen the relationship through this equity investment, and continue the successful cooperation with Chevron Technology Ventures, Pro-Venture and Investinor, as we transition from the development phase to the commercial phase of the company."

## **Chevron Technology Ventures**

**(CTV)** was formed in 1999 to pursue new business solutions and externally-devel-

oped technologies that have the potential to enhance the way Chevron produces and delivers affordable, reliable and evercleaner energy. CTV fosters innovation, supporting vibrant start-up ecosystems and championing technology integration internally. Through its investment portfolio and internal-use pipeline that trials technologies for use within Chevron, CTV has supported a wide range of pioneering companies that are helping to shape the future of energy.

**ProVenture** is an early-stage investor fund, based in Trondheim and Stavanger. ProVenture focuses on investing in Norwegian technology companies with international potential, and provides capital and competence to accelerate growth for the companies in their portfolio. **Investinor** is an evergreen investment company, owned and funded by the Norwegian government. It invests in highly competitive and promising private Norwegian companies aiming for international growth and expansion. Investinor manages NOK 4.2 billion and invests on the same terms and conditions as private investors, with a clear exit strategy for all investments.

**Well Conveyor** is a developer of downhole technology for conveyance and intervention. The company aims to simplify access to challenging wells on a global basis. Well Conveyor was founded in 2015, and is based in Bryne, Norway, with a branch opening in Houston during the third quarter of 2019.

WEDNESDAY

# TODAY'S CONFERENCE HIGHLIGHTS

#### DECOMMISSIONING - NOW'S THE TIME, 10AM-12PM, CONFERENCE ROOM 2B

SESSION MANAGERS: ANDY SAMUEL, Chief Executive, OGA and GEIR TUFT, Chief Executive Officer, Ineos

Moderator: ANDY SAMUEL, Chief Executive, OGA

JOHN HAND, Technology Programme Manager, ConocoPhillips

**CAROLINE LAWFORD,** Decommissioning Project Lead, CNRI

**PAMELA LOMORO,** Decommissioning Project Manager, OGTC

MARTHA VAZQUES, Principal, BCG

JON CLARK, EMEIA Oil & Gas Transactions Leader, EY

#### DIGITALISATION, 14:30-16:30, CONFERENCE ROOM 2B

**ZVONIMIR DJERFI,** President Global Sales, Baker Hughes, a GE company

RAMI ALIEH, GM Digitalisation Upstream, Shell ROB KELLY, Head of Upstream Digital, BP

JOHN LERVIK, Chief Executive Officer, Cognite ROHIT SINGH, Digital Programme Manager, Equinor

#### SECURING GENERATION 2035, 14:30-16:30, CONFERENCE ROOM 2A

DEIRDRE MICHIE OBE, CEO, Oil & Gas UK HEDDA FELIN, Senior Vice President, Equinor RYAN FERNANDO, Apprentice of the Year, Oil & Gas UK Awards

## THURSDAY

# TOMORROW'S CONFERENCE HIGHLIGHTS

KEYNOTE PROGRAMME SESSION: TRANSFORMATIVE TECHNOLOGIES TO LOWER CARBON FOOTPRINT (DECARBONISATION, CCS), 10AM-12PM, CONFERENCE ROOM 2A

JÉRÔME SCHMITT, Senior Vice President Innovation & Energy Efficiency at Total

SAM GOMERSALL, Pale Blue Dot Energy - Acorn CCUS Project WENDY BROWN, IOGP

DR OWAIN TUCKER, Shell Global Deployment lead for CO2 STEINAR EIKAAS, Equinor - VP Low Carbon Solutions Equinor

#### UNLOCKING A LOW CARBON FUTURE – ENABLING THE ENERGY TRANSITION, 14:30-16:30, CONFERENCE ROOM 2A

SIAN LLOYD-REES, UK Country Manager, Aker Solutions MARTIN WHITE, Vice President, Halliburton

JOANNA COLEMAN, Energy Transition Manager, Shell RENE PETERS, Business Director - Gas Technology, TNO RAGNHILD STOKHOLM, Head of Front End Brownfield & Low Carbon Lead, Aker Solutions

MARTYN TULLOCH, Independent Energy Consultant

#### AUTOMATION, 14:30-16:30, CONFERENCE ROOM 2B DAVID REID. CMO. NOV

**LEIGH-ANN RUSSELL,** Head of Procurement & Supply Chain Management, BP

JON CRANE, VP Wells Digital Deployment, Shell NASTASSJA HAGAN, Modernisation Lead, BP HEGE KVERNELAND, CTO, NOV SIMEN LIEUNGH, CEO, Oddfjell GEIR TUNGESVIK, Head of Drilling, Equinor



**FIG. 1.** The conveyor will be the industry's smallest diameter downhole tractor, providing access to difficult-to-reach slim, horizontal and highly deviated wells.

**PAUL DE LEEUW,** Director Oil & Gas Institute, Robert Gordon University

JOHN MACDONALD, CEO, OPITO

**SUE MACDONALD,** Executive President, People & Organisation, Wood

**GARETH MACQUEEN,** Graduate of the Year, Oil & Gas UK Awards

VICTORIA CAMERON, Business Coordination Manager, Kellas Midstream





**KAREN SEATH,** Marine Science Chair, SUT Decom & Wreck Removal Subcommittee

STEVE HALL, CEO, SUT

MOYA CRAWFORD, Chair, SUT International Salvage & Decom Committee

**SALLY ROUSE,** SAMS (Scottish Association for Marine Science) and MASTS (Marine Alliance for Science and Technology for Scotland) Oil & Gas Forum

ALISON BRAND, Aberdeen University & Manta Environmental

STUART MARTIN, Director - Business Development, Ardent Global

MARK LAWRENCE, Waves Group

JOEL MILLS, CEO, Offshore Simulator Centre

IAIN GARTSHORE, Decom Manager, Subsea 7

Offshore Europe 2019 Show Daily

# Trelleborg showcasing new solutions and digitization technologies

## **TRELLEBORG OFFSHORE**

Trelleborg is showcasing its new Vikotherm R3 subsea thermal installation material, alongside automated fiber placement technology, for creation of advanced composite structures at SPE Offshore Europe. The company is also discussing digitization and the 20-year history of Elastopipe being installed offshore.

## Vikotherm R3, environmentally

**friendly thermal insulation.** The twocomponent, low-temperature vulcanizing rubber thermal insulation material in Vikotherm cures without the need for external heating or addition of energy. With



**FIG. 1.** The AFP manufacturing method, creating a composite structure using continuous fiber-tape. Image: Trelleborg Offshore.

a service life of approximately 30 years, it is suitable for insulation on Christmas trees and adjacent subsea production systems.

Dr. Adam Jackson, technical manager with Trelleborg's offshore operation, says: "Vikotherm R3 consists of a single-layer, non-silicone rubber insulation material with superior hot-wet aging response and mechanical properties. It is usable at service temperatures up to 180°C, and is applied using a lay-up process from extruded strip stock on-site without the need of molds."

**Expertise in advanced composites and automated fiber placement technology.** In addition to an extensive selection of seal profiles developed specifically for demanding offshore applications, Trelleborg also has expertise in advanced composites and automated fiber placement technology (AFP), FIG. 1.

AFP is an additive manufacturing method for creating advanced composite structures using continuous-fiber tape. The technology allows for a high degree of control over processing by monitoring speed, temperature and pressure throughout the tape-placement process. This results in a repeatable, out-of-autoclave manufacturing process that reduces manual labor and processing time, while opening the door for the creation of complex geometries that are otherwise difficult to produce. Advanced composites are ideal for applications in oil and gas that require weight reduction and environmental resistance.

David Brown, global director for Trelleborg Sealing Solutions, says, "we are one-step ahead of the game to support the constantly evolving offshore industry. Oil and gas exploration continues to move to greater subsea depths, and this has put an increased emphasis on enhanced oil recovery processes.

"Advanced composites usually reserved for aerospace applications are now finding their way into oil and gas systems, as they help ensure oil field equipment can work to its optimum capacity. Anyone who uses a Trelleborg product knows it will withstand the extreme operating temperatures and pressures of drilling in today's HPHT environments, while also meeting the safety standards required within the industry."

**Supporting our customers with digitization.** Over the last several years, Trelleborg's offshore operation has refocused and taken the extra time to find out what their customers' challenges are and how the company can help customers solve them.

Paul Walters, business group director with Trelleborg's offshore operation in Skelmersdale, England, says, "one major change that we are hearing about from our customers and seeing across the industry since the last SPE Offshore Europe in 2017, is the need to focus and adapt for digitization. At Trelleborg, we are combining our proven solutions with smart technologies to support better business for our customers projects and their customers' projects."

### Twenty proven years of reliability.

Trelleborg's offshore operation will be celebrating 20 years of proven safety reliability with Elastopipe. A patented flexible piping system developed for transporting a variety of fluids, Elastopipe is known for its corrosion-free, explosion-, impact- and jet fire-resistant properties. This next-generation piping system uses synthetic rubber instead of traditional materials and incorporates the only piping material approved for offshore deluge systems that has survived sequential explosion, impact and jet fire testing.

Experts from Trelleborg Sealing Solutions and offshore operations are in Hall 3, Stand 3B30.

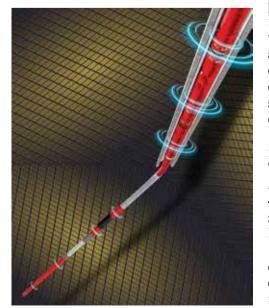
# Weatherford launches remotely activated, single-trip DW system

## WEATHERFORD

Weatherford has introduced the industry's first remotely activated, single-trip, deepwater completion system. By combining the upper and lower completions in one trip, the system has been shown to reduce installation time between 40% and 60%, and to reduce rig time by four to six days.

Using radio-frequency identification (RFID) technology, the field-proven TR1P system delivers 100% interventionless operation in both producer and injector wells, FIG. 1.

"Weatherford's TR1P advanced deployment system has set a new industry benchmark for completion installations, especially in deepwater environments," said Mark Hopmann, president, completions



for Weatherford. "The ability to perform multiple operations in less time, with less equipment and fewer personnel, is a game-changing deepwater solution, and the answer to our customers' challenge to significantly increase efficiencies when installing deepwater completion systems. TR1P gives you the ability to perform the operations demanded by your reservoir, rather than your budget."

The industry already has taken note of TR1P's deepwater capabilities, as it was a Spotlight on New Technology Award winner at the 2019 Offshore Technology Conference (OTC). The award was presented to TR1P as a breakthrough innovation, impacting offshore exploration and production. Notably, TR1P advantages include: zero control lines, washpipe, wireline, coiled tubing, workover rigs and wet-connects; test-independent barriers; set and test-selective upper and lower completion components, and the ability to stimulate and isolate either a zone or the entire well. "The industry has recognized the value in our TR1P technology," said Hopmann. "In a deepwater injector well in West Africa, TR1P reduced installation time by 40% to 60%, and cut rig time by four to six days, compared to a two-trip upper and lower completions process." As the only provider of RFID technology-enabled downhole tools, Weatherford coupled that capability with elements from its existing completions technologies. The result is the industry's first 100% interventionless operation that significantly reduces the total cost of installation of a deepwater completion system.

# ABB'S SUBSEA POWER WILL MOVE PRODUCTION TO THE SEABED

Putting oil and gas production facilities on the seafloor has been one of the holy grails of oil and gas exploration. Located at the bottom of the sea, it would need to be fully automated. Relocating platform workers to shorebased control rooms takes away much of the physical risk, greatly reduces operational costs, reduces the energy needed to recover it, cuts marine pollution and simplifies decommissioning. It can even boost oil production, due to the increased flow and pressure of the stream resulting from being closer to the oil/gas reservoir. While the technical challenges of this quest are formidable, the payoff will be significant.

ABB has a long history of developing innovative solutions to technical challenges. With strategic foresight and deep domain knowledge, ABB's experts ogy that goes beyond today's current capabilities is required. ABB's goal is to develop technology that can reliably provide up to 100 MW of power (equivalent to what is needed to power a small city) to depths as far down as 3,000 M, and over distances up to 600 km, and then distribute power to multiple assets—pumps and compressors. This technology will enable operators to power entire processing plants, on the ocean floor, FIG. 1.

Over 200 ABB engineers are working to develop these new technologies for subsea power. The initial researchers involved have understood key challenges from the outset, designing the equipment to operate for 30 years, requiring little or no maintenance at the seabed, even beneath a 3,000-m water column.

Development work for ABB's new

**FIG. 1.** RFID technology enables remote activation of a single-trip deepwater completion system. Image: Weatherford.

are focused on solving challenges that can support industry innovation.

The subsea landscape is an extremely harsh environment, and new technol-

innovative subsea power solution is in its final stages. Soon, the world's first subsea production facility on the seabed will become a reality.



**FIG. 1.** ABB is developing reliable power sources to operate in water depths of 3,000 m, and over distances up to 600 km.

# North Sea industry offers diverse approach to net-zero

ERIKKA ASKELAND, Contributing Editor

Deirde Michie, the Chief Executive of North Sea trade body Oil and Gas UK (OGUK), says the industry is experiencing an "evolution," as it sets out on a plan to support ambitions in the UK and Scotland to achieve net zero carbon emissions. The OGUK report, "Roadmap to 2035: A Blueprint for net-zero," sets out how to ensure the sector can continue to provide secure energy supply, support net-zero and remain a vital contributor to the UK economy.

**Supporting the vision.** She said, "It is all about supporting the UK and Scotland ambition to be net zero by 2050 and 2045. The industry has a role to play in terms of what it does, managing its own emissions and supporting other intensive industries in terms of development of carbon capture, use and storage (CCUS) and the hydrogen economy, while at the same time continuing to provide oil and gas.

"We are going to need oil and gas as part of a diverse energy mix. We need to provide energy certainty, because if you don't, you will have to import and you lose the benefits of jobs, of security of supply and contribution to GDP. We are one of first industry sectors to come out with a plan like this. It is a milestone. We are really excited."

It has been estimated that the drive to achieve a netzero economy could require up to £1 trillion of investment. And while this figure is across the UK, the North Sea industry will also have to invest in technology to broaden its capabilities.

**Collaboration.** Michie said the industry welcomed the opportunity to work with the Oil and Gas Technology Centre (OGTC), which launched the Net Zero Solution Centre at SPE Offshore Europe 2019 to accelerate the

development and deployment of technologies to decarbonise offshore operations.

She admitted that the oil and gas industry has often been perceived as a "late taker" of new technology but that now the industry was ready. "The work OGTC is doing with the Net Zero Solution Centre is helping to demonstrate the value of the technology, so that takes the fear away. It is about critical mass. They are doing a lot of really positive stuff in that space

"What we are also seeing is operators becoming much more curious about how others are improving their performance and are looking to see how they do that too. "It is about managing their emissions and ensuring they are as efficient as possible in that space.

She said the industry was "already playing an active role in the transition to a more diverse energy mix, with many of our members investing in renewables, developing new technologies and bringing new solutions to market."

The report noted that collaboration between industry, government and regulators will be required to maintain the competitiveness and sustainability of the basin, so that UK demand for energy is met from the UK's own resources rather than imports. But this should be in parallel with industry efforts to reduce emissions.

**Moving forward.** She said, "Roadmap 2035 offers a blueprint for how we can continue to meet much of the UK's oil and gas needs from domestic resources, progressively reduce associated production emissions and develop economy-wide decarbonisation technologies. With 40,000 new people needed in our industry, a quarter of whom will be in roles which don't currently exist, it is an industry with an exciting future.

"The opportunity for companies is to improve efficiencies and ultimately their bottom line, knowing they have a role to play as part of net zero economy. Because we are going to still need oil and gas as part of that net zero economy. You have your Shell, BP, Total out there leading. The supply chain is already all over this, and others are doing parts of it. Diversity of approach what we need."



OGUK Chief Executive **DEIRDE MICHIE** 

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Offshore Europe 2019 Show Daily

# Aker BP: Embracing tech, data-sharing is key to industry's survival

**CRAIG GUTHRIE,** Contributing Editor

Oil and gas firms across the value chain need to share more data and accelerate the adoption of new technologies to meet the economic and environmental challenges being created by the energy transition, attendees heard at the opening session of SPE Offshore Europe 2019.

Speakers at the event's plenary session said the same openness to innovation and pathfinding spirit that enabled the oil and gas sector to generate huge global economic growth over the past century should now be channeled into developing and embracing new solutions in robotics, carbon capture and data analysis.

"Digitalisation offers this industry its path to the future," said Karl Johnny Hersvik, CEO, Aker BP. "We have already overcome the world's toughest problems to get to this point, and now we have the future in our hands." Hersvik said that currently only 3% to 5% of available data at all stages of exploration and production is being shared by companies, and that this is preventing companies from achieving greater efficiency through becoming more leaner and agile. "We could apply the same mindset, the same agility and the same functions that modern tech companies do to maximize the utilization of our resources. But, we need to create arenas where we can share knowledge competency."

Historically greater analytical data sharing and technical cooperation in the sector has faced critical obstacles, such as risk perceptions and unstandardized sensor data, yet Hersvik's call to arms on improving technical collaboration was echoed by other speakers.

"If we increase the level of collaboration, we can deploy new technology earlier, delivering new tools to meet the problems that we face," said Patrick Pouyanné, president and CEO of Total, at the event's opening session.

Northern lights. Underlining what can be achieved with technical collaboration, Pouyanné revealed that Total will start using its first autonomous robot later this year, describing it as a world first for the industry.

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2019 HIGHLIGHTS

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OE' provides innovators with a platform to demonstrate their capabilities before ENGenious returns in 2020.

# **ENERGY TRANSITION HUB -**HALL 1 - NEW FOR 2019

New for 2019 is the Energy Transition Hub, where operators, associations and technology companies will share insight's over the course of the event. They will highlight the efforts they are making to prepare the oil & gas sector for transition to a lower carbon future, with less environmental impact.

# **STARTUP VILLAGE -**HALL 1 - NEW FOR 2019



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## LATE LIFE AND **DECOMMISSIONING ZONE - HALL1**



Our highly popular Late Life & Decommissioning Zone will return in 2019. This

The robot, which can perform tasks such as visual inspections, read dials and navigate through narrow pathways, was developed through coordination with the Oil & Gas Technology Centre, Total E&P and taurob, in partnership with Germany's Technische Universitaet Darmstadt. It will be deployed at Shetland Gas Plant and offshore Alwyn platform.

Alongside that robot's deployment, other cutting-edge projects underway in the North Sea were underlined as examples of how the region can play a central role in forwarding technical collaborations.

'Companies have moved on from the traditional adversarial relationship that existed [on the UK Continental Shelf," said Wael Sawan, Upstream Director, Shell. "But we need to embrace technology more. There needs to be a 'next level' of cooperation."

Sawan noted that Shell plans to expand its activites on the UKCS to drill 20 wells this year, at a cost of \$600 million. "But that commitment comes with strings-we need to work closer together."

Speakers highlighted the North Sea's potential to become a knowledge hub for emerging carbon capture, usage and storage (CCUS) technologies, solutions that can remove CO<sub>2</sub> from flue gas and the atmosphere, while also recycling it for use and safe permanent storage.

"The North Sea could become a giant cave of CO<sub>2</sub> for Europe, in a major new activity for the region. The industry should intensify pilots in CCUS, increase our efforts to develop this technology, if we are serious about becoming a carbon neutral planet."





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2019



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#### WAEL SAWAN, Upstream Director, Shell

## 16 WEDNESDAY, 4 SEPTEMBER 2019 / DAY 2

# Majors warned on capital flight threat

## **CRAIG GUTHRIE,** Contributing Editor

IOCs face a major challenge, as investors pull out of fossil fuel-related businesses, but are also in a unique position to reshape public perceptions and become trusted custodians of the world's energy resources, a former UN chief spokesperson on climate change told attendees at SPE Offshore Europe 2019.

In the past four years, over 1,000 institutions have together pledged to divest more than \$6 trillion from all fossil fuels, an 11,200% increase in divestment over the previous period, said Christiana Figueres, former head of the UN Framework Convention on Climate Change.

"This capital drought is impacting on IOCs more than NOCs," she said, adding that the largest insurance companies and the largest financial agents are pulling insurance from fossil fuel industries, making it more difficult to use insurance instruments.

"On oil, this industry is in greater competition each day with EVs [electric vehicles] and renewables, although 10 years ago this would have seemed like science fiction. An estimated 35% of oil demand comes from cars, and 5% for power generation, so effectively 40% of global oil demand could be replaced."

Figueres, a former Costa Rican diplomat, was executive secretary of the UN Framework Convention on Climate Change from 2010 to 2016. In 2015, she delivered the UN Climate Summit in Paris, leading to the adoption of the Paris Agreement.

Last year, the 350.org divestment

ETROLEUM

movement challenged investors to reach \$10 trillion worth of divested assets by 2020, in order to deliver on the goals of that agreement. In July, oil and gas companies listed on the London Stock Exchange were also reclassified under a non-renewable energy category.

Figueres said that IOCs could forge a new path by reinventing themselves as broader energy companies. Firms must also focus on radical methane reduction strategies and make dramatic investments in natural carbon storage initiatives, such as huge re-planting initatives, she said.

She added that political lobbying against climate change regulation would undermine rather than strengthen majors' positions in the long term. "By doing this, you risk losing your "licence to operate." Anger on the streets at climate change is actually beginning to be matched by the fact that equity valuations in this sector have actually been stagnant lately, despite the fact that there has been so much investment."

Earlier this year, Norway gave the go-ahead for its \$1-trillion sovereign wealth fund, the largest in the world, to undertake the largest fossil fuel divestment, to date, by ditching more than \$13 billion of investments in coal and oil producers.

"Privileged position." She challenged the traditional argument that moving away from oil and gas would have a negative macro-economic impact on society, and said there was a need for an "unavoidable transition here of the business model."

But Figueres also said that the oil and gas sector is in a "privileged position" to confront the challenge ahead. "You could, of course, use that position to continue to explore and continue to provide more supply flowing, but I am sure you would prefer business continuity." She went on to praise the "vision and leadership" shown by other speakers during

the morning, highlighting the importance of the energy sector in tackling climate change.

"The industry really is grappling with the challenges ahead, and are very ardently looking at the fact that there is a tough road ahead but light at the end of the tunnel.... It is vital, because we don't have an option of reducing emissions to zero by 2050, it is a necessity to ensure humanity's survival."



CHRISTIANA FIGUERES, former head of the UN Framework Convention on Climate Change

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Offshore Europe 2019 Show Daily

# Partners join forces to make North Sea oil "net zero" carbon

**ERIKKA ASKELAND,** Contributing Editor



Left to right, PAUL WHEELHOUSE, Scotland's Minister for Energy; COLETTE COHEN, CEO, Oil & Gas Technology Centre; and UK Minister of State for Energy and Clean Growth, KWASI KWARTENG.

A technology centre in Aberdeen is spearheading a plan, along with operators and tier-one contractors, to make the North Sea the world's first "net zero" oil and gas basin.

The Oil & Gas Technology Centre (OGTC), a government- and industry-backed research company, launched the Net Zero Solution Centre at SPE Offshore Europe 2019 to accelerate the development and deployment of technologies to decarbonise offshore operations. The centre has the backing of operators including BP, Chrysaor, CNOOC International, Equinor, Ineos, Shell and Total, as well as contractors Aker Solutions, Siemens and Wood.

New entity's mission statement. The centre will champion the creation of an "integrated offshore energy system," partnering with companies to accelerate the development of carbon capture, utilisation and storage, hydrogen capability and other net zero technologies. The centre has developed a roadmap and will work with a range of academic institutions and industry sectors to identify challenges and cross-sector collaboration on technologies, to help accelerate carbon reduction and create export opportunities for the UK supply chain.

Colette Cohen, CEO of the Oil & Gas Technology Centre, said, "The UK offshore oil and gas industry is a dynamic system of infrastructure, supply chains, expert workforce, research activity, and technology development and deployment. This diverse industrial ecosystem must play a fundamental role in the creation of a net zero carbon economy.

"With the backing of industry and government, and strong track of delivery, the OGTC is committed to moving the dial on carbon reduction and enabling the UK Continental Shelf to become the first net zero hydrocarbon basin in the world. Our focus will be on developing technologies to reduce operational carbon emissions, working with other parts of the energy sector to create integrated solutions and repurposing infrastructure to accelerate carbon capture usage and storage, hydrogen production and gas-to-wire capacity."

Government's view. UK Energy Minister Kwasi Kwarteng also noted, "The UK's oil and gas sector has a pivotal role to play in the UK's journey towards becoming a net-zero economy by 2050. Support from companies within the industry is vital to us making this energy transition to a greener future. The UK Government warmly welcomes this initiative to find innovative technological solutions to decarbonising the offshore production of gas and oil from the North Sea and wider UK Continental Shelf.'

Sir Ian Wood, Chairman of economic development body Opportunity North East, a partner of the OGTC, said, "I believe the North East of Scotland is on its way to becoming a global energy capital, applying our significant oil and gas capabilities and innovative technologies to reduce carbon emissions. We have the skills, knowledge and strong track record to convert the challenge of climate change into an opportunity, creating new technical solutions in the UK and globally. The Oil & Gas Technology Centre's new Net Zero Solution Centre can make a significant contribution, partnering with industry to help deliver low carbon solutions and support the creation of a net zero carbon economy."

Andy Samuel, Chief Executive of the Oil and Gas Authority (OGA) said: "The OGA warmly welcomes this important step forward. We believe the oil and gas industry, with its long history of engineering excellence, infrastructure, subsurface expertise and worldclass supply chain, should play a leading role in the drive to net zero. We're excited by the opportunities to use technology to enable carbon capture and storage, offshore energy integration and hydrogen production, while we maximise economic recovery from the UKCS to meet continuing energy demands and reduce reliance on hydrocarbon imports.'

Ray Riddoch, UK MD and SVP, Europe and Africa, for Chinese operator CNOOC, said, "CNOOC International is delighted to support the new Net Zero Solution Centre. It is essential that industry, academia and government work together on new technologies and solutions that can help turn the dream of a net zero oil and gas industry into reality."

**Timetable.** The project programme for the Net Zero Solution Centre is now being developed with industry partners, and recruitment is ongoing for a manager to lead the new centre. The first few projects are likely to be announced by the end of 2019, alongside a high-level plan for 2020.

OGTC was launched in February 2017 with £180million in funding from the UK and Scottish governments, through the Aberdeen City Region Deal, and from Opportunity North East. The not-for-profit, research and knowledge company aims to become the go-to technology centre for the oil and gas industry in the UK and globally.

# Paradigm Group celebrates 10 years



# and a series of 'world-firsts'

Paradigm Group is celebrating its 10 -year anniversary in business this week at SPE Offshore Europe 2019. Since its inception in September 2009, the Dutchbased firm has established four standalone companies in the group, all with the remit to develop and commercialize innovative upstream oil and gas technology products and services. The now-global group has bases in The Netherlands, UK, U.S. (Houston), Dubai and Mexico.

The Group, known for its pioneering technology and services in the drilling, well intervention and flow remediation sectors, is celebrating and showcasing the exhibition and at its base in Inverurie, Aberdeen.

Leading technologies. Paradigm Group CEO Julian Manning said, "Paradigm Group's success comes from our ability to offer the industry many unique technologies that are setting 'world-firsts' for our customers. Some of these world-firsts include Paradigm's Flexi-Coil system, the world's only miniaturized coiled tubing pipeline blockage removing system; Slick-E-Line, a global-leading digital slickline system;

some key products this week, both at the E-Winch Range, the world's most advanced wireline intervention winches with guaranteed zero line breakage; and Dry-Flo, the world's only dry deluge system that quantifies and accurately simulates testing in virtual liters, allowing deluge system performance to be trended without the requirement of wet testing." He continues, "Our companies are working on emerging technologies that will come to market shortly, covering drilling, well intervention and production services. We understand market demands and the pressures for operators to keep costs to a minimum, which is

Paradigm Group CEO JULIAN MANNING

why we focus on persuasive technology implementation."

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**GRAHAM MILNE** of Red Rooster Lifting explains his company's products.



Attendees check out the latest offering at the BilFINGER stand.



**STEVEN RAE** of Step Change in Safety is interviewed by a local television crew.



Industry professionals visit during the OE Business Breakfast.







HELEN CHEN of Scottish Development International greets visitors to the organisation's stand.



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One of a number of fine, scale models helping to tell the technology story on the show floor.



The Shell stand asks a timely, pertinent question.

Offshore Europe 2019 Show Daily

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