Issue 45
Summer 2019

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Issue 45 | Summer 2019

Welcome to Issue 45

Welcome to the 45th issue of *Wireline* magazine. In this edition, we delve into some of the recent projects led by OGUK and its members and continue to explore more of the issues facing our industry today.

Our members have been involved in a number of mergers, acquisitions and investments over the past few months. In the E&P space, Chevron's North Sea assets have been acquired by Ithaca Energy, a subsidiary of the Israel-headquartered Delek Group, while Chrysaor acquired ConocoPhillips' UK business for more than $2.6 billion – surely one of the most transformative transactions in the basin in recent years. Meanwhile, the last quarter saw first oil from Hurricane Energy's Lancaster and Decipher Energy's Orlando fields, not to mention the start-up of production at Total's 250-300 million boe Culzean gas field.

April saw the launch of the Vision 2035 campaign – the industry-wide ambition to add another generation of productive life to the UK North Sea and expand supply chain opportunities at home and abroad. This campaign, and ways for industry to improve competitiveness as we transition to a lower carbon energy mix, were the focus of the OGUK Industry Conference, which took place in early June.

An important discussion taking place within industry was also spotlighted during the conference: that of diversity and inclusivity. Roles will change as technology and business evolve, and in order to thrive, more professionals and graduates must be recruited. However, the number of people entering the industry is declining. We explore this issue and initiatives to develop greater inclusivity in the workplace, in more detail inside [p.24].

We also hear from OGUK member Larsen & Toubro Infotech about the importance of processing historic data into usable forms and how its work is aiding a digital transformation in industry [p.18].

Helix Energy Solutions spoke with *Wireline* about how rigless technology is making well interventions more cost-effective and efficient [p.20]. Similarly, we hear how TAQA developed a unique, efficient late-life extension programme at Otter and North Cormorant which has helped to maximise recovery from the northern North Sea assets [p.38].

Finally, as private equity-backed E&P firms become key players in the UKCS, we speak to several of the leading figures about their strategies – and how private equity investment is aiding MER [p.28].

If you'd like to see your business in the next issue, we welcome any positive news and stories from your organisation at editorial@oilandgasuk.co.uk. Feel free to share *Wireline* with any interested colleagues, or request additional copies for your office or reception using the same email address.

In the meantime, have a pleasant summer and thanks for reading.

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(L-R) OGUK market intelligence manager Ross Dornan, Chrysaor CEO Phil Kirk, BHGE European director of oilfield equipment Romain Chambault, and OGUK chief executive Deirdre Michie at the launch of the *Business Outlook 2019*.

Business Outlook considers "new reality" for oil and gas

OGUK's *Business Outlook 2019* finds that a sustained focus on cost and efficiencies and ongoing uncertainty in commodity markets mark the "new reality" for the UK's offshore oil and gas sector.

Launched at events in Aberdeen and London on 20 March, sponsored by Deloitte and White & Case LLP respectively, the Outlook reports that continued uncertainty in commodity markets is reinforcing investor caution, with forecasts indicating a conservative outlook for prices. Against this backdrop, exploration and production companies remain focused on cost whilst striving for further business and operational improvements.

Production has increased by 20 per cent over the past five years, following 14 years of decline. In addition, oil and gas produced on the UKCS continues to provide around 60 per cent of the UK's overall demand. At the same time, new momentum is building around exploration activity, with up to 15 exploration wells expected in 2019, including several potentially high-impact prospects. However, drilling activity – key to progressing resources to production – remains at a record-low rate.

New entrants are also making their mark; the largest ten E&P companies accounted for just over half of production in 2018 compared with more than two-thirds in 2008, reflecting an increasingly diverse corporate landscape. While the report finds 62 per cent of contractor companies have an improved outlook for 2019, many areas of the supply chain are still experiencing challenges as industry emerges from one of its most difficult downturns.

Forecasts also suggest that £200 billion will need to be spent by E&P companies in existing and new opportunities to realise industry's Vision 2035 and add a generation of productive life to the basin.

Download a copy of the *Business Outlook* report via the OGUK website.

TTH, Finance Act given Royal Assent

February saw Royal Assent given to the Finance Bill (now Finance Act 2019). The Act formalises new legislation on transferrable tax history (TTH) and changes to the petroleum revenue tax (PRT).

TTH allows a seller to transfer a specified amount of tax history to an asset buyer at the time of an asset deal. The buyer can then carry back decommissioning costs against its

Image below: OGA chief executive Andy Samuel presents at the unveiling of the NDR.

Image bottom: (L-R) OGA chief information officer Simon James, OGA CFO Nic Granger, CDA chief executive Malcolm Fleming.

own tax history and the seller's tax history. This reduces the risk to smaller companies of carrying out decommissioning without obtaining full tax relief for their costs.

The rules apply to licence transfers approved by the Oil and Gas Authority (OGA) on or after 1 November 2018.

New cyber security group launched

Following an expression of interest by several members after the inaugural OGUK Cyber Security Seminar held in September 2018, a dedicated cyber security group has been established.

The group will provide the mechanism for member companies to share specialist knowledge, experience and lessons, as well as develop industry guidance as required in the area of cyber security risks and mitigations.

Membership is open to all OGUK members, and representatives from the Oil and Gas Technology Centre (OGTC) and the oil and gas cyber team in the Department for Business, Energy and Industrial Strategy (BEIS) will be invited as guests to discuss pertinent issues.

If you are interested in joining or learning more about the group, please contact workforce engagement & skills manager Alix Thom via athom@oilandgasuk.co.uk.

National Data Repository opened to the public

25 March saw the one of the largest ever single open releases of data, with the launch of the first UK Oil and Gas National Data Repository (NDR).

Commissioned by the OGA and developed by Common Data Access (CDA), the NDR is an online platform which is home to 130 terabytes of well, geophysical, field and infrastructure data covering more than 12,500 wellbores, 5,000 seismic surveys, and 3,000 pipelines.

Free to access and open to the public, the NDR aims to help achieve maximum economic recovery of the estimated 20 billion barrels of oil and gas that remains in the basin. It will also play an important role in the energy transition, including enabling future carbon capture, usage and storage (CCUS) projects.

The NDR can be accessed at ndr.ogauthority.co.uk.

Parliament welcomes industry leaders at annual reception

With crucial ministerial votes on Brexit happening just metres away, 13 March saw nearly 100 industry leaders, parliamentarians and senior civil servants gather at a particularly busy House of Commons for the British Offshore Oil and Gas Industry All Party Parliamentary Group (APPG) annual reception.

(L-R): Trevor Garlick (ONE), Deirdre Michie (OGUK), Stuart Payne (OGA), Andy McDonald (Scottish Enterprise), Andy Samuel (OGA), Colette Cohen (OGTC) and Steve Phimister (Shell U.K. Ltd).

APPG chair Peter Aldous MP, the host of the event, addressed attendees alongside Lesley Laird MP and OGUK chief executive Deirdre Michie, who noted that the cautious optimism of previous years is now "a more determined one, reinforced by tangible signs that the North Sea is open for business and investing in its future."

Our Vision, Our Future asks industry to join conversation on road ahead

Industry leaders have come together to develop a roadmap which will steer the UK's offshore oil and gas sector towards achieving Vision 2035. The Our Vision Our Future campaign is a shared intent by the industry and stakeholders, including government, to ensure industry can deliver as much of the UK's oil and gas needs, expand supply chain opportunities at home, abroad and in other sectors, while supporting the accelerating transition to a lower carbon future up to 2035 and beyond. It comes as the recent Climate Change Committee report set out a balanced and thoughtful blueprint towards a lower carbon future, with the industry at the heart of a managed transition.

A task force will pull together specific and measurable deliverables under the key areas of skills, technology, exports, diversification and culture. Its members include:

- Steve Phimister (Shell U.K. Ltd) – culture and behaviours
- Andy Samuel (OGA) – maximising economic recovery
- Stuart Payne (OGA) – exports
- Colette Cohen (OGTC) – technology
- Andy McDonald (Scottish Enterprise) – diversification
- Matt Abraham (OGUK) – supply chain
- John McDonald (OPITO) – skills
- Trevor Garlick (ONE) – oil and gas sector deal

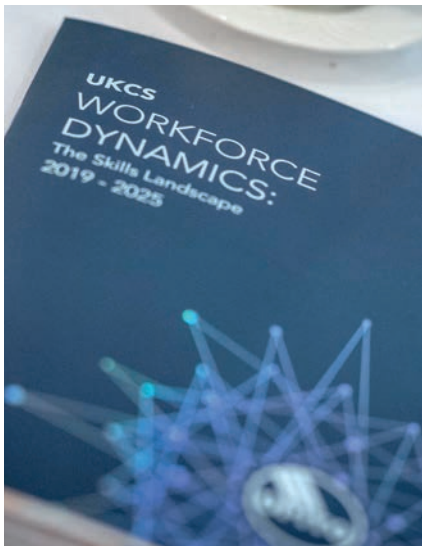
OGUK chief executive and task force chair Deirdre Michie said: "There has never been a more important moment for us all to come together to collectively consider what our future could or should look like. Later this year we'll publish a roadmap which will signpost how we can continue to meet as much of the UK's oil and gas demand from home-produced resources, while supporting an accelerating transition towards a lower carbon future.

"The Our Vision Our Future campaign is important for industry because we all have a role and a voice in the future of this industry, which is why we need everyone to join the conversation and think about how we can continue to make sure this industry remains a dynamic and exciting place to work as we move through the transition."

Companies and employers are being urged to join the conversation by displaying "Our Vision Our Future" material in their workplaces, and sharing their ideas about how Vision 2035 will be achieved on the dedicated site: www.energyvision2035.com.

They can also show their support on social media using hashtags #ourvisionourfuture or #jointheconversation and nominate individuals to become "Visionaries" – ambassadors for the campaign.

Image left: RGU Oil & Gas Institute director Paul de Leeuw presents findings from the OPITO *Workforce Dynamics* report.



OPITO explores workforce of the future

OGUK hosted its second Breakfast Briefing of 2019 in Aberdeen, at which OPITO set out its strategy to prepare the UK oil and gas industry for a shift in skills requirements over the next six years.

Sponsored by Deloitte, the 2 May event saw the release of OPITO's *Skills Landscape 2019 – 2025* report, part of the UKCS *Workforce Dynamics* research series, which explores how technology advances, internationalisation and the transition to a lower carbon future are accelerating changing skills demands in the sector.

Developed in partnership with Robert Gordon University's Oil & Gas Institute, the report is built on four strategic components – Retain, Retrain, Recruit, and Renew – and is designed to help the sector develop an increasingly flexible, multi-skilled and technology-enabled workforce.

By 2025, it is estimated that the industry needs to attract 25,000 new people, 4,500 of which will be in completely new roles that do not currently exist in areas such as data science, automation and new materials. By the same date, around 80% of the current workforce are expected to still be working within the industry. The study notes that the opportunity to retain these skills, and to upskill and reskill the workforce as the industry adapts new technologies and different ways of working, is therefore substantial.

Following keynotes from RGU Oil & Gas Institute director Paul de Leeuw and OPITO director of strategic development Mark Cullens, the event heard from a panel of industry speakers including Ariel Flores, BP's north sea regional president; Lesley Birse, president of people and organisation for Europe, Africa, ME, Asia and Australia at Wood; and Sophie Ewen, currently an OGTAP (Oil & Gas Technical Apprentice Programme) apprentice working with Chevron.

Download a copy of the *Skills Landscape 2019 – 2025* report via the OPITO website.

Efficiency Task Force welcomes new members

OGUK's Efficiency Task Force (ETF) has appointed three new members to its steering group which aims to seek out, promote and provide access to best practice across the industry whilst boosting collaboration.

The additions include Baker Hughes GE director of oilfield equipment, Romain Chambault; Chrysaor non-operated ventures director Steve Cox; and Carjon-NRG managing director Colin Black.

In just over three years since the ETF launched, it has secured transformational change in areas including business processes, standardisation and simplification, culture and behaviours industry-wide. The first initiative of its kind for any oil and gas province, it aligns with all other industry efforts. It is one of the six MER UK (Maximising Economic Recovery) task forces under the MER UK Forum, bringing together government, industry

Image below: (L-R) Kezia Dugdale MSP with OGUK lead external affairs adviser Rebecca Groundwater at the Scottish Parliament.

and the OGA to drive collective action on key priorities.

In 2019, the group will look to build on increased engagement with more 'efficiency champions' helping to deliver and promote projects, prepare guidelines, share best practice and attend company-hosted roadshows. It will also work across the supply chain to expand opportunities – ultimately helping to achieve industry's shared ambition, Vision 2035.

There are a variety of ways to get involved in the Efficiency Task Force, from becoming an efficiency champion to hosting a roadshow, which aims to allow businesses to share best practice and streamline ways of working.

For more information, visit oilandgasuk.co.uk/efficiency-task-force.

OGUK meets MSPs at Holyrood

Hosted by Labour MSP Lewis Macdonald, OGUK manned a week-long exhibition stand at Holyrood in early April. The OGUK team engaged directly with 45 parliamentarians across all parties, including nine Ministers, as well as Holyrood staff and guests. Notable visitors to the stand included Kezia Dugdale MSP, John Swinney MSP, Alex Burnett MSP, Murdo Fraser MSP, Anas Sarwar MSP, Bill Bowman MSP, Jackie Baillie MSP, Mark Macdonald MSP and Tavish Scott MSP.

OGUK provides the secretariat for the Oil & Gas Cross Party Group, which meets throughout the year at the Scottish Parliament in Edinburgh. Its membership comprises MSPs and interested organisations and individuals.

For more information on joining the group, contact Rebecca Groundwater at rgroundwater@oilandgasuk.co.uk.

OGA sets out priorities for next five years

The Oil and Gas Authority (OGA) has published its latest Corporate Plan, outlining the priority activities it will focus on over the next five years (2019-24). The plan includes a summary of recent industry and OGA performance in maximising economic recovery (MER), and sets out a five-year work programme consisting of seven priority themes, 18 priority activities and seven key performance indicators (KPIs).

The new plan recommits to the ambition, framework and seven themes laid out in the inaugural 'OGA Way Forward' Corporate Plan 2015, but also updates its specific priorities under each theme of work, as well as the methods of delivery and KPIs for the next five years.

As well as a firm focus to progress Vision 2035, new elements include an even stronger emphasis on digital and the use of big data to revolutionise industry practice and acknowledging the importance of the energy transition.

Download the latest Corporate Plan via the OGA website.

Information Management Forum launched

The first meeting of the newly created Information Management Forum was in early June at OGUK offices in London and Aberdeen. Building on the foundations laid by the CDA Council and industry's IM Energy Forum, and intended for data, information, document and records managers working across the E&P lifecycle, the forum will provide an opportunity to identify and tackle shared industry challenges in this increasingly strategic area.

For more information, contact CDA manager for data projects Daniel Brown via dbrown@cdal.com.

Image below: Steve Rae addresses delegates at OGUK's Safety 30 conference in June 2018.

Steve Rae takes the helm at Step Change in Safety

The Board of Step Change in Safety has announced the appointment of Steve Rae as the organisation's new Executive Director.

Steve is a born and bred Aberdonian who is held in high regard within the global oil and gas community having spent more than 35 years working in the industry. He began his career in the early 1980s as an offshore technician and worked on many North Sea installations before being assigned to Piper Alpha. His escape and survival from the platform on the night of 6 July 1988 left him with an unquenchable desire to make a positive change in the safety culture across the industry.

Steve's association with Step Change in Safety dates back to 2007 when he was a member of the leadership team, which is responsible for planning and monitoring the activities of the organisation. His other past industry roles include: director, OPITO; chairman, North Sea Chapter; and director, International Association of Drilling Contractors (IADC). In 2013, the IADC recognised Steve with the 'Val Hood' award for his services to the drilling industry.

Steve is also Chairman of the Pound for Piper charity trust which provides support towards the upkeep of the North Sea Memorial Rose Gardens and the Piper Alpha monument located in Aberdeen's Hazlehead Park.

New guidelines for off-payroll working

In response to changes regarding off-payroll working legislation (IR35), OGUK has issued updated guidelines for members. The *Off Payroll Working (IR35) in the Private Sector* guidelines provide members with information and the steps to follow as they prepare for the changes, which will be implemented in April 2020.

Though the final legislation has not yet been published and an HMRC consultation is still ongoing, members are urged to begin preparing for these changes now, if they have not already done so. The guidance will be updated as required when the final legislation is issued.

Download the guidelines via the OGUK website.

OGUK responds to UK's net-zero commitment

OGUK has committed to work with governments in supporting the UK to meet its climate change ambitions.

Speaking in response to the Prime Minister's commitment to deliver net zero emissions by 2050, and the recent findings of the Committee on Climate Change, Deirdre Michie set out the role industry can play to enable the energy systems of the future and to help the development of technology that can mitigate carbon from other heavy emitting industries:

"Achieving net zero is a huge challenge that will affect all industries, businesses and people. Our sector needs to be involved in this agenda, work to realise the opportunities it presents and be an essential partner in supporting the UK to achieve its climate change ambitions.

"We can help design the diverse energy system we need for the future, and through our knowledge and experience can be a central part of developing some of the technology needed to mitigate carbon from other heavy emitting industries through for example, Carbon Capture Usage and Storage.

"We have already welcomed the Climate Change Committee report and are engaging with our members on the practical steps we need to take in continuing to manage and reduce the emissions from our own activities, to play our part in achieving net zero.

"With world-leading engineering skills, infrastructure and energy expertise, our industry stands ready to work with sectors across the UK economy to enable the UK to achieve its climate change goals."

Download the report via the CCC website.

Image right: Chief executive Deirdre Michie addresses delegates at the OGUK Industry Conference.

Below right: (L-R) BP regional president for North Sea Ariel Flores; Shell VP upstream president Steve Phimister; OGUK upstream policy director Michael Tholen; OGTC CEO Colette Cohen; Wood CEO, asset solutions Europe, Africa, Asia & Australia David Stewart.

New Supply Chain Principles to boost industry competitiveness

A set of principles outlining how industry can increase efficiency and co-operation to help improve industry performance, eliminate unnecessary costs, add value and boost competitiveness has been developed by OGUK.

Supply chain director Matt Abraham introduced the new document to members at the Joint Council meeting on 30 April, which was attended by representatives from both operator and contractor/ supply chain companies.

Comprising ten key principles which align, incorporate and supersede content from the Supply Chain Code of Practice (SCCoP), the Tendering Efficiency Framework (TEF) and Industry Behaviours Charter (IBC), the Principles provide guidance to drive supply-chain optimisation.

OGUK is currently compiling guidelines for implementing the new Supply Chain Principles, which will be published in Q2 2019. Further information is available at oilandgasuk.co.uk/supplychainprinciples.

2019 Industry Conference tackles transition

Convened under the theme of "An Industry in Transition," OGUK's 2019 Industry Conference brought together industry leaders, politicians and regulators to discuss how the sector can improve its competitiveness and play its part in the move towards a new and lower carbon energy mix.

Sponsored by Total E&P UK, Stratasys and Larsen & Toubro Infotech, presentations and panel sessions delivered by over 45 industry leaders explored three key areas of transition - business, people and technology - with around 450 delegates attending the event at Aberdeen's AECC across 4-5 June.

Scottish Government Cabinet Secretary Michael Matheson MSP addressed delegates on the first day of conference, while Lord Duncan, Parliamentary Under Secretary of State for Scotland and Parliamentary Under Secretary of State for Northern Ireland spoke on 5 June.

BP's Ariel Flores, Wood's Dave Stewart, and Petrofac's John Pearson each chaired business sessions looking at efforts to accelerate the energy transition, better ways to unlock the UK North Sea's potential and the impact of technology in delivering efficiency improvements.

Discussions around the people transition included workforce engagement and culture, OPITO input on oil and gas skills development, plus additional activities aimed at encouraging new talent with transferable skills across different energy sectors.

Colette Cohen from the Oil and Gas Technology Centre (OGTC) chaired a session on transformational technology's role in the energy transition with input from DNV GL's Graham Bennett and Equinor's Bjorn Johansen, which considered the potential for expanding supply chain opportunities. The OGTC also led talks on diversification, with input from Scottish Renewables.

In her keynote address, OGUK chief executive Deirdre Michie emphasised: "The UK's offshore oil and gas industry has so many talented people, engineers, data scientists, remote vehicle operators, technologists and more. We can find and deliver the solutions needed while at the same time positioning ourselves to be at the heart of an energy system that also needs to change - whether it is by the sector working to reduce its operational emissions as well as supporting the advancement of low carbon and abatement technologies."

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7 November

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P&J Live, Aberdeen

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Offshore Decommissioning Conference

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Member News

Well-Safe acquires dedicated decom rig

Well-Safe Solutions has agreed to acquire the Ocean Guardian semi-submersible drilling rig from previous owner Diamond Offshore, with a view to converting the asset into a bespoke well decommissioning unit.

Upon delivery, Well-Safe said it intended to begin work immediately to upgrade the rig, renaming it the 'Well-Safe Guardian'. This work will see around $100 million invested in upgrades, including the installation of a dive system and the capability to deploy a subsea intervention lubricator (SIL) – technology which is nearing completion of the design and engineering phase, supported by the Oil and Gas Technology Centre (OGTC).

The company also said that this would be the first time that a privately owned Scottish business has owned and operated this type of unit, and that the acquisition would bring 90 jobs to the North Sea over the course of the next year. Executive director Mark Patterson, who leads the asset purchase programme, said: "This is a major milestone in Well-Safe's journey and one that is in-line with our strategy. It's great to have The Ocean Guardian, which has a great reputation on which we will build, as our first asset."

Well-Safe is also in discussions to add a second semi-submersible rig to its stable, and intends to follow with a jack-up, mono-hull vessel and land-based units.

Crondall Energy welcomes new graduates and placements

As part of its technology strategy, Crondall Energy is working closely with several universities to bring students into the workplace via graduate recruitment and student placement schemes.

Its graduate recruitment scheme runs each year and attracts students from several universities across the UK. Three students have been recruited for the 2019 programme in Crondall Energy's subsea business and will work in its Aberdeen and London offices.

A student placement position has also been filled in the company's Aberdeen office. The business metrics intern role will help the organisation to streamline internal processes. Recruitment for the position was conducted exclusively with the University of Aberdeen and allows Crondall Energy the opportunity to bring in fresh thinking from students outside of engineering disciplines.

Students will be engaging with Crondall Energy's loyal and experienced team of specialist independent consultants working across oil and gas, focusing on exciting and transformative new technologies to maximise economic recovery on the UKCS and beyond.

Crondall Energy says that engagement with the next generation is an important responsibility. Managing director Stephen Booth commented: "We are committed to bringing through the next generation of engineers. My generation has worked hard to develop the industry thus far and we need to support the next generation to develop the industry further as it moves towards greener energy, digitalisation and other technical innovations."

Ensco and Rowan complete merger

April saw drilling contractors Ensco and Rowan confirm the completion of their previously announced merger.

The newly formed EnscoRowan will maintain its headquarters in London, UK, and a significant presence in Houston, Texas, and will trade on the New York Stock Exchange under the ticker symbol ESV.

EnscoRowan president and CEO, Tom Burke, commented: "The successful completion of our merger further enhances our market leadership with a fleet of high-specification floaters and jackups and diverse customer base. Our growing geographic presence, technologically-advanced drilling rigs and talented employees position us exceptionally well to meet increasing and evolving customer demand."

Image left: The Well-Safe Guardian, formerly Ocean Guardian.

Below: Fairfield Decom chairman Ian Sharp, finance director Odd Magne Grøntvedt, managing director Graeme Fergusson and commercial director Ronald van Waaijen.

TUV SUD NEL launches oil-in water measurement JIP

Flow measurement R&D specialist TUV SUD NEL has launched a joint industry project (JIP) to fill a significant knowledge gap in the oil and gas industry's use of online oil-in-water analysers to help optimise oil and gas recovery.

In its push to optimise production and recovery, the industry is increasingly considering unmanned and subsea separation systems, which require accurate oil-in-water measurement for compliance monitoring of produced water. However, regulatory standards relating to oil-in-water measurement and reporting for subsea discharge do not currently exist.

The JIP will deliver a new set of regulatory requirements for subsea produced water discharges, as well as guidance for the acceptance of using online oil-in-water analysers for unmanned and subsea applications. It will also create a new set of validation criteria for the use of oil-in-water analysers for reporting purposes. This will help operators to optimise their production process, maximising the efficiency of oil and gas recovery and reducing operational costs.

TUV SUD NEL environmental consultancy services manager Dr Ming Yang said: "With an ever-increasing emphasis on maximising oil and gas recovery and cost-effective production, there is a growing interest in the development of unmanned and subsea separation systems. However, produced water discharge would not be possible without reliable online oil-in-water analysers, and no industry-wide reporting and compliance guidance currently exists. This JIP already has the support of three major operators as it will fill that knowledge gap, update existing guidance, and make the use of these produced water discharge analysers for reporting purposes a reality for the industry."

Guidance for the use of online oil-in-water analysers was first developed in 2005, with manned installations in mind, and was not verified in the field. It is intended that the JIP's research work will enable the existing online oil-in-water analyser guidance, from OSPAR, the UK's Department for Business Energy and Industrial Strategy (BEIS) and Norsk Olje & Gas 085, to be updated and improved.

Major players unite to form new decommissioning operator

Three leaders in oil and gas decommissioning have launched a new company – Fairfield Decom – which aims to combine operator knowledge with the expertise and capabilities of major offshore decommissioning contractors.

Leveraging the expertise and assets of Decom Energy, Heerema Marine Contractors and AF Offshore Decom, the group will form a unique late-life operations and decommissioning operator capable of providing an all-encompassing solution for ageing offshore oil and gas assets. Although primarily aimed at the UK Continental Shelf (UKCS), it also intends to access the global decommissioning market, estimated to be worth over $80 billion over the next ten years.

Headquartered in Aberdeen, the group say they are determined to be at the forefront of the drive to establish a thriving decommissioning hub in Scotland and provide what Fairfield Decom has called "next generation decommissioning."

Fairfield Decom managing director Graeme Fergusson commented: "We have built a strong business relationship with Heerema and AF Offshore Decom as contracting partners in the Dunlin topsides removal and as alliance partners for integrated decommissioning business opportunities... Our operator background means that we understand what the E&P community wants – an integrated solution that is technically robust, commercially creative and that will deliver a safe, cost-effective and environmentally-sound solution."

Deloitte.

OGUK

COMING SOON

The 2019 UKCS upstream supply chain collaboration survey opens in July!

- Look out for the survey link in your inbox and submit your responses as soon as possible
- Or register your interest to participate: email UKDeloitteERandIIndustry@deloitte.co.uk

Worley INTECSEA, OGTC partner up on pseudo dry gas liquid removal technology

Worley's INTECSEA consultancy unit has partnered with the Oil & Gas Technology Centre (OGTC) to fund prototype testing of its pseudo dry gas (PDG) liquid removal system.

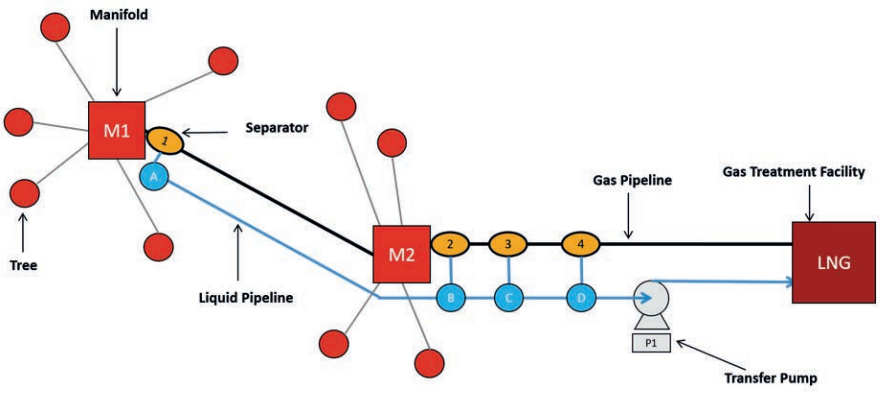
This technology has been developed to make long-distance subsea tiebacks, which are not typically economic or technically feasible, commercially viable. By reducing back pressure in the pipeline, the technology eliminates the need for topsides and compression, reducing carbon emissions and costs and allowing for much greater tie-back distances.

The prototype testing is based on a strong techno-economic concept study completed in March 2019, and also funded through the OGTC. The study demonstrated the system's "unparalleled" recovery levels, the OGTC said, which could provide an additional US$10 billion in revenue over the alternatives. This could result in "the strongest economic performance for a known stranded gas basin" north of Shetland. The study also demonstrated that upstream CO_2 emissions were reduced by 65-80%, significantly improving the environmental footprint. An additional application for PDG that was studied as part of the original OGTC scope was gas disposal for small oil pool developments.

Both these studies have driven the technology development forward with wider industry support, including a six-inch scaled prototype of the liquid removal unit, which will be tested over a six-month period at Cranfield University's flow loop facilities. This will simulate expected flow conditions typically found within a gas/gas condensate subsea tie back system to demonstrate the liquid removal efficiencies and confidence in macro flow assurance.

INTECSEA engineering lead for PDG technology, Lee Thomas, anticipates that the prototype testing will raise the technology readiness level to the point where a pilot project can be considered viable via a programme of enhanced factory acceptance testing for an integrated unit. "The solution is elegantly simple; it uses multiple passive liquid removal units and a liquid disposal pipeline connected to proven standardised pumps," he explained in a statement.

The team will also seek an operator willing to undertake a pilot project of an integrated unit. An ideal pilot would be maintaining gas production from an existing tieback post water breakthrough in a mono ethylene glycol (MEG) constrained environment. This would create significant value, with a minimal downside. Given the range of applications for this technology across a broad spectrum and the positive underlying economics, the project team is hopeful an operator will step forward.



PDG liquid removal system process diagram.
Source: Worley INTECSEA

ONE Tech Hub to boost digital capacity and capabilities

Opportunity North East (ONE) has opened the ONE Tech Hub, a digital tech and entrepreneurship community in north-east Scotland, following a £1.5 million investment to accelerate digital tech business growth.

The scheme has been led by ONE alongside Robert Gordon University (RGU) and ONE CodeBase as key partners. The hub brings together leading digital tech business incubation and ONE CodeBase's expertise with a wide range of connections and investors focused on helping digital tech companies to develop and grow.

Located in Aberdeen city centre, the hub provides tenants with unrivalled access to coworking spaces, offices, meeting rooms, social areas and up to 30 hotdesks. For the wider digital tech community, there are a range of event spaces available to hire and the Hub will host a variety of business events, industry networking events, education and accelerator programmes, and focused workshops.

Digging into subsurface data

As E&P companies prioritise efficiency and field redevelopment, gathering and processing historic data into usable forms is more important than ever. OGUK member Larsen & Toubro Infotech explains how it is aiding digital transformation.

At one time, greenfield exploration was largely seen as the best route to creating value for an oil and gas business; new fields meant greater reserves replacement and new production. Now however, many E&P companies are realising that they may already be sitting on a wealth of opportunity and value – in the form of data.

Historic data gathered from wells and assets can often provide vital information when appraising or re-developing prospects. The problem arises in locating this data in a form that is accessible and functional. When this well or seismic information does exist, it is frequently in the form of paper-based reports in physical archives. Identifying exactly what is already contained within, and what is needed for a successful project, is a considerable task.

Grappling with such subsurface data is therefore one of the frontlines of the oil and gas industry's efforts to embrace digitalisation. One company leading the way is Larsen & Toubro Infotech (LTI), the digital solutions division of the Indian engineering group. In its 20-plus years of operation, LTI has developed a suite of tools across its oil and gas practice to drive automation, connectivity and analytics, including a pioneering approach to data digitisation projects.

"We are recognised as a challenger to the traditional IT firms and we've been pioneering at the intersection of digital and physical," LTI's executive vice president for oil and gas, Suraj Rangashayi, told *Wireline*. "We see ourselves as having a lot of differentiation in that we have a lot of engineering talent and IT talent coming together to create the right blend of capabilities to transform the industry."

In the case of subsurface data, these capabilities take the form of an end-to-end digitisation service, allowing physical documents to be digitised and information extracted. The resulting data is processed and presented in an open-source digital format, ready to use in future projects or inserted into existing corporate data repositories. "Effectively our vision is to take all the subsurface data that is available, connect it all together using metadata attributes [for example, assigning GIS mapping tags or unique well IDs]... and transform it into a format that can be consumed by the technologists of today," Suraj explained.

The company's proprietary Mosaic platform leverages AI and machine-learning techniques to distinguish between graphs, data tables and textual information, and extract information accordingly, whether by optical character recognition (OCR) or image processing. (The latter enables Mosaic to convert physical seismic waveforms into digits and attaches relevant metadata from the surrounding report, creating a file which standard industry seismic software can consume). Human technicians are kept in the loop during the process to ensure quality control and verification. "This enables us to create a workbench and run a workflow with the documents pushed in at one side and the processed outputs at the other side," Suraj continued. "That is basically the holy grail; if you are able to do all of this and create this dataset in the right format, it's now available for actual value extraction."

Where it may have taken an internal project team months to reappraise or reassess reservoir data, LTI suggests the data compiling process can now be condensed down to weeks, offering value in the form of an expedited project as well as the long-term benefits of increased access to that data.

Access to such archives has clear implications for operators on the UK Continental Shelf (UKCS) – the launch of the National Data Repository (NDR) by the Oil and Gas Authority being one route towards making such data more accessible to all parties in support of maximising economic recovery. But while larger global operators may have their own extensive internal archives, many smaller E&P companies have some way to go. "For a lot of the independent operators today, a lot of them in the North Sea, the degree of adoption of these digital technologies is minimal," he noted. "And when I see the value potential in leveraging these technologies, it's huge."

"When I see the value potential in leveraging these technologies, it's huge."

First response

Providing the right personnel access to the right data can make a profound difference in other areas too. One of LTI's recent innovations is a cloud-hosted emergency response management suite which uses the standardised forms submitted to regulators to populate a database and can issue automated reports (by email or portal) to ensure reporting compliance. For responsible personnel, this provides clear visibility that emergency response plans are up to date and are being maintained – and any outstanding issues will be flagged with senior personnel automatically.

If an incident does occur, the system allows all relevant staff and government agencies to collaborate and communicate in real-time, over live documents, to ensure the response plan is enacted accordingly. "It's also a great remote training tool," added Suraj, in that it allows these (often geographically disparate) teams to undergo virtual drills to ensure familiarity in a real-life situation.

Central to these solutions is the principle of modernising the IT core of a company itself. Suraj explained that systems such as process management software should be integrated with newer systems which enable the whole corporate system to be digital-ready. In this way, each new project does not require an entirely new or bespoke solution, providing cost-effectiveness and a degree of future proofing.

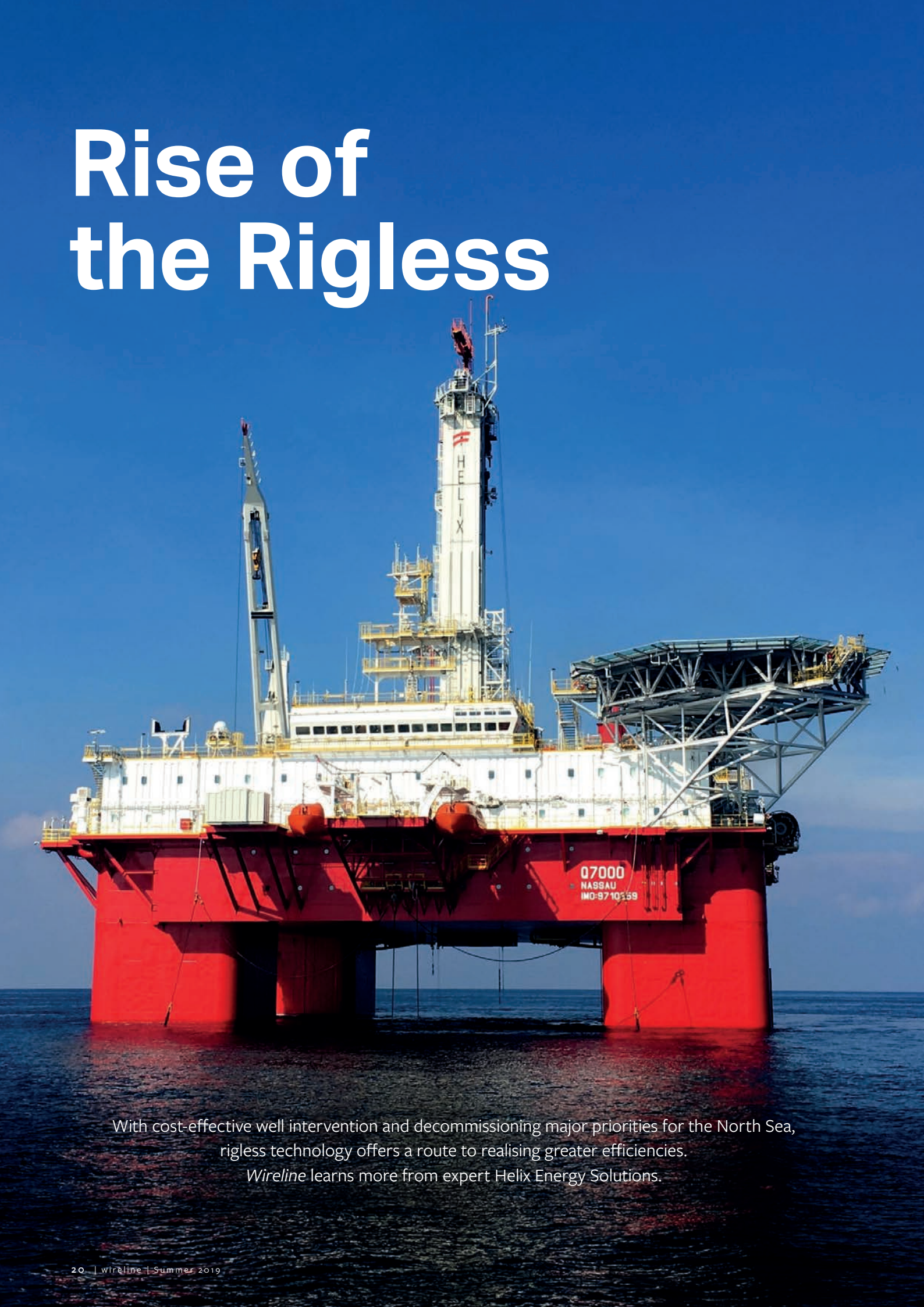
The company is currently in the middle of a global digitisation project for a large, global integrated oil major, involving millions of documents in the form of seismic, well logs, well reports and maps, as well as a similar pilot project involving an upstream operator in the Nordics. He notes that reappraisal of historic data has been one of the driving forces behind the US shale boom, and that "the potential exists for the UK to do the same, except that these technologies have to be adopted."

Yet perhaps the greatest advice for all E&P companies, whatever their size, is to recognise the value that can be realised from working with existing information in a smarter way – whether that's subsurface data, predictive maintenance or emergency response. As the volume of data generated by everyday operations increases, managing and understanding the data already in your possession is vital. As Suraj mused: "You don't know what you don't know."

"Our vision is to take all the subsurface data that is available… and transform it into a format that can be consumed by the technologists of today."

LTI
executive VP for oil and gas
Suraj Rangashayi

Rise of the Rigless



With cost-effective well intervention and decommissioning major priorities for the North Sea, rigless technology offers a route to realising greater efficiencies. *Wireline* learns more from expert Helix Energy Solutions.

Subsea wells are a paradox – at least according to Helix Energy Solutions Group's David Carr.

They are in general among the most expensive wells in the world to drill, often in the harshest of environments and most remote areas of the world. "The paradox," Carr explains, "is that although they are typically very prolific, they generally have the lowest recovery factor, primarily due to the fact that intervening on such wells is incredibly expensive, as it traditionally requires a large deepwater drilling unit to gain well access for such work."

The topic is a timely one, not just as the industry begins in earnest to grapple with the extent of decommissioning on the UK Continental Shelf (UKCS) – where subsea wells make up around 40% of the well stock expected to be decommissioned over the next decade – but in extending field life through workovers as well. Reducing the complexity and expense of subsea intervention operations is therefore critical to lowering operating expenditure and improving recovery over the long term. Rigless well intervention, in which smaller vessels and light well access technology are used to perform well operations, avoiding the need for a larger drillship or rig and associated riser pipework, is a key enabling technology.

Helix Energy Solutions Group (ESG) is a pioneer in this field. The company made its entrance into the UK North Sea when it performed the world's first riserless well intervention operation from the dive vessel MSV Seawell at the BP-operated Magnus field in 1987. This ground-breaking project paved the way for a whole new industry to arise – developing vessels, equipment and techniques to economically enhance, repair and ultimately decommission subsea wells.

Following Helix's advances in the light well intervention field, companies like TechnipFMC, in partnership with Island Offshore and Altus Intervention, have expanded the use of riserless light well intervention vessels (LWIV) using similar technologies. Helix however, has remained at the forefront, and still operates two vessels in the UK with unique characteristics – both the MSV Seawell and Well Enhancer LWIVs are capable of conducting well interventions using riserless technology while simultaneously performing saturation diving operations, an activity that is often essential with older subsea tree infrastructure.

Carr, a senior vice president at Helix Well Ops UK, adds: "Many of these North Sea trees have been producing since the 1980s and in many cases are past their design life. Working them over with a rig would mean landing over 150 tonnes of [blow-out preventer] BOP and marine riser onto them, which is generally impossible. A riserless package – weighing from just 30 tonnes – combined with diving support is often the only way to maximise economic recovery from these older assets."

Join the Q

Although its name may have been made in the North Sea, much of Helix's recent expansion has been concentrated in the US Gulf of Mexico and Brazil. It was this environment that spurred the development of its Intervention Riser System (IRS) for deepwater operations, where asphaltene production from high-volume wells frequently requires the deployment of coiled tubing to enter wells to clear blockages.

Deployment of the IRS also led to the development and construction of the world's first dedicated rigless intervention vessel, the Q4000 (the same vessel that would later cap the Macondo well following the Deepwater Horizon disaster). This in turn led Helix to develop Brazil's first dedicated rigless intervention vessels, the sister ships Siem Helix 1 and 2, currently under a multi-year contract for Brazil's Petrobras. The national oil company recently awarded Helix with the '2018 Supplier of the Year Award for Operation of Maritime Rigs' – a notable achievement for the team in the first year for which they were eligible.

While Helix has expanded global operations, the Seawell and Well Enhancer have remained stalwarts of the North Sea sector, Carr notes, the former undergoing a £58 million refit in 2016. More than 30 years on, the innovation that started at Magnus in 1987 will come full circle when Helix intends to introduce its new riser-based intervention vessel, the Q7000.

"This is a culmination of the technologies and learning from across the world, distilled into a unit that is conceived and specified for the North Sea," he continues. "We created a vessel that can take on the well access challenges of the west of Shetland zone, as well as being able to deal with central North Sea environments down to just 80m."

"This is a culmination of the technologies and learning from across the world, distilled into a unit that is conceived and specified for the North Sea."

“Shut-in wells, stranded reserves and of course maximising economic recovery are all very much plans for the coming decades.”

Helix Well Ops UK
senior vice president
David Carr

The approximately $500 million, semi-submersible vessel represents a strategic investment by Helix in the UKCS, where it will be deployed to address the specific challenges posed by maximising economic recovery (MER) and decommissioning cost reduction.

Built at Sembcorp Marine’s Jurong yard, the vessel’s specifications also reflect a combination of the company’s experience from North Sea operations and riser-based operations in the US Gulf, as well as the topside efficiencies created for Brazil monohull vessels which allow for very fast changeovers between work modes. “For good measure, we built this semi-submersible on ship-shaped pontoons so that she can transit at 10 knots, allowing us to support seasonal work in West Africa as well,” Carr adds.

Flexibility would seem to be the guiding principle of the Q7000’s development. Capable of working in depths from 80m up to 3,000m, the unit also features twin ROV support with heavy weather launch and recovery systems, a multi-palette skidding system on deck (which means no crane lifting is required to carry out routine operations) and DP3-class positioning, all of which open greater operational windows in terms of weather conditions and sea state. The ability to switch between coiled tubing and wireline quickly also reduces downtime between interventions, while a riserless openwater abandonment module (ROAM) will enable well decommissioning without the need for a full-bore riser in many cases.

Helix anticipates all these capabilities will equal greater cost savings and more value for UK operators. Carr points to a recent case study from the Gulf of Mexico, in which the Q7000’s sister vessel Q4000 completed a 13-well campaign for a large operator over a period of 135 days. In this project, Helix performed a wide array of MER and decommissioning work across seven fields, including three zonal isolations, two coiled tubing clean-outs, two chemical treatments, a milling operation, five stimulations and two abandonments.

“Efficiency was added to this operation by ‘hopping’ the IRS well access package subsea, from well to well – a total of 41 miles,” he says. Helix acted as project manager for the operation – which necessitated 44 regulatory submissions – but resulted in over 40,000 barrels per day of additional incremental production achieved across the project, as well as 20,000 bpd of increased water injection capability.

While beneficial, in this instance the usual metrics of efficiency and cost are secondary. Carr stresses that using a vessel like the Q4000 made these kinds of production-enhancement operations economical. “The work, and the increased production, would never have happened without this technology,” he notes. In that regard, they are expected to be a key asset as operators and the Oil and Gas Authority (OGA) seek to achieve MER.

Currently preparing for its first operation offshore West Africa, the Q7000 is due to launch officially in Q3 2019. Although Helix has yet to announce firm contracts, the vessel is expected to make its way to the North Sea sometime in 2020-21.

Getting creative

The enhanced capabilities of vessels like the Q7000 reflect Helix's wider business strategy. As CEO Owen Kratz adds: "Helix is a solutions provider, not a vessel and equipment provider. We set out to become the company that can provide all forms of subsea well intervention. So now, unlike other companies, we can offer our clients the intervention solution they need, not just the assets and equipment we have."

Beyond its established work in oil and gas, the company has also developed a presence in the offshore renewables industry. Leveraging its subsea trenching expertise, Helix has become a major player not just in the development of offshore windfarms, but also in "power from shore" electrification initiatives, aimed at reducing gas flaring and, where possible, lowering the emissions intensity of offshore production and enabling the wider energy transition.

Helix has extended its innovative approach to commercial models as well, actively moving away from 'fee for service' day-rate contracting to new ways of unlocking value through what it calls 'creative contracting.' "We may not be the cheapest, but we're always the lowest cost" quips Carr. "We are prepared to stand by our skill and experience, and that allows us to enter into different commercial models such as performance contracting, shared risk and reward, and even qualified lump sum operations."

This extends to decommissioning and late-life operation too. The combination of service company with late-life operator – a model previously employed by Helix's former E&P subsidiary – also presents a route for future work. Having all the tools and equipment at hand to enhance the production of subsea wells grants it the flexibility and capability to carry out interventions and ultimately decommission wells on its own schedule, lowering costs for all stakeholders.

This approach was revived earlier in 2019 when the company acquired Marathon's four-well Droshky field in the Gulf of Mexico, and Helix is seeking similar models on the UKCS. While there are no official work programmes as yet, Carr confirms it is "something we're actively pursuing in the UK."

With the Q7000 now set on its path to the North Sea, Carr says that Helix is looking forward to exercising these enhanced capabilities alongside its existing riserless intervention assets to help address the unique challenges of the basin. "By offering low-cost operations, combined with creative contracting options, we aim to be a driver of the Vision 2035 goals of the OGA in the subsea segment," he adds (see page 7 for more information). "Shut-in wells, stranded reserves and of course maximising economic recovery are all very much plans for the coming decades."

Image right: The Q7000 during sea trials.

Industry inclusion: A change is necessary

Workforce diversity and inclusivity are currently major discussion points for industry. For the sector to prosper and remain competitive, a lot needs to change.

Diversity in oil and gas – within the workforce and across ideas – is necessary if the industry is to thrive. Vast changes are anticipated as the industry adapts in line with the energy transition and advances in technology. As a result, the existing skills gap will only grow, unless companies make the changes needed to make oil and gas an attractive destination for professionals and graduates alike.

Diversity is only possible if companies work to create an environment and culture that is inclusive. In practice, this means companies allow for all manner of personal expression from their employees without anyone fearing that bringing their whole selves to the workplace will hinder, target or ostracise them.

"Inclusion [to me] means making the industry open to everyone no matter who you are; what you identify with culturally, religiously; what your ethnicity is; what your gender is," explains Spirit Energy director for resourcing, talent, D&I and L&D, Susan Grayson. *Wireline* met with Grayson to discuss diversity and inclusion in the industry and the work Spirit Energy is doing to embody these ideas.

"If we are truly inclusive, we will have diversity of thought; we'll make better decisions as teams, we'll be innovative as an industry and we'll move on. If we have non-diverse and non-inclusive teams the industry will not keep up with other industries and we'll lose talent."

Encouraging diversity

Across the industry, diversity is appearing more frequently in company manifestos and as a talking point at events and conferences. Many organisations are striving to make the changes necessary to encourage greater inclusiveness. For many, however, not enough is being done – evidenced in recent comments made by Energy Institute president Steve Holliday, who remarked that: "The oil and gas industry is appalling. Absolutely awful. It's pretty much the worst sector for diversity in terms of gender and ethnicity."

Energy Voice reports that, overall, figures for the number of graduates and women joining the industry are declining and, more generally speaking, the industry performs badly when it comes to ethnic and LGBT diversity. The University of Aberdeen also reported that the oil downturn has had a negative impact on the number of women entering oil- and gas-based higher education. These numbers only highlight the choice that many young people are making in light of the downturn and the energy transition.

There are fundamental shifts that need to be made in individual perspectives and by companies as a whole; attitudes towards diversity and inclusion need to change. Some companies have already taken steps toward addressing their lack of diversity and creating a more inclusive work environment by looking at hiring practices and introducing support and development programmes for existing employees.

"If we are truly inclusive, we will have diversity of thought, we'll make better decisions as teams, we'll be innovative as an industry."

Achieving diversity

There are a number of different interventions a company can adopt to improve diversity and inclusivity at their organisation. In a paper published in the journal Work Occupation in 2014, titled *'Corporate diversity programmes and gender inequality in the oil and gas industry',* the authors interviewed female geoscientists to explore the effectiveness of different corporate strategies that exist to address the issue. Their findings also give insight into not just company attitudes to diversity, but also how recipients of diversity intervention programmes feel about them.

Hiring programmes

In some organisations, specific goals are set for the hiring and promoting of professionals from minority backgrounds, and an individual or committee is given the responsibility to oversee the achievement of these goals. This kind of strategy has proven most effective in increasing the number of women in management but is generally met with some resistance – both from those not targeted by the programme and those who stand to benefit.

Grayson alludes to this in her own experience: "In 2013, when I worked for Centrica, our SVP Collette Cohen set up the first Women's Network. At first, I thought: 'Gosh, do I really want to get involved?' Then I thought, if I could have had the help and advice from myself at this age starting out in my career it would have been easier."

This hesitation and resistance is understandable. People can be reluctant to join anything that might set them apart from their colleagues and this specific intervention can open avenues for other people to question a person's right to be at a company, degradingly referred to as a 'diversity hire'. It is therefore important that people understand how diversity is also an issue of inequality, and that in order to work towards a level playing field, many systemically disadvantaged minorities need to be given a 'leg up', and offered space and support that they're denied in society.

The paper's authors report: "By holding an entity accountable for the achievement of diversity goals on-the-ground, this policy aims to subvert both organisational inertia and wilful resistance from frontline supervisors."

Image left: Spirit Energy EVP technical & operated production Neil McCulloch speaking at the AXIS Network's Men as Change Agents event.

Image right: Spirit staff at the Grampian Pride Parade, May 2019.

In an industry characterised by an incredible lack of diversity, powerful measures are needed to alter the reality. One such way is for companies to embrace this unpopular measure of legally enforcing equal opportunity by, for example, targeting women for promotions and hiring black, Asian and minority ethnic (BAME) professionals.

"It's not one solution fits all. You tackle the problem from school, university, graduates, and then within your organisation and working environment and then [by] bringing and retaining talent," Grayson adds.

Mentoring programmes

Traditionally, mentoring programs exist to pair a junior employee with a more senior employee who can share their experiences and offer technical and career advice. Career progress can be hindered for individuals who do not have access to advisers that provide support and advocate for them, so many organisations choose to implement mentoring programmes to assist underrepresented employees.

Research shows that such programmes are only moderately successful at increasing diversity at the leadership level. However, this does not take away from how valuable it can be for an individual to feel supported by having the option of mentoring available to them and working in an inclusive environment. In this study, the female participants expressed that formal mentoring in their first five years at an organisation was invaluable and many missed having a mentor after this period.

Diversity training programmes

Many organisations organise compulsory training programmes to their employees, including seminars and webinars, as part of their diversity and inclusivity efforts. These are devoted to enhancing cultural sensitivity and teaching employees about issues such as unconscious bias, protected characteristics and what behaviours fall into discrimination and harassment. The goal of these training programmes is to teach individuals about the types of diversity that exist and how to be more inclusive, in the hope that participants will change their attitudes and behaviour in response to the training, paving way for a more inclusive environment.

Affinity groups and networking programmes

These groups provide a means for employees to gain social support by joining up with fellow employees that they share a common interest with or a demographic trait. Companies introduce affinity groups on the premise that these networks can help employees combat feelings of isolation. Though they have very little impact on increasing the representation of minorities in management, they do serve an individual and personal benefit by providing a safe space, emotional support and encouragement. Groups are typically open to all employees and may organise informal gatherings for socialising or formal events related to professional development.

"Corporate diversity discourse often frames diversity as 'individual or group differences' rather than addressing issues of structural inequality, like sexism and racism."

Corporate diversity discourse often frames diversity as 'individual or group differences' rather than addressing the issues of structural inequality, like sexism and racism, that underpin the lack of representation. As a result, interventions such as those described above can have the unintended consequence of absolving employers from any discriminatory intent by not addressing existing structural barriers and attitudes that reinforce inequality.

For those reasons, greater research is needed into ethnic and racial diversity within the industry. Grayson says that while there has been success in setting up affinity networks for women and for Black and Minority Ethnic (BAME) professionals, others have proven more difficult to establish. "One thing we are trying to set up in Spirit now is an LGBT network. I am finding it harder for people to come forward. There is a fear of being noticed or connected with something that is important, but people feel might not be doing them any favours."

Countering cynicism

There are individuals who are critical of the increasing emphasis that the corporate world is placing on diversity. Some deny that there is a problem at all, while others feel excluded and, though incorrectly, discriminated against. This is an unfortunate but unsurprising obstacle that leaders and those working to address diversity and inclusivity issues in an organisation have to deal with. "One of the feelings that have been building around men is 'What about me?' Instead of leaving them out [of the work], what Spirit has done is try and engage with that group and bring them onboard, saying: 'Here's what you can do to help and be a part of this'," Grayson explains.

Image right: The BP North Sea BRG receiving the OGUK Diversity and Inclusiveness Award 2018.

For International women's Day 2019, the company's EVP technical & operated production Neil McCulloch, penned an article for Energy Voice on the value of gender equality for businesses and how efforts to achieve gender balance are not an attack on men. "Viewing gender imbalance as a women's issue and leaving it to women alone to 'fix', means that any failures will rest at the feet of women instead of being identified as systemic deficiencies. The fact is that in most businesses both the human and financial resources are controlled by men," McCulloch wrote.

In 2016, OGUK introduced a new award category for 'Diversity and Inclusiveness' at its annual industry awards. The award, last year sponsored by Spirit Energy, 'recognises a company that drives improved business results through recognising and promoting the value of diverse teams and inclusive behaviours.' The most recent winner of this award was BP, whose efforts in this area have been extensive and led to real improvements in its workforce.

At the heart of this effort are its Business Resource Groups (BRGs), employee-led business groups that raise awareness, educate employees and initiate policy changes on everything from ethnicity, gender and sexual orientation to more flexible ways of working. Crucially, each network has an executive sponsor to help them grow and line managers support staff who want to get involved in a BRG alongside their day job.

BP is deeply committed to creating an environment where diversity and inclusion are valued, celebrated and integrated within its business strategy – and it's working. Around a third of BP's North Sea employees are actively engaged in one or more BRGs. It was also the first company in the North Sea to support Grampian Pride.

In the US the company has introduced recruitment, development, advancement and inclusion programmes to achieve specific ethnic minority recruitment goals. BP's gender balance is also steadily improving, with women representing 34% of BP's global population in 2018, up from 32% in 2015. This kind of work never stops but what BP has achieved so far deserved recognition.

One step organisations can take to hold themselves more accountable and be more attractive to women is by being transparent with their employee pay scales. Both BP and Spirit have made their gender pay gap figures public and are actively addressing this discrepancy.

Ultimately, the 'argument' for diversity and inclusivity in the workplace is not up for debate. "There's no competition in this for the industry, we've all got to do it because we have got to attract people to work in our industry and if we don't do that, we fail," Grayson states. It is equally important for executives and leaders to display their commitment making diversity and inclusivity a priority. "Leadership need to be visible and 'walk the walk, talk the talk'. You need to be authentic, immersed and engaged in the issue."

PE lessons

Private equity-backed oil companies are dominating the UKCS M&A market, as rationalisation amongst IOCs and supermajors opens up new space for leaner, localised players. *Wireline* talks strategy with some of the leading new producers.

A new hierarchy is emerging on the UK Continental Shelf (UKCS). The $2.68 billion deal announced this April, which will see Chrysaor take on ConocoPhillips' portfolio of North Sea assets, cements a so-called "changing of the guard" underway in the basin as international oil and gas operators and supermajors pull back from regional operations in favour of US shale and other core portfolios. At the same time, it presents substantial opportunities for a relatively new breed of E&P company.

The deal will see private equity-backed Chrysaor emerge as the largest producer in the region, with expected production of 185,000 barrels of oil equivalent per day (boepd) and 2P reserves of over 600 million boe. More than this, it demonstrates the viability and attractiveness of the UKCS for smaller, leaner businesses looking to grow – many of which have been capitalised by private equity (PE) investment.

Although no stranger to the North Sea, perceptions of PE within the industry vary. For some, the uptick in interest is a response to the recent price downturn, with hawkish fund managers picking up assets at knock-down rates. For others it represents a new, leaner blueprint for explorers and producers in the North Sea, as the conventional incumbents are replaced by companies that more closely resemble financial start-ups than E&P majors.

Nevertheless, the influence PE has had in recent years is undeniable. According to a 2018 Wood Mackenzie report, £7.7 billion in PE investments (together with debt finance and other capital) have helped fuel over £9.3 billion in M&A activity in the North Sea since 2014. Based on funding disclosed at the time of writing, the energy consultancy estimated that a further £10.5 billion could yet be invested. OGUK also expects that the influence of PE will continue to grow. PE backed companies are on track to double their share of overall UKCS investment from around 12% to 24% between 2019 and 2025, making them the second-largest funders of activity. Much of the UK's future production therefore hinges on their success.

Wireline met with three of the basin's newer PE-backed players to learn more.

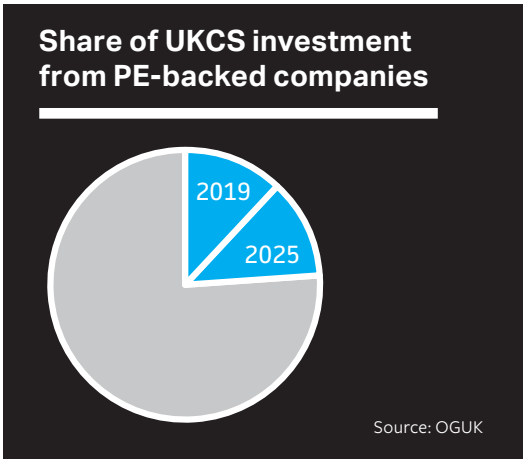
Building a business

Although headquartered in the UK, Neptune Energy illustrates how PE houses are pursuing new businesses with a global outlook. Founded by executive chairman Sam Laidlaw in 2015 with investment from the Carlyle Group and CVC Capital Partners, in just four years Neptune has established a hub of North Sea assets spanning the UK, Norway, the Netherlands and Germany, as well as interests in North Africa and East Asia. Director of corporate affairs Julian Regan-Mears explains that Laidlaw's intention was to create "a gas-weighted, global E&P business of scale that had organic growth opportunities…but also had a strong enough balance sheet that it could go out, be acquisitive, and do transformational deals."

For Neptune, the most transformational of these was the $3.9 billion acquisition of ENGIE E&P International (EPI) in February 2018, which catapulted the group into the spotlight as one of Europe's largest international independent E&P companies. The transaction also brought in a new equity partner in the form of China Investment Corporation (CIC) which became Neptune's largest single shareholder, with 49% of the company. This ownership structure, he says, "gives us a pretty long-term view."

The result is an independent E&P company which, as of the end of 2018, had production of around 162,000 bpd and 2P reserves of 638 million boe. In the UK, activity is currently focused on the Cygnus gas field with partner Spirit Energy, but will include its operated 50,000-boepd Seagull development from 2021. There are also plans to drill exploration wells at Isabella and Darach this year – two of seven wells it intends to drill in 2019.

Where Neptune has targeted big-ticket acquisitions, Verus Petroleum has worked to a smaller and more strategic blueprint. Formerly Bridge Energy, it was



(L-R) Neptune Energy CEO Jim House; executive chairman Sam Laidlaw.

acquired by Norway-based PE fund HitecVision and delisted from the Oslo Stock Exchange. The group's Norwegian assets were folded into Spike Exploration, while Bridge was relaunched as the UKCS-focused Verus in 2014. Rather than taking over large portfolios, the team's approach has been to buy into strategic assets with solid production, using the revenue to fund larger acquisitions. "We are essentially a business development deal-making team and that's what we were formed to do, to build up a portfolio over a period of a few years," explains chief executive Alan Curran.

This was cemented in late 2016 when it acquired additional stakes in the Boa field, buying 9.8% from Maersk Oil and bringing its total hold to 11.3% – the whole UK portion of the Norwegian/UK cross-border field. "That transaction has proven to be a fabulous deal in that it's exceeded our expectations," he says. "We've drilled two wells since we bought the stake and the field continues to outperform our expectations. That was a very important step."

A tranche of subsequent deals in 2018 saw the company buy 17% of the Alba field from Equinor, a 47% interest in the Babbage field from Premier Oil and acquire the assets of Cieco Exploration & Production (UK) Limited from Itochu, which granted a 23.1% stake in Western Isles, among other fields. By the end of 2018 Verus' production was around 18,000 bpd, with a resource base in excess of 60 million boe, and average lifting costs of $8/bbl.

Zennor Petroleum has also sought to establish a solid bedrock of production, but places much more

"We're looking to build a business that is not just successful in the UK but has a much broader geographic footprint."

Neptune Energy director of corporate affairs Julian Regan-Mears


CYGNUS
ALPHA

"I think private equity went into a place that not many other businesses would have gone into. I think it's safe to say that it's made a considerable difference in the North Sea, and still does."

focus on its in-house technical expertise to provide a competitive edge. Formed by a management buyout of MPX in 2014, it secured an initial $100 million investment from oil and gas-focused fund manager Kerogen Capital in 2015, largely to enable the appraisal and subsequent development of its keystone Finlaggan development, in which it holds a 100% interest. "What we've been trying to do is build a business of scale, but organically rather than just through acquisitions," notes managing director Martin Rowe.

However, early 2016 saw Zennor acquire its interests in the Mungo & Monan fields (part of ETAP), Bacchus and Cormorant fields from First Oil. Following this successful start Zennor secured an additional $200 million equity investment from Kerogen and its investors in 2016 to enable the company to build out to a scale in excess of 100 million boe 2P + 2C and 10,000 boepd net. Whilst Finlaggan remained the focus, 2018 saw the acquisition of Mitsui's interest in Britannia, taking the company to production of 4,400 boepd and around 107 million boe of 2P and 2C reserves.

This transaction has also given Zennor a foothold in the infrastructure that Finlaggan is tied back to, which the company intends to use to support further activity. Martin explains: "We saw the power of having ownership in both the infrastructure as the satellite development local to it. We now have an ownership stake in two key CNS [central North Sea] hubs and we're able to focus our appraisal and development activity in and around those two pieces of infrastructure. That helps concentrate the business going forward."

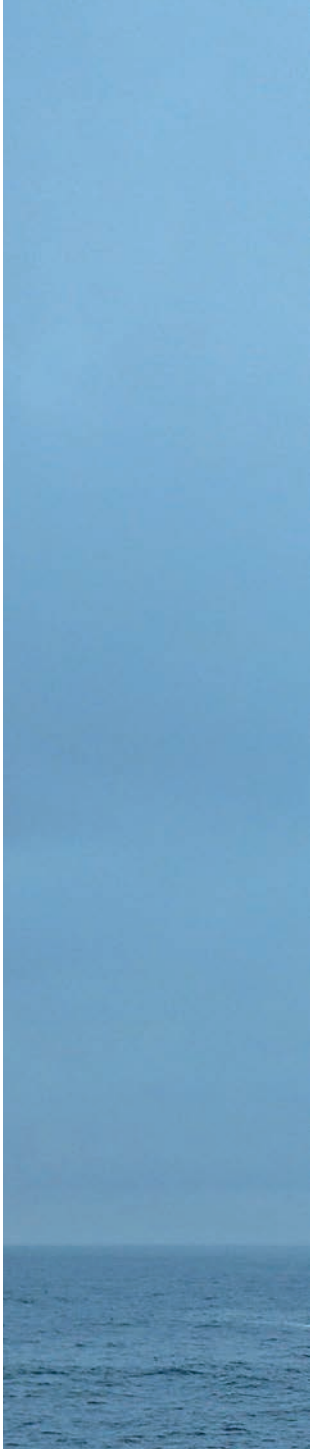
Strategic investors

All three companies have clear visions of business growth, but their exact routes vary. For Verus, the plan was first and foremost about establishing a solid foundation. "Our goal was to build a business with a strong production base," Alan explains. "We did not have multiple billions of equity to invest at the beginning, so it meant that our business model had to be different in that we would be very careful about the production assets we bought… But we were very clear-headed, our model was production: build out the production portfolio, generate cash and then start to extend ourselves into growth opportunities with a much stronger development and exploration content as well."

With this cash-generating phase now largely complete, the team is looking towards more targeted growth investments, which he likens to "rifle shots". These could be either greenfield or development opportunities, but ultimately any new venture would have to provide Verus a say in the asset's future plans. "We need to get our hands on opportunities where there is still some running room in terms of defining the path of the development," he continues. This may or may not include becoming an asset operator – for Curran, the question is purely about "when it makes sense in terms of adding value" – but the company is under no pressure to swoop in to take operatorship of new or existing developments on principle alone.

With Kerogen's support Zennor has been able to play a more opportunistic game, picking up valuable assets during low-price periods while maintaining what the company has referred to as an "owner mentality". Martin adds: "We see real value generation as being through the drill bit and so we have focused on trying to capture those assets that would give us future growth in the portfolio at the time in the cycle when they were very cheap." Finlaggan was a central part of that strategy, further enabled by subsequent awards from the 30th Licensing Round around both ETAP and Britannia.

Image left: The Cygnus Alpha platform. Operated by Neptune Energy, the Cygnus field provides 6% of UK gas production.



"We did not have multiple billions of equity to invest at the beginning, so it meant that our business model had to be different."

Verus Petroleum
chief executive
Alan Curran

Martin also credits Zennor's small technically focused team when it came to acquiring its early assets. Swift action and a detailed understanding of the Mungo/Monan, Bacchus and Cormorant East fields allowed it to present a business case to Kerogen rapidly, leading to a deal in just six weeks.

With its focus on size, diversity and scale, Neptune has larger ambitions in the UKCS and beyond. "We are trying to build a business for the long term," Julian says. "We're not trying to build it up and sell it on. We're looking to build a business that is not just successful in the UK but has a much broader geographic footprint."

Nevertheless, it is also taking stock, moving now from a raft of acquisitions to an emphasis on value creation. With larger reserves, he notes, "We can be a bit more discerning about what we want to buy." Moreover, with such a large (and valuable) portfolio acquired via the Engie transaction, "You don't want to dilute that by paying over the odds for portfolios that inevitably have both good bits and bits that you like a little less."

In numerical terms, that has meant pushing UK lifting costs down to $7/bbl, nearly half the $13/bbl necessary a year ago. In terms of existing UK projects, the high-risk, high-reward Isabella leads the company's priorities, and represents "a game-changing opportunity for us in the UK," he says. "We like opportunities around our existing hubs, we don't see the need to do frontier exploration or go into areas where we don't have expertise or capabilities."

Realising value will also see greater production abroad – at least in the medium term. While 75-80% of the company's portfolio is in Europe at present (11% in the UK), Indonesia is now its third-largest component, and new output is slated to come online in Algeria this year. New projects are set to bring on around 90,000

Above: Western Isles, in which Verus holds a 23% interest, produces from the Harris and Barra fields. It involves a subsea development of production and water injection wells tied back to the FPSO vessel, pictured here.

Image courtesy of Dana Petroleum

boepd worldwide over the next two to three years – more than half its current 160,000 boepd.

Like Verus, however, Neptune is not after production at any cost. "We want to get things done, we're serious and we've got the cash to do it, but we're not going to do things for the sake of it... There are a lot of portfolios up for sale at the moment, but they would have to fit in, they have to provide balance to the portfolio." While the company could potentially push towards 200,000 bpd in the medium term, it is in no hurry to raise output to meet shareholder commitments alone. "It's a delicate balance as a business grows," he notes.

Building trust

All three companies have also had to work to prove their legitimacy in the eyes of an industry known for its conservatism. Even with the backing of well-regarded private equity houses, financial support such as lending and debt facilities did not always come easy for groups like Verus, with Alan recalling a year or two spent in search of a banking partner during the worst of the downturn (a role ultimately filled by Nedbank). For Zennor, there was some wariness during its early engagement with infrastructure partners – Martin characterises the past (mis)perception of the company as "private equity wide-boys" – all of which was laid to rest once the team had demonstrated its subsurface expertise.

The faith in that expertise also led Zennor to conduct its own analysis in projects where it believed partners had missed opportunities – proof, if needed, of PE's ability to hone-in on extracting value. "We have some specific examples where a small technical team that's focused and understands what it's trying to do can demonstrate to the big boys that improvements can be made," he continues. "We can't always influence

the timeline, but we can demonstrate that we're adding technical value to these groups."

Nevertheless, being newer market entrants does allow them to think and operate differently. Julian describes Neptune's "mature start-up" mentality, where a flat management structure enables speedy decision making, reducing costs and unnecessary process. As well as empowering individuals to make decisions – a point echoed by Alan Curran – it enables the company to be more open to new technologies and ways of working.

In turn, a lean structure also allows these companies to engage with the supply chain in ways that larger E&P groups cannot. In Zennor's case, that meant offering contractors deadline flexibility in installing the pipelines and umbilicals that will tie Finlaggan back to its host. Final installation cannot be completed until a period of shutdown in mid-2020, meaning the company is in no rush to hit arbitrary short-term goals. In return, Martin says the contractors were able to work to their own schedule and offer a competitive price. "It's not rocket science," he says, "We just have to keep doing things in a simple, straightforward manner that works for all parties."

For Curran, these kinds of cost-saving engagements – whether behavioural or technological – and trusting relationships will pay dividends to both E&P companies and their supply chain partners. This emphasis on business collaboration as a net benefit, rather than as an antidote to tough market conditions, is something he is keen to put across. "I think as we go forward you'll see more and more of that. You'll start to see more business models in companies like Verus that are different from those that have gone before, models that are more efficient, more cost effective and will result in more activity and MER in the long run."

"It's not rocket science. We just have to keep doing things in a simple, straightforward manner that works for all parties."

Image left: The Alba heavy oil field, in which Verus has a 17% interest.

Image right: Zennor Petroleum managing director Martin Rowe.

"We have some specific examples where a small technical team that's focused and understands what it's trying to do can demonstrate to the big boys that improvements can be made."

Exit signs

As Wood Mackenzie's analysis suggests, the recent spike in M&A activity has largely been driven by an influx of private equity. This trend is expected to continue in 2019 as majors and even larger PE-backed buyers spin off pieces of their portfolios to independents or other PE-backed companies, according to a recent update from law firm CMS.

Perhaps inevitably, much of the concern around the influence of PE hangs over the question of what will happen when fund managers look to exit their investments. Although the routes for doing so are well established – either a trade sale, a flotation or merger, or potentially a combination of all three – PE-backed companies often face greater scrutiny over the potential for sales or acquisitions than their independent rivals.

For those at the helm of Verus, Neptune and Zennor such speculation is largely par for the course, but the prospect of an equity exit also helps guide their teams in how to build these businesses. All three executives spoke of the focus provided by this mindset, given that every strategic decision will inform how the business looks in five or ten years' time. "[PE funds] are always mindful about what they are creating," adds Alan, "Because eventually they are always looking to crystallise their investment and reinvest in something else – but the oil and gas company doesn't go away. It's about creating successful, sustainable businesses that will go on to support the delivery of MER and ultimately increase revenues for the country, beyond a private equity exit."

For Zennor, the direction is clearer still. "Private equity is fairly ubiquitous in that it's nearly always

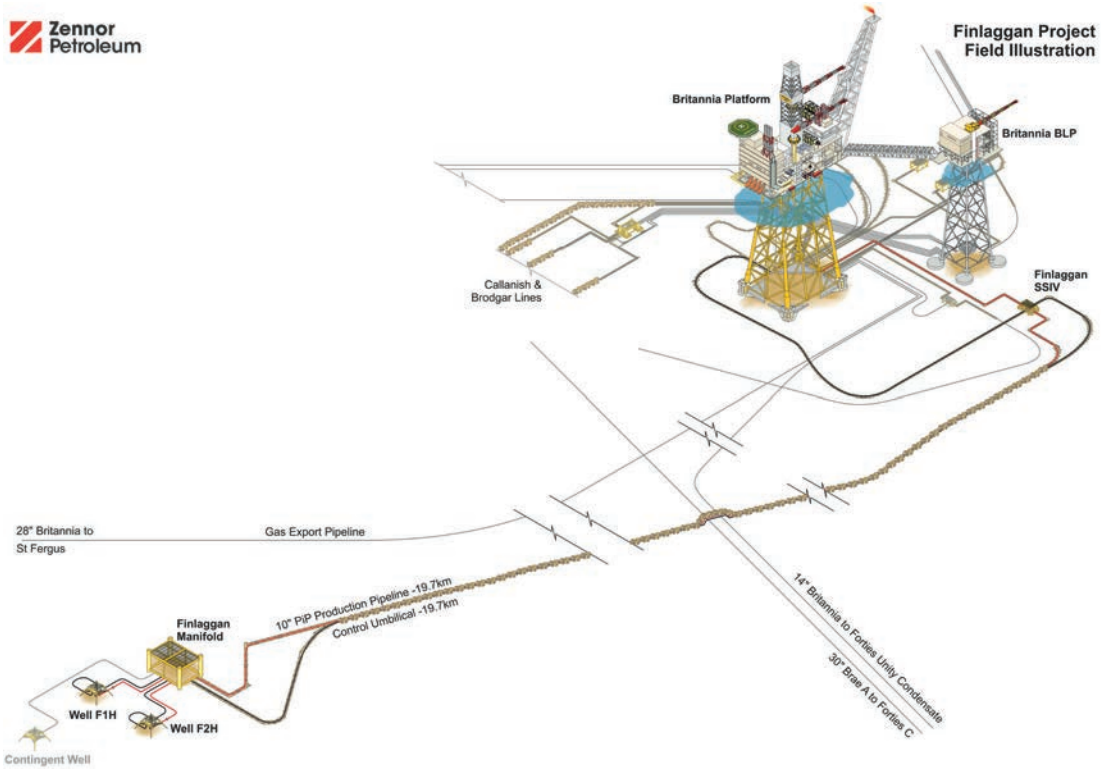
"There is going to be a lot more local investment. The money might be coming from overseas but it's local players who are at the heart of the investment."

looking for an exit in a six- to seven-year timeframe," explains Martin. Kerogen's investment in 2015 points to an exit point around 2021/22 – most likely via a trade sale, owing to Zennor's smaller size – and so, he says, "Everything we've done has been towards creating the right kind of vehicle at that exit point." In the meantime, he believes that private ownership allows the company space to focus on growing the business, rather than on public filings and managing shareholders.

Neptune's team benefits from similar freedom, and Regan-Mears talks of the ability to concentrate on long-term planning, and not on production tomorrow but on "reserves two, three, five years down the line." Dialogue and support from its PE shareholders allow it to focus on "building a business that is going to last, rather than one where we're looking to the next quarter all the time," he says.

In contrast with the smaller players, while the prospect of an exit informs Neptune's strategy in terms of its reputation for growing reserves and delivering profitable projects, it does not guide decision making in quite the same way. "I think that in some point in our future we will see an IPO, but we're not going to do anything against the clock. We've only been in business a year, we had a solid year both operationally and financially, but we have a lot more to do."

Ultimately, all three companies are bullish on the positive impact that PE has had on the UKCS, particularly as the industry emerges from a low-price cycle. "I think private equity went into a place that not many other businesses would have gone into," says Julian.



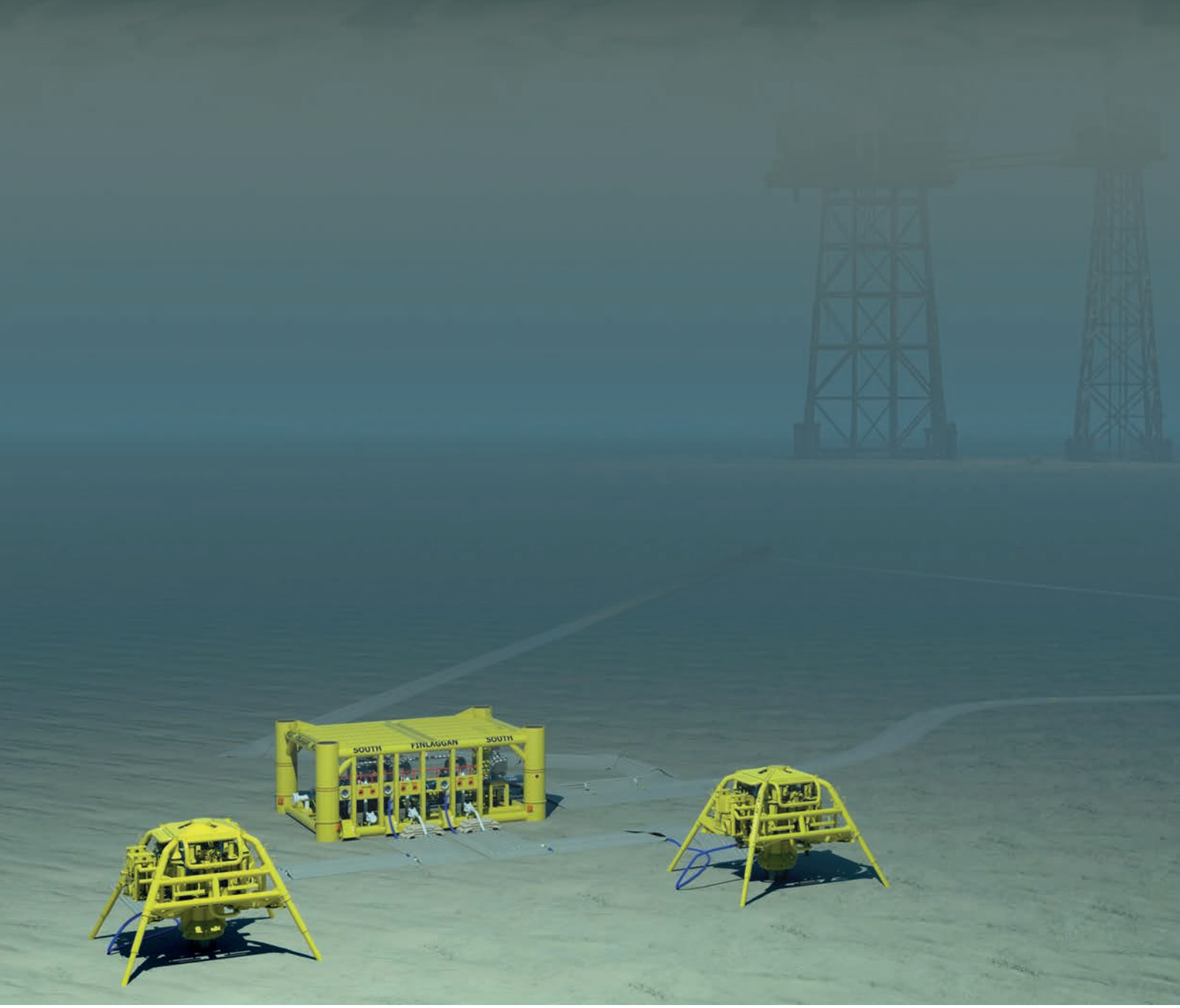


Image left: A field development illustration for Zennor Petroleum's Finlaggan project.

Image right: Rendering of the Finlaggan subsea well infrastructure.

"I think it's safe to say that it's made a considerable difference in the North Sea, and still does."

Leaner business models, combined with a willingness to commit capital to both greenfield projects and reappraisal activity, will be crucial in driving the future of the North Sea. For Alan, it will also mean the basin is increasingly managed by smaller UK-based companies, rather than within larger international portfolios: "There is going to be a lot more local investment – the money might be coming from overseas but it's local players who are at the heart of the investment."

Companies like Zennor also show that PE will benefit long-term infrastructural planning too. Investment in operations at ETAP by operator BP have already extended life to 2035 and beyond, and will continue to enable future development activity. "This tying back of additional resources, appraisal of discoveries to tie back, this is what is going to keep certain parts of the central North Sea going," Martin adds.

Alongside peers like Chrysaor, Hurricane Energy, and Siccar Point, these PE-backed companies are steadily reshaping the UKCS market. What is clear is the extent to which they are laser-targeted on growth and the development of profitable businesses that are sustainable for the long term. Far from quick cash-generating schemes or financial engineering exercises, they are entirely preoccupied with the survival and prosperity of their businesses – and of the North Sea – well beyond five – and even ten-year horizons. In doing so, the challengers are fast becoming part of the establishment. Their support and investment will therefore be critical to delivering MER and in achieving the ambitions set out in Vision 2035.

"If you look at what we've been about, it's purely been about good solid subsurface work and sensible commercial strategy," Rowe affirms. "And if you do those things, you're basically just a regular oil company but using a different source of equity to deliver growth. That's all we're trying to do."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Thinking differently, winning big

TAQA turned production challenges into an opportunity to maximise recovery from northern North Sea assets – and is now reaping the rewards. *Wireline* explores a very distinctive late-life extension programme.

What began as an infrastructure integrity review at TAQA's North Cormorant and Eider hub in 2016 quickly grew into something much more ambitious: a multi-faceted programme of work designed to secure several more years of production. The resulting strategy has transformed the economics of a network of assets and illustrates how taking the time to consider the big picture can deliver tangible benefits.

Production across the hub has increased from around 6,000 barrels of oil per day to a post-project rate of approximately 10,000 bpd. The operational life of the North Cormorant platform has been extended by several years, to the mid-2020s, and – critically – an extended window of opportunity now exists for TAQA to pursue new development prospects. In short, it has reinvigorated a hub which had previously been posing some serious sustainability questions for the operator.

"It's a great example of looking beyond the challenges and identifying the opportunities," says TAQA operations director Calum Riddell. "Once we realised the potential, it was important for us to make swift progress and that's where TAQA is perhaps different from many other operators. Elsewhere it might have taken 18 months to get investment approval, but we were quick to move ahead."

Otter: better, faster

Representing £57 million of investment, the programme included a number of technical and interdependent elements, including redirecting production from TAQA's subsea Otter field directly to its North Cormorant asset (prior to this 'bypass', Otter was tied back to Eider which in turn exported to North Cormorant). To maintain and bolster production, a multi-phase pump (MPP) system was also installed at Otter.

Meanwhile production at Eider was halted, and the platform converted into late-life 'utility mode', with an ongoing role to provide power and system support to the other hub fields.

The initiative has its origins in discussions in early 2016 between TAQA's operations and subsurface teams about how best they could lock in the future value of Otter, amid some infrastructure integrity issues and concerns about failure-prone electrical submersible pumps (ESPs) in its production wells.

"We recognised that Otter was probably our best performing field in terms of volumes, but there were risks and high costs involved in replacing the ESPs and securing the integrity of the wider hub infrastructure," adds Calum.

TAQA developed a solution whereby Otter production would 'bypass' Eider and flow directly to North Cormorant instead. Detailed analyses showed the project to be feasible and the business was further motivated by the prospect of securing additional production that would extend the working life of North Cormorant significantly.

As plans to execute the required reconfiguration work for the bypass were finalised, work got under way on another crucial strand of the strategy: developing proposals to introduce an MPP and associated topsides equipment to bolster Otter production in the longer term.

One solution

For the MPP work, TAQA linked up with specialist vendor OneSubsea, and did so using what was, for TAQA, a new and distinctive contracting model.

OneSubsea applied a total project management-style framework that would see all design, testing, installation and commissioning of the pump performed under a single contract. It was the first time TAQA had committed to a contract model of this kind, rather than its conventional approach which would have been to source the installation element separately.

This streamlined approach meant challenging deadlines were met, taking just 16 months from contract award to installation by OneSubsea's integration alliance partner Subsea 7. Brought online in October 2018, the 36km link now constitutes the longest multiphase-boosted subsea tie-back in the UK North Sea.

"It proved a very successful approach," says TAQA's Ewan Wright, who was a focal point for the MPP package and contributed to the process of reconfiguring the Eider platform. "A highly skilled and motivated team across TAQA, OneSubsea and Subsea 7 worked together to deliver on a very tight schedule."

The MPP project involved fitting an advanced technological solution into mature infrastructure, a process Ewan likens to installing a state-of-the-art engine in an older car. "The goal is to make everything tick and secure increased performance, although even after completing a thorough and robust onshore testing programme, there were still a few surprises when we turned the key," he says. "We had teething problems with some of the technical elements associated with the installation of the pump into our

Image right: The Otter Multiphase Pump (MPP).

Below left: The dive vessel Seven Falcon.

Bottom: TAQA project team monitoring the Site Integration Test (SIT) at OneSubsea's Horsoy facility near Bergen.

infrastructure, but those were swiftly resolved and provided valuable learnings for any future projects of this kind."

The supply of the MPP added a new dimension to the long-standing relationship between TAQA and OneSubsea. "You build up trust over time and that's what projects like this are all about," says OneSubsea's Mike Barrie. "If ever an operator is looking at what is – for them – a new technology or piece of hardware, they need to trust the supply chain to deliver."

Mike says TAQA was open to the new integrated contracting model. "It has numerous benefits for both parties, but critically it provides cost assurance early in the project and risk can be managed more effectively. It means the supply chain is managing much of the risk rather than it being solely down to the operator – all parties are working towards a shared goal and we all benefit from its successful implementation.

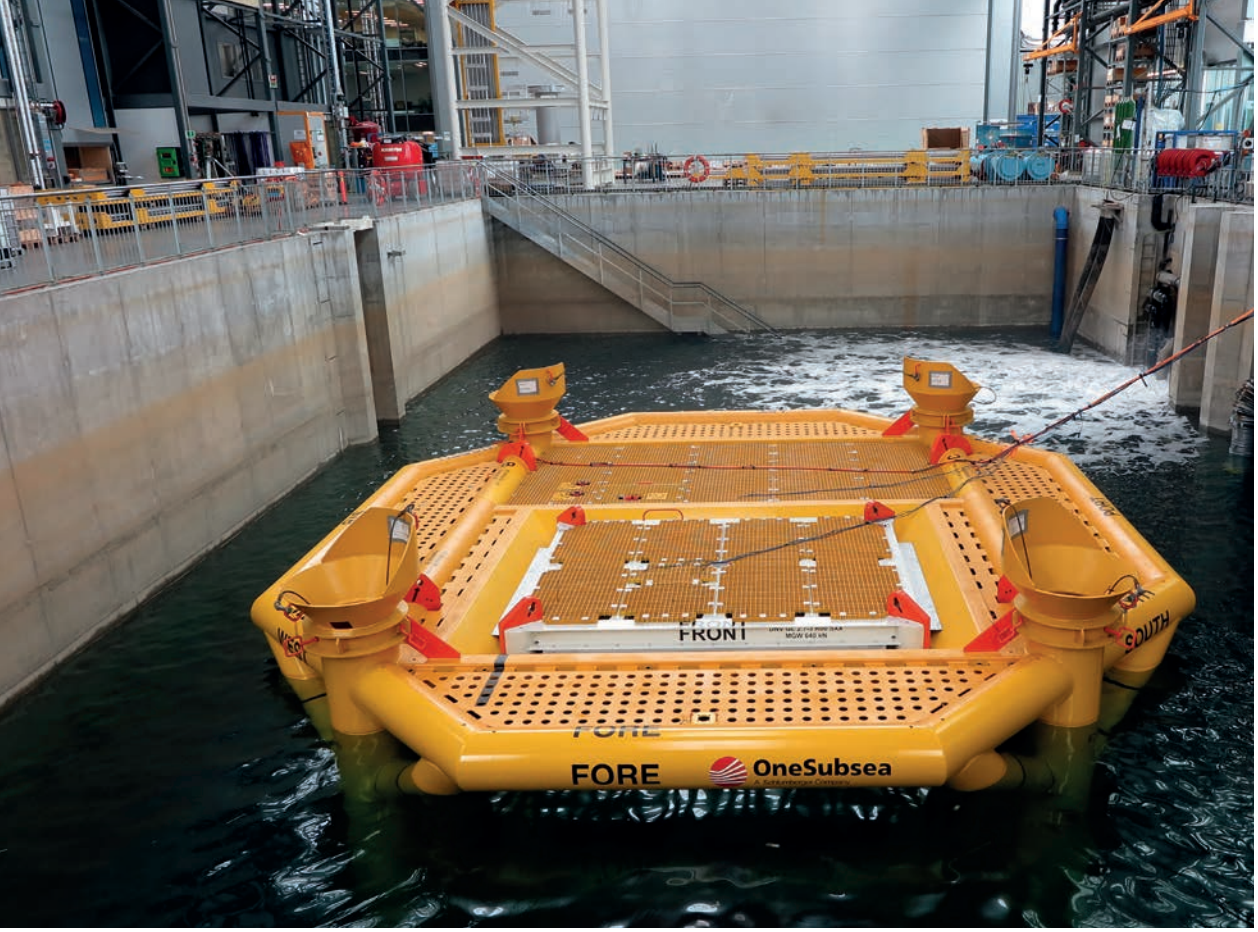
"It also allows the operator to be leaner in terms of its own project management – the process frees up time, money and resources that can be directed elsewhere."

MPP technology has been developed over the past 20 years, primarily for deployment in large-scale deepwater fields in the Gulf of Mexico and West Africa, but OneSubsea adapted it to create a fit-for-purpose North Sea solution. "We hear a great deal about new technology being needed to unlock reserves, but this is an example of an area where there is technology out there already that could be more widely applied," adds Mike.

Meanwhile, TAQA's demonstrable ability to move output directly from Otter to North Cormorant put a new slant on the economics of Eider, reinforcing the view that production from the field was not, in itself, enough to keep the platform viable. "While it was

"It shows that our sector still provides opportunities for young professionals to gain experience and develop their capabilities within challenging and exciting projects."

TAQA decommissioning operations engineer Ewan Wright



The full MPP station being tested in water under expected installed conditions at OneSubsea's Horsoy facility.

initially seen as a negative that Eider was to shut down, once people could see that what we'd actually done was extend the life of North Cormorant it became clear that this was an overall positive," says Calum.

It was decided, however, that Eider was still to play a key role in providing power, chemical and system support to other hub fields – a dimension that added to the strength of the economic case behind the strategy.

Powering Eider down

Even though production would be wound down, the overhaul of Eider to enable it to provide utility functions was a complex process. Most importantly, it necessitated a hazard reduction and hydrocarbon cleansing exercise on the platform, allied to a well decommissioning campaign spanning a total of 18 wells – the first such large-scale campaign TAQA had undertaken in the UK. Eider was then declared hydrocarbon-free in early 2019.

In the meantime, the team formed a slimmed-down operating model for the platform. This featured a core crew of multi-skilled staff and streamlined support services that reflected its new, non-production status, while existing staff were redeployed to other TAQA assets. This was supported by a programme of engineering modifications to platform utility systems and a comprehensive update of policies, procedures and documentation in line with this new role.

"The Eider late-life work essentially brought everything together," says North Cormorant offshore installation manager (OIM) Craig Finlayson. "It has taken the form of a highly efficient model that has significantly reduced operating costs, and it made the capital investment in the bypass and MPP fully viable.

"There were valid questions as to whether it was

"It's possible to do things differently by looking not just at a single element, but at the wider infrastructure and the overall economics."

North Cormorant offshore installation manager Craig Finlayson

The Eider platform now provides power and system support to the other hub fields.

possible to run the low-cost model on Eider, but we've shown we can make it work. In fact, it's continuing to improve even further as we go through the practicalities of operating something that's gone from a design on a bit of paper to a live system."

Craig, who previously had a strategic onshore role co-ordinating the various elements of the overall programme and devised the Eider late-life strategy, was also keen to impress the opportunities presented by the wider initiative. "That side of it was important to me," he says. "It's easy to be seen to be focusing on just reducing costs, but actually there are development opportunities in there."

These new prospects extend to TAQA staff as well. "People are developing into new roles, either on Eider or elsewhere in the business," Craig continues. "It shows that change does create opportunities."

He emphasises the symbiotic nature of the new field profile, in which Otter production keeps the hub viable, Eider provides ongoing utility support and North Cormorant assumes an enhanced role as the focal point of the hub. "The offshore teams are very focused on production performance – it's recognised that Otter has to be operated efficiently as, in many respects, it is the lifeblood of the whole infrastructure," he adds.

"Overall, I think it's a great example for the industry of how very mature assets still present opportunities – it's possible to do things differently by looking not just at a single element, but at the wider infrastructure and the overall economics."

Development opportunities

In a testament to all parties the overall programme, which has served to reduce annual operational expenditure at the hub by around £30 million per year, was completed on schedule and within budget. The bypass work was completed in late 2017, the MPP was successfully installed in October 2018 and Eider entered utility mode in the spring of 2019.

A programme of development drilling on North Cormorant is now under way – including a rig reactivation programme, and additional sidetracks and well workovers – which TAQA says would not have been viable before the late-life strategy was devised and delivered. Further exploration and development opportunities are also being assessed.

It has also represented a welcome opportunity for people like Ewan, who echoed Craig's sentiments on professional development. "I asked TAQA for experience in major projects when I first joined four years ago, and they've honoured that," he says. "It's benefited me hugely in terms of both managing a team for the MPP project and getting exposure to the subsea dimension – I'd only been involved in topsides modifications previously."

The swift completion of the project is an equal boost for those involved. "From concept to execution was around two-and-a-half years, and for a major subsea project and production re-routing campaign that is fast-track by any measure," he adds.

The reshaped production profile means the hub aligns with the Oil and Gas Authority's Maximising Economic Recovery (MER) strategy. Ewan notes: "It secures the future of our North Cormorant and Eider area, locking in significant production value while also securing employment for many people for several more years to come.

"It also shows that our sector still provides opportunities for young professionals like myself to gain experience and develop their capabilities within challenging and exciting projects."

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