Issue 57 Autumn 2023

OFFSHORE ENERGIES

The quarterly magazine for the UK offshore energy industry

Decarbonising contracts

Protecting investments and covering risks will be key to the transition, says ECC

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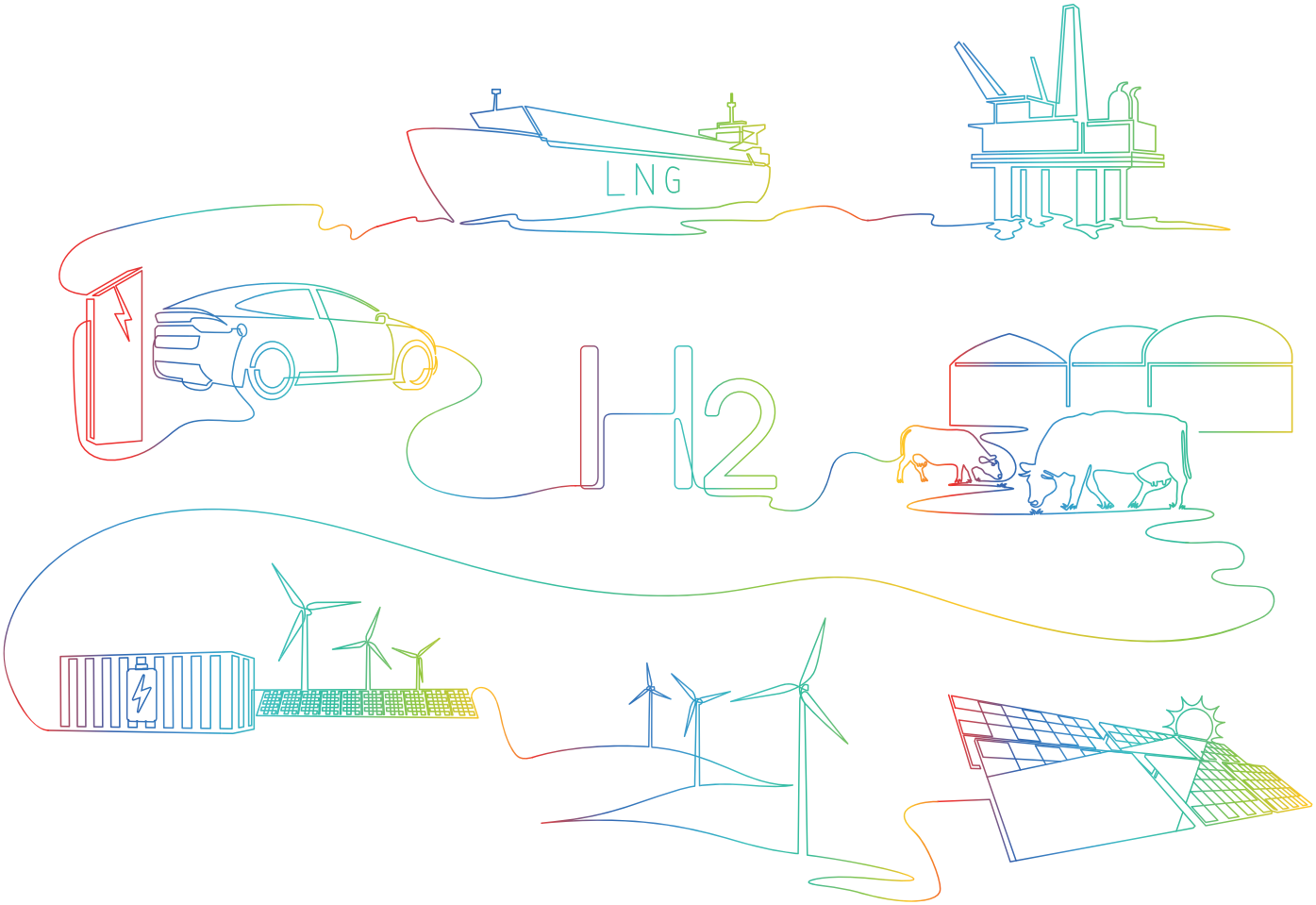

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Issue 57 | Autumn 2023

Welcome to *Offshore Energies UK #57*

Early October's extreme violence in the Middle East has inevitably impacted society elsewhere, serving as yet another reminder of the fragility both of human life – and, less directly – of the supply of what underpins it: energy. Shutting in gas production offshore Israel means Egypt has less liquefied natural gas to export, sending up prices at the Dutch wholesale trading hub. And oil prices also surged above $90/barrel in the immediate aftermath of the surprise onslaught as fears concerning shipping grew.

These events forcibly bring home the difficulty that democratic governments face when it comes to striking a fair balance for their consumers and producers. And yet a country lucky enough to have oil and gas really might do better to think about how to produce more of both commodities while they are evidently so much in demand.

Unrelated to the UK's new tax, but equally counter-intuitive given the multiplying geopolitical hotspots, is the Dutch government's decision to follow through with its 2018 plan to close down production at the giant – and still potentially prolific – Groningen gas field. And Berlin's decision to close the country's nuclear fleet and the consequent reliance on more electricity exports, including from Norway will mean that supplies of that form of energy might also be tighter than otherwise.

There has been plenty of coverage in recent months about the US and European majors' different strategies when it comes to ensuring shareholder loyalty. Reports show that companies that have rowed back somewhat on their announced green investments have been rewarded by the stock market. The two recent US megamergers also show the majors see still a long-term role for petroleum (*see p21*).

Being US based seems also to be an advantage for both consumers and producers, as the Inflation Reduction Act combines with some of the lowest gas prices in an OECD nation. In Europe, investors are uncertain about their governments' commitment to net zero; while banks are scrutinising their new guidelines on their behaviour. And as the party conference season slides into the past, politicians now must persuade the electorate of the practicalities of their positions. The incumbent UK prime minister has called for an end to seductive promises for decarbonising. The government's electricity market review will be very closely scrutinised (*see p28*) as the huge Dogger Bank blades (*opposite*) begin to turn.

But some of the building blocks of the energy transition have in any case come together in the past few months. The government has found money to keep open the major steel manufacturing plant at Port Talbot in south Wales, converting it to run on renewable energy; licences for developing carbon capture and storage storage sites have been snapped up; and Germany and the UK are progressing their hydrogen partnership at government level.

Talking of that, features in this magazine include reviews of two highly topical books: *Maximising the Economic Recovery*, published by Globe Law & Business; and *Brexit & Energy Law: Implications & Opportunities,* published by Routledge. Both are available for our members at a discount (*p16*).

Continuing to implement the energy transition implies longer-term contracting: read what Niall Trimble of the Energy Contracting Company has say on this topic in his guest column (*p26*).

And as the invaluable work our members are doing offshore faces mounting acrimony from onshore society, we draw attention to the distressing issue of mental health and resilience. We also spoke to Corva.ai about the huge leaps forward that artificial intelligence has enabled. As well as saving time and money, artificial intelligence also saves emissions.

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Published by
Offshore Energies UK

Contact the editorial team on editorial@oeuk.org.uk

ISSN 2053-5392 (Print),
ISSN 2053-5406 (Online)

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Credit: Altera (*see p6*)

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Dogger Bank's first turbine powers up

"The best of what the offshore wind industry can offer, with innovative technologies, long-term jobs and economic growth and security of electricity supply at a major scale" - Equinor

Norwegian state energy company Equinor, its partners and the UK government have celebrated the start of deliveries of power from the Dogger Bank A windfarm off the Yorkshire coast.

The plant is notable both for its size and the pioneering technology used in UK waters.

"This is a major milestone in the development of the industry and the transition to a cleaner, more secure energy system," Equinor said in October. "We hope the world's largest wind farm is just the start of something bigger."

When the third phase is complete in 2026, the 277 turbines will have 3.6 GW generating capacity, making it the world's largest such plant.

Dogger Bank uses a high-voltage direct current transmission system, the first time for the UK. There were a number of other supply-chain firsts, including the use of the world's largest offshore jack-up vessel *Voltaire* – which is also the first ultra-low emissions ship of its kind.

First power followed the installation of the first of GE Vernova's Haliade-X 13-MW turbines. This is the first time Haliade-X units have been energised offshore anywhere in the world and they are also among the largest.

Anders Opedal, Equinor CEO
(*Credit: Sheyda Aalgaard / Equinor*)

Operations and maintenance will be carried out from a base at the Port of Tyne which will host around 400 jobs, including Equinor, GE Vernova and North Star staff.

The UK prime minister, Rishi Sunak, said that the country's doubling down on green industries was both pragmatic and ambitious. The farm would not only bolster energy security, but create jobs, lower electricity bills and keep the UK on track for net zero, he said.

Equinor CEO Anders Opedal said: "First power from Dogger Bank, is a testament to the collaboration between the authorities, the project partners, suppliers and our host communities to realise this project."

SSE Renewables was lead operator for the development and construction phase. Paying tribute to the co-operation between policy-makers, investors, industry and communities, the company's CEO Alistair Phillips-Davies said "the innovations this pioneering project has developed will also mean future developments can be built faster and more efficiently, accelerating the clean energy transition."

The CEO of windfarm operator and partner Vårgrønn, Olav Hetland, said: "Maximising these positive local ripple effects of offshore wind projects is essential to maintaining strong support for offshore wind and the energy transition.... we expect northeast England to hold a central place in Europe's offshore wind future."

Message from our CEO

David Whitehouse
CEO,
Offshore Energies UK

Energy policy remains firmly at the centre of the political debate. So how does the UK solve the energy trilemma of affordability, security and achieving its climate goals, while also creating high-value jobs?

The answer lies right here with our offshore energy industry, our geography, geology and our skilled people.

It was great to spend time at Offshore Europe back in September (*see p13*) and see so many people from across the globe discuss the importance of our industry and the North Sea as a centre of excellence and innovation.

But make no mistake: the UK must support this industry if it is to have a chance of safeguarding energy security, decarbonising our production, protecting jobs and delivering economic growth.

Only by working collaboratively will we be able to unlock our integrated energy future. The reality of the energy transition is that we need oil, gas *and* renewables each playing different roles as part of an integrated , economic and efficient system.

We must create an irresistible investment environment in the UK if we are to realise the billions of pounds worth of opportunities that wind, hydrogen and carbon capture and storage (CCS) hold, alongside oil and gas. This will create the right conditions for a UK energy supply chain that is worthy of its North Sea heritage.

In the right investment environment, UK offshore energy companies could invest £200bn this decade alone. This could bring 50 GW of offshore wind capacity, 10 GW of hydrogen production and at least four CCS clusters by 2030, while we continue to invest in the oil and gas we need. However, half of the potential investment - £100bn – is awaiting final investment decisions from businesses that need certainty before progressing.

Parliaments may thrive on opposition and debate but the offshore energy industry is pragmatic and collaborative – we will work with all parties and governments to secure a homegrown transition in the UK.

Only by uniting people in a common cause and building on our strengths will we solve the riddle of the energy trilemma.

The country overwhelmingly shares the same goals and we need to get on with it.

Net zero

UK throws Tata Steel a green life-line

The government has offered Tata Steel one of its biggest ever support packages to maintain output at its Port Talbot site, it said September 15. The site is the UK's biggest single emitter of carbon dioxide.

Subject to consultation and regulatory approvals, Tata Steel will invest £1.25bn, including a government grant worth up to £500mn, as it replaces its coal-fuelled blast furnaces – which are nearing the end of their effective life – with electric arc furnaces.

This will reduce the UK's entire carbon emissions by around 1.5%, or the Port Talbot site's carbon emissions by around 5mn tonnes/year.

The Port Talbot plant would be under serious threat without substantial investment to guarantee its future. Subject to information and consultation processes led by Tata Steel, the funding could safeguard over 5,000 jobs across the UK and many more than that in the supply chain.

The government would also ensure a broad range of support for any staff who are affected by the transition, working with the Welsh government and Tata Steel to establish a dedicated transition board to support both affected employees and the local economy, with up to £100mn funding.

Business and Trade Secretary Kemi Badenoch said the proposal would secure a sustainable future for Welsh steel, protecting skilled jobs in Wales and grow the UK economy. Chancellor of the Exchequer Jeremy Hunt said protecting "this world class manufacturing industry" was the right thing to do.

The proposal follows Tata's July announcement of a £4bn battery gigafactory creating 4,000 direct jobs.

GB wind capacity exceeds gas: Imperial

There is now more installed wind than gas-fired power capacity supplying the British power grid: as of June, there were 27.9 GW of the former compared with 27.7 GW installed capacity of gas generation, according to a report by Imperial College commissioned by Drax.

The report also shows that output from gas-fired power stations fell by 23% in 2Q 2023 year on year. Output from coal, meanwhile, fell by 75% to its lowest levels on record.

Overall, emissions from electricity production dropped to less than 10mn tonnes of CO_2 in 2Q 2023 for only the second time on record. The previous occasion it was lower was during the Covid-19 lockdowns, the report found.

Imperial College London's Dr Iain Staffell said: "Wind power is blowing away gas and coal from Britain's energy mix and in just a decade, we've gone from relying completely on the polluting fuels of the past to embracing the clean energy technologies of the future. The shift to wind as the largest power source by capacity is a clear sign of the progress we've made, showing countries around the world that they can decarbonise their power grids when government and industry work together."

The end of coal

Great Britain has just one coal-fired power station following Drax's decision earlier this year to permanently end use of the fuel at its plant in North Yorkshire.

The last survivor is the 2-GW plant at Ratcliffe-on-Soar in Nottingham, commissioned in 1970 and owned by German state-owned operator, Uniper.

But even during the summer heatwaves it was still supplying a few percent of the electricity mix when wind was below 10% on some periods of the day, Gridwatch data showed.

That plant will close by the end of September 2024, according to the government's schedule. As well as electrons, conventional plant has also been needed to provide grid stability.

Equinor has regulatory approval for Rosebank

The UK government has welcomed the North Sea Transition Authority's decision to approve Norwegian Equinor's Rosebank development.

The Department for Net Zero and Energy Security said the decision was "a pragmatic, proportionate and realistic response to the path to net zero and a key part of this will be maintaining our domestic oil and gas industry which underpins our energy security and boosts the UK economy." First oil could flow by 2027.

In a September 27 statement that drew fire from environmental groups, it said the field would strengthen energy security, boost the economy and was key to the energy transition.

"The oil and gas sector's significant investment, skilled workforce, strong supply chains and specialist engineering expertise collectively build our ability and capacity to exploit the UK's resources and support overall energy security of supply," said the Chancellor of the Exchequer Jeremy Hunt.

Equinor estimates that Rosebank will cost about £8.1bn, two thirds of which is likely to be invested in UK-based businesses. At its peak, the field could produce 69,000 barrels/day of oil and 44mn ft³/d of gas from 2026.

Rosebank underwent a detailed environmental impact assessment process and a period of public consultation.

All new projects have to meet stringent standards with regard to their carbon intensity before being consented, although its opponents said that the UK should not allow any more fields if it were to achieve net zero.

Energy Security Secretary Claire Coutinho said: "We are investing in our world-leading renewable energy but, as the independent Climate Change Committee recognises, we will need oil and gas as part of that mix on the path to net zero and so it makes sense to use our own supplies from North Sea fields such as Rosebank."

The operator will use Altera's floating production and storage vessel *Petrojarl Knarr* to develop the field (see cover).

PM Sunak promises costed, fact-based approach to net zero

The UK prime minister Rishi Sunak has set out a new, fact-based approach to ensuring net zero is achieved on time.

In a September 20 speech that was criticised for delaying the sunset of conventional vehicles and boilers, he promised an end to uncosted promises to decarbonise; and also that there would be a major campaign of low-carbon energy construction.

Meanwhile, new oil and gas production in the North Sea would continue as a hedge against "expensive, imported energy from foreign dictators like Putin."

"Our destiny can be of our own choosing," he said. "But only if we change the way our politics works... No one in Westminster politics has yet had the courage to look people in the eye and explain what's really involved.... The plans made on your behalf assume this country will take an extraordinary series of steps that will fundamentally change our lives."

He pointed out that the last Carbon Budget process was debated in the House of Commons for just 17 minutes and voted through. "It was the carbon equivalent of promising to boost government spending with no way to pay for it," the former chancellor of the exchequer said. That approach will have to change.

On the other hand, the possibilities of green industry will be seized: whole new sectors and "hundreds of thousands of good, well-paid jobs" will appear. The government is improving the auction process to maximise private investment in offshore wind – inflation meant none of the bidders this year could meet the maximum price allowed under the contracts for differences scheme. "And this autumn, we'll shortlist the companies to build the new generation of small modular reactors," he said.

He said energy infrastructure construction would be overhauled with grid connections awarded to those who were ready rather than first in the queue. Planning for the most nationally significant projects would be accelerated.

Under-investment 'persistent problem'

OEUK's sustainability and policy director Mike Tholen said that the demands of net zero did not sit well with the underinvestment seen in recent years. "We know this sector can and must be a big part of the answer to the challenges the country faces on the cost of living, energy security, economic growth and tackling climate change.... Our *Economic Report* shows that the UK must compete by making the most of its diverse homegrown industry, from oil and gas to offshore wind, hydrogen and carbon capture. Globally, this is the lesson other countries have learnt," he said.

RGU: much work to be done if UK is to capture transition gains

The energy transition could create a secure future for the UK offshore energy workforce, according to a new report by Robert Gordon University's Energy Transition Institute. But it it also warns that – in the context of a dynamic external environment – there is significantly more downside risk than upside potential.

The report maps out a managed and fair transition for the offshore energy workforce in the UK. Nearly all the projected £200bn spent in the UK offshore energy basin over the remainder of this decade (around £175bn) will be within the supply chain. The report's authors have split this spending four ways: development; capital; operating; and decommissioning.

Capex and opex represent close to 89% of the 2023-30 total. Decommissioning and development expenses typically account for around 9% and 2% respectively.

The report also introduces the RGU's interactive workforce and supply chain visibility tool which generated much of the report's data. It maps out the spend and workforce requirement by: future offshore energy sector; by scenario; by type of expenditure (*see above*); and by subsector – operations, maintenance, subsea drilling, wells and logistics. It breaks it down further by the degree of UK content: high, medium and low.

The model captures key input data and activity forecasts from RenewableUK, Offshore Energies UK, North Sea Transition Authority, Carbon Capture & Storage Association, Hydrogen UK, Offshore Wind Industry Council, UK government, Scottish government, government agencies, companies and many other sources.

RGU has considered the spending under three scenarios. The first reflects the ambitions set out in the British Energy Security Strategy, which the government devised in response to Russia's February 2022 invasion of Ukraine.

It therefore reflects the thinking of the day, when self-sufficiency was the watchword. It assumes successful delivery of 50 GW of offshore installed wind capacity, 10 GW of installed hydrogen capacity and 30mn tonnes of CO_2 injectivity by 2030.

The second represents a mid-point scenario and assumes offshore wind, hydrogen and CO_2 injectivity reach 40 GW, 5 GW and 20mn tonnes by 2030 respectively. And the third reflects significantly slower progress toward a successful energy transition, with offshore wind, hydrogen and CO_2 injectivity reaching 30 GW, 2.5 GW and 15mn tonnes by 2030.

The difference in supply chain spend between the first and second scenarios is close to £30bn, and between the first and third it is around £55bn. In a successful transition, roughly three out of five people in the offshore energy workforce are expected to support the renewables industry by 2030, compared with one in five today. With a slower transition, which falls short of the ambitions outlined by governments and industry, this ratio is likely to be closer to 50/50 by 2030.

Commenting on the report, OEUK CEO David Whitehouse said: ""Meeting more of our needs from energy produced in the UK means more jobs in the UK. The UK offshore energy sector embraces the challenges and opportunities of the energy transition. Not only in oil and gas but the future opportunities in wind, carbon storage, and a hydrogen economy. But this report shows that we must embrace the opportunity to work with all energy sectors or risk losing 95,000 highly skilled jobs in the UK by 2030."

News
Carbon capture & storage

Spirit eyes Morecambe as CO_2 site

Centrica's majority-owned upstream joint venture Spirit Energy and a group of industrial emitters have entered into talks about the feasibility of using the giant depleted Morecambe Bay fields as CO_2 permanent storage sites.

The companies in the so-called Peak Cluster include cement and lime producers in the northwest as well as the Lostock Sustainable Energy Plant in Cheshire; and also Progressive Energy, which has also been working on low-carbon energy off Bacton (*see right*).

Spirit Energy is leading a consortium that will transform the fields, once the high-swing winter supply gas fields that were operated by British Gas into what has the potential to be one of the biggest such sites in Europe, holding up to 1 Gt of CO_2.They will be known as the Morecambe Net Zero (MNZ) Cluster.

The UK's cement production adds around £18bn to GDP, directly employing 81,000 people and supporting 3.5mn jobs. But the companies in the Peak Cluster, responsible for 40% of cement and lime production in the UK, emit more than 3mn tonnes/yr of CO_2.

Connecting Peak Cluster to the MNZ Cluster by a pipeline will help vital industries to continue operating within the UK, retaining jobs in their local communities and supporting them on the pathway to net zero. The MNZ Cluster also has the potential to create thousands of new and innovative green jobs in the northwest of England and support jobs in carbon-intensive industries as they decarbonise.

Spirit Energy CEO Neil McCulloch said: "Capturing and storing carbon is essential to helping these industries on the path to net zero, enabling them to remain productive and supporting the thousands of jobs reliant on these sectors." Spirit Energy is owned 69% by Centrica (formerly British Gas) and 31% by Stadtwerke Munchen.

Progressive Energy's project lead John Egan said: "Peak Cluster will... not only safeguard British jobs and maintain a booming supply chain, it will also enable the production of low carbon cement – essential for the UK economy and the construction of vital infrastructure .... and clean energy production."

NSTA approves Track 2 CCS projects

Upstream regulator North Sea Transition Authority has approved two carbon capture and storage projects in the Track 2 round.

Harbour Energy, which is operator of the Humber-based Viking CO_2 transportation and storage network and also a partner in the Acorn CCS project in northeast Scotland, said the decision for the two projects allowed it to move into front end engineering and design (Feed). It will discuss the terms of the economic licences, ahead of final investment decisions, with the government.

Viking could transport and store up to 10mn tonnes/yr of CO_2 by 2030 and 15mn tonnes/yr by 2035.

The project could unlock up to £7bn of investment across the full CO_2 capture, transport and storage value chain between 2025 and 2035, creating over 10,000 jobs during construction and providing an estimated £4bn of gross value-added to the region. Imports of liquefied CO_2 are also possible at a planned port in the Humber region (*OEUK #56, p14*).

Harbour said the decision was "also a further demonstration of the key role that the oil and gas sector is playing by using our existing infrastructure, skills and experience to build this new industry and help deliver the energy transition."

Storegga, the lead partner in Acorn, said the Acorn East and East Mey CO_2 stores off Scotland would expand its capacity to around 240 megatons of CO_2. Acorn will provide the transport and storage network for the Scottish Cluster to sequester CO_2 emissions 100 km offshore, 2.5 km below the seabed.

Acorn said: "These extensive areas of subsea acreage are key elements in Acorn's long-term strategy."

NSTA names 21 winners of CCS licences

The North Sea Transition Authority (NSTA) has published the names of the companies that have accepted the 21 carbon storage licences awarded after the first ever such round in the UK (*OEUK #56 p6*).

Six licences have already been granted by the NSTA and the government has announced £20bn funding for these projects. Most were won by consortiums.

Among the winners, Enquest picked up four northern North Sea storage licences on its own and Pale Blue Dot picked up two, with Shell and Chrysaor: the East May and Acorn East sites. Exxon, BP, Neptune, Carbon Catalyst, Synergia and Wintershall also won licences.

The sites are a mix of oil and gas reservoirs and saline aquifers and cover around 12,000 km². They have the capacity for up to 30mn tonnes/yr of CO_2 by 2030. For comparison, in 2021, the UK emitted about 341.5mn tonnes.

Shell, Perenco and Eni have all been awarded licences off the coast of Norfolk in sites which could form part of the Bacton Energy Hub – a carbon storage, hydrogen production and offshore wind project, which could provide low-carbon energy for decades to come and help reduce greenhouse gas emissions.

The project has already made significant progress, the NSTA said.

Summit Energy Evolution and Progressive Energy have signed a joint development agreement for a CCS-enabled hydrogen production facility at Bacton, delivery point for two continental gas interconnectors, as well as for southern North Sea gas production.

NSTA CEO Stuart Payne said that carbon storage will play a crucial role in the energy transition and "it is exciting to award these licences.... We will also continue to work with industry and government to enable further licensing activity and back the UK's drive to net zero emissions."

The Carbon Capture & Storage Association said that these licences "mark a substantial milestone towards widespread deployment of CCS."

The next step is a carbon capture deployment plan to enable the full development and use of the country's capacity to store CO_2.

UK, Germany jointly promote hydrogen industry

UK and Germany have signed an intergovernmental agreement to accelerate the development of an international hydrogen industry, the two governments said September 26.

Signed by Minister for Energy Efficiency and Green Finance Lord Callanan and Federal Republic of Germany's State Secretary for Energy Philip Nimmermann, the declaration commits them to expand demand for low-carbon hydrogen in their nations' energy mix.

The UK is using capital from the £240mn Net Zero Hydrogen Fund and revenue support from the Hydrogen Production Business Model. Germany has a similar fund to prime the pump for a thriving hydrogen market.

Lord Callanan said the two countries were "natural partners in making low-carbon hydrogen a cleaner and more sustainable way to power up our societies.... It is through these partnerships that we can move away from expensive fossil fuels – and in doing so boost our energy security." Germany was the European Union's biggest importer of Russian gas but the invasion of Ukraine forced it to buy expensive LNG.

Mr Nimmermann said: "Our co-operation will not just involve trading of hydrogen and its derivatives, but also co-operation on technologies and innovation in this field, which will be of mutual benefit for both Germany and the UK."

The two countries will also discuss safety standards that can be used internationally. The German state utility Uniper said that the company was proud to be actively shaping the energy transition in the UK.

The Humber H2ub® is a 720-MW carbon capture and storage-enabled hydrogen production project (ie blue hydrogen). Uniper plans to develop large-scale, low carbon hydrogen production at its Ratcliffe-on-Soar power station, which now runs on coal but will close soon (*see p6*).

German utility RWE has said it is aiming to build net 2 GW of dedicated electrolyser capacity in its core markets.

RWE is well placed, having among other plans an agreement with Kellas Midstream to explore green hydrogen production at Teesside (*OEUK Magazine #56, p36*).

OEUK's energy policy head Enrique Cornejo said the UK needs to boost energy security, improve affordability and reduce emission. Its homegrown offshore energy sector would help tackle each of these challenges. The UK has significant hydrogen generation potential; Europe's largest offshore carbon storage potential; enough oil and gas resources to supply over half the country's needs; and the world's second largest offshore wind capacity.

UK backs hydrogen transport plans

The government has awarded £8mn, split between two projects, to support hydrogen-powered transport in the northeast. One project led by ULEMCo will develop hydrogen-powered airport ground-based support vehicles, such as tow trucks for aeroplanes and sweepers to clean runways.

This will be based at Teesside international airport, which will help the airport reach its goal of being net zero by 2030.

The other, led by Element 2, aims to create four publicly accessible hydrogen refuelling stations to accelerate the take-up of hydrogen as a fuel. There are only eight at the moment. They will be for heavy goods vehicles.

Transport Secretary Mark Harper said: "Hydrogen technology has great potential to decarbonise transport and help grow the economy. Today's winners illustrate the expertise the Tees Valley has as a pioneer in developing hydrogen tech.

"This investment will provide a further boost to the economy, creating skilled jobs and apprenticeships across the northeast."

Already used in buses across the country, hydrogen fuel cells create no harmful exhaust emissions.

Greater use of hydrogen could help grow the UK economy with a transport system that is resilient to global energy prices, environmentally friendly and could see the creation of thousands of skilled jobs.

This is the second round of government competition funding for the Tees Valley hydrogen transport hub. The first focused on developing hydrogen-powered vehicles.

Credit: BP

BP invests in Aberdeen buses

Aberdeen city council and BP have moved ahead with plans for a hydrogen plant capable of filling 25 buses/day, the city said July 1. Their joint venture bpAHEL will produce the gas using power generated by a new solar farm.

First hydrogen production is due to start in 2025 with capacity exceeding 800 kg/day. The company said the plan contributed to plans "to create a climate positive city that builds inclusive growth through the creation of a hydrogen supply chain, skill development and wider community benefits."

Aberdeen began experimenting with hydrogen buses a decade ago, since which time more than 2mn passengers have travelled on them. The CO_2 savings to date are in excess of 100 tonnes over the last six years. The council hopes Aberdeen will become a major hydrogen producer and, eventually, exporter.

Industry News

Ofgem lists 4 for OFTO

UK onshore energy market regulator Ofgem has shortlisted four potential operators for its tenth and most valuable Offshore Transmission Owner (OFTO) bidding round, it said July 18. They are bidding for three offshore transmission links worth an estimated £2bn, following the January launch of the auction (*OEUK Magazine #56, p9*).

A consortium led by newcomers Gravis Capital Partners joined EKITD Consortium, Diamond Transmission Partners and Transmission Capital Partners.

All passed the 'Enhanced Pre-Qualification' stage, the first hurdle, where they must show they can pay for and operate the OFTO assets.

Up for sale are the rights to Dogger Bank A Offshore Wind Farm, Neart na Gaiothe Offshore Wind Farm and Moray Offshore Wind Farm (West), estimated to be worth a total of around £2bn. They will now go through to the final invitation to tender stage, with Dogger Bank A already now operational. Winners will receive a guaranteed revenue stream for up to 25 years.

The OFTO regime has brought in investment for 24 assets, with several more going through the process. The government's target sees wind generation capacity growing from 10 GW to 50 GW by 2030.

Ofgem said the "increasingly competitive field is great for consumers" and added: "Many investors are looking for green, sustainable investments that offer a steady, index-linked income – this is exactly what OFTOs provide."

In Tender Round 8, Ofgem awarded Diamond Transmission Partners and HICL Infrastructure the contract to own and operate the Hornsea Two OFTO asset for the next 24 years.

Government names new Ofgem chair

The government has named the new chair of Ofgem's board: Mark McAllister is its preferred candidate to succeed Professor Martin Cave, the regulator said September 6. His position was confirmed November 2, effective November 6.

Mr McAllister will chair Ofgem's governing body, the Gas and Electricity Markets Authority, subject to confirmation by parliament.

He has chaired the Office for Nuclear Regulation since April 2019 and has had a 40-year career in the engineering and energy industries.

The Energy and Net Zero Select Committee (*see right*) will announce the date for a pre-appointment hearing.

Parliament ESNZ committee starts probes

The newly constituted Energy Security and Net Zero parliamentary committee launched its first four inquiries July 7, following a stakeholder event in the energy and environment sector in June.

Its focus is on how best to protect and support energy consumers this winter while looking at the long-term viability of infrastructure and the energy mix.

The committee will also look at how prepared the UK is for improving energy efficiency in homes and delivering new forms of power. The context is the rise in the cost of living, a shortage of state funds and households reluctant to undergo the disruption of installing heat pumps to replace serviceable boilers.

Smart meter installation, a very quick process, is nevertheless running far behind the government's schedule, despite the advantages to consumers of knowing when power is cheapest. National Grid and some suppliers are offering rewards to customers who cut electricity demand on request as a way of managing the system more efficiently.

The conclusions will cover the lessons learned from the high energy prices of last winter; the adequacy of customer protection and legislation regarding pricing controls; the flexibility of the grid; and how the energy mix of the UK needs to change to deliver enough capacity and meet its net zero targets.

ESNZ Committee chair Angus Brendan MacNeil said the households that "struggled with the soaring price of heating and lighting their homes during the bitter weather last year must be at the forefront of policy-makers' thinking as we again approach the winter months."

Gas prices have fallen sharply since last year but that reflects almost full storage throughout Europe, including Ukraine; and the low demand for gas in late summer.

The rapid rise in LNG exports, particularly from the US, is helping to fill the gap left by Russia and this has brought added volatility to global prices. UK consumers are now much more affected by the gas prices paid by utilities in Asia and South America than they were when Russian gas flowed normally.

Over half the world now has gas-to-gas pricing: IGU

One result of the massive shift in gas flows has been to increase the share of gas-to-gas competition by 1.5 percentage points, mostly at the expense of the oil price escalation – rising to over half of global gas consumption for the first time. According to the International Gas Union's annual *Wholesale Gas Price Survey*, published in mid-September, it reached a new high of 56% as a share of total imported gas volumes.

There was a significant rise in Europe as spot LNG imports increased sharply and some of Turkey's contracted pipeline imports from Russia switched to hub pricing, moving away from conventional oil indexation. The survey's map of the world shows Europe almost entirely as a gas-to-gas market, with oil indexation confined to the Balkans and Baltics, both originally reliant on Soviet gas.

According to the president of the International Gas Union, which represents both buyers and sellers, the market is working – but not to everyone's advantage. In the introduction, IGU president and chair of the Beijing Gas Group Li Yalan says that the lights stayed on in Europe during 2022 because there was a working global gas market. However, in today's tight supply conditions, "that also unfortunately had impacts on demand, forcing consumers to switch to more polluting alternatives, or in some cases shut down operations, while the abnormally high prices left some players in the developing parts of the world out of the market completely."

OEUK News

OEUK, industry welcome new chaplain

The UK Oil & Gas Chaplaincy Trust appointed Reverend Michael Mair as chaplain with effect from October 16. The Trust supports past and current workers in the industry and their dependents onshore with pastoral care and financial aid.

Reverend Michael Mair said he was "excited" to start this new appointment when the industry is facing challenges on several fronts.

"I am looking forward to standing with and beside people as we think about the future," he said. "The chaplain is there for everyone who works in the industry – for those of all faiths and none – and it will be my privilege to join this community to mark the highs and lows of life. I look forward to meeting those who work in the industry, whether offshore or onshore. My door will always be open."

Reverend Mair was a parish minister to St David's Broomhouse Church in Edinburgh. He is also a reservist chaplain to the British Army and is attached to 32 Signal Regiment. A Church of Scotland minister, he holds national roles in The Kirk as the convener of the Assembly Business Committee.

Reverend Mair trained for ministry at the University of Edinburgh and undertook placements in Edinburgh, Inverness, Shetland, Amsterdam and South Queensferry. He holds a Bachelor's degree in divinity and a Master of Theology degree from the University of Edinburgh. He is married to Laura, a lecturer at the University of Aberdeen. They have two children.

Dr Alix Thom, chair of the UK Oil & Gas Chaplaincy and OEUK's Workforce Engagement manager, said: "The Trustees of the UK Oil & Gas Chaplaincy Trust are delighted to have appointed Michael to the post of chaplain to the industry. His varied experience, energy and enthusiasm will bring a huge amount to the role and the oil and gas workforce that the chaplaincy supports.

"Our outgoing chaplain, Reverend Gordon Craig, has made an enduring impact on the industry and the trustees are confident Reverend Mair will build on his legacy."

Reverend Craig, who also had a military career, provided full-time pastoral advice and support for more than 11 years. Lynne de Boer will continue as administrator at the chaplaincy (*see OEUK Magazine #53 for a feature and interview on the chaplaincy*).

Restrata, LOGIC link up

OEUK subsidiary Leading Offshore Energy Industry Competitiveness (LOGIC) and Restrata have launched a next-generation service to support LOGIC's VantagePOB flight customers in the UK and overseas.

Restrata has an industry-leading solution, with a 24-hour technical operations and emergency response hub in Aberdeen Harbour.

VantagePOB was developed to harmonise UKCS operators' aviation logistics systems and processes and it was launched in 2004.

It is now used worldwide for personnel tracking and flight scheduling, owned by CGI Inc. Restrata and LOGIC will also work to identify opportunities for innovation and improvement for VantagePOB.

LOGIC's managing director Daniel Brown said VantagePOB was a critical industry service and that it chose Restrata as partner because of its capabilities in technology, offshore logistics and emergency response.

Restrata Solutions CEO Botan Osman said the company was delighted to partner with LOGIC and the industry. Its emergency response centre has been operating in Aberdeen since 2012 and serves over 70% of the UKCS market.

Employee engagement and health: two sides of the same coin

In the fast-moving energy industry, one factor has remained constant: the importance of having employees who are engaged. This is not just a buzzword: it is a critical element that can make the difference between success and failure in this dynamic sector, influencing every aspect from safety and innovation to sustainability and growth.

This was the reason for a forum earlier in the year for stakeholder groups of the Energy Services Agreement (ESA) – mainly operators, contractors, employees and trade union representatives. The session aimed to strengthen relationships between those working together in the North Sea and presented the attendees with a chance to listen each others' perspectives. All parties left determined to ensure that the offshore industry remains a good place to work for all employees.

Since then, OEUK has been working on a framework to highlight best practice for employee engagement and wellbeing in the offshore industry. It is looking at areas such as fair employment practices; an inclusive workplace culture; and sustainable employment practices.

The last of these stresses the importance of wellbeing – in particular, employers who provide a safe and comfortable working environment and support those with mental or physical health conditions. It encourages employers to provide trained, first-line mental health support (*see features*). Escalation guidelines should be clear and follow good practice.

The offshore energy industry relies on a skilled and motivated workforce to deliver energy security while working towards net zero. We are proud to provide decent jobs and our workforce has a vital role to play in a successful energy transition. Companies that nurture employee engagement are also leading the way towards a more sustainable and prosperous future. OEUK continues to work with its members to support them in this goal.

Conferences

A successful 50th anniversary of SPE Offshore Europe

The people who ran it, took part, or helped host it review the first face to face OE in four years

Its organisers have hailed the first face-to-face SPE Offshore Europe in four years a resounding success, as more than 800 exhibitors and almost 30,000 attendees celebrated the 50th anniversary edition at P&J Live, Aberdeen, September 5-8.

For the first time in several years, both the UK and Scottish governments were represented by their respective energy ministers, with UK Minister of State for Energy Security and Net Zero, Graham Stuart MP and Gillian Martin, Scotland's Minister for Energy and the Environment, addressing attendees with supportive keynote speeches.

"A lot has changed since the last face-to-face Offshore Europe in 2019, but the energy, excitement and enthusiasm to learn, share and move towards a new energy future was palpable on the show floor and the conference," said Jonathan Heastie, Portfolio Director – Energy & Marine at RX, which with the Society of Petroleum Engineers (SPE), organised the conference.

The largest ever programme of energy sustainability, security and affordability topics was presented alongside talent investment and diversity events (TIDE) for the next generation of energy workforce. Hydrogen, offshore wind, carbon capture and storage – and other net zero technologies that will deliver lower carbon energy production in the decades ahead – played a more prominent role than ever.

Offshore Europe Conference Chair and CEO of Nomadia Energy Consulting Kamel Ben Naceur said: "SPE Offshore Europe has become the global offshore energy event in Europe that covers all the components of the energy transition.

"Aberdeen has once again made us feel very welcome and we are very much looking forward to Offshore Europe 2025."

The exhibition floor was full, with several areas featuring net zero emissions themes. The speeches from both governments' ministers gave strong signals to the audience and related to a significant increase in investment across all energy sectors in the North Sea. Aberdeen has once again made us feel very welcome and we are very much looking forward to Offshore Europe 2025."

'A brilliant opportunity' – BP

Doris Reiter, Senior Vice President, BP North Sea, said: "Offshore Europe was a brilliant opportunity to share how BP is Backing Britain – investing in oil and gas for today's energy system and, not or, investing in low carbon businesses for the future. I was hugely encouraged to hear that same message repeated.

"The energy transition presents a massive opportunity but it's not without challenge – BP wants to be part of the conversation and part of the solution. That's why we were delighted to be exhibiting and presenting at Offshore Europe, speaking to school children, politicians, industry partners and supply chain colleagues. Well done to everyone for making the event such a success."

OEUK's External Relations Director Jenny Stanning said: "Offshore Europe was the ideal arena to explain how we are setting the agenda for energy security, the transition to net zero and pursuing the investment we need to build a high-growth low carbon world across the energy mix. The city put on a great show and we're already planning for the 2025 conference."

The Lord Provost of Aberdeen, Dr David Cameron said: "'I visited Offshore Europe across two days of the event and was thrilled to see that the sector is absolutely thriving, with an enormously diverse range of global stakeholders having come to Aberdeen to showcase their businesses at one of the world's leading energy conferences and exhibitions. I was especially pleased that this year's event focussed on decarbonisation and achieving net zero goals."

The managing director at P&J Live, Rob Wicks, said: "It's been terrific to see Offshore Europe back at our venue this week and there has been a real buzz across all the halls. The event continues to make a significant impact with its insightful content and overall economic impact on the region and is something that Aberdeen should be exceptionally proud of."

OEUK & Offshore Europe: breakfasts, briefings and brainstorming

The event returned to Aberdeen for three days of meetings, new ideas and plans for the UKCS

Tens of thousands of delegates, exhibitors and speakers headed for the P&J Live conference centre in Aberdeen in September, demonstrating that SPE's Offshore Europe (OE) exhibition and conference continues to be a major draw.

The theme was 'Accelerate the transition to a better energy future' and OEUK was out in force, demonstrating how our industry is changing to support the UK's ambitions.

OE also provided a forum for OEUK to launch its 2023 *Economic Report:* a sell-out business breakfast was opened by CEO David Whitehouse; Ross Dornan, the lead author and OEUK's market intelligence manager, talked the audience through the findings, an event followed by a panel session chaired by External Affairs Director Jenny Stanning.

Mr Whitehouse told the audience of 400 that the UK must supercharge homegrown offshore energy. He said: "While parliaments may thrive on opposition and argument, we know big engineering projects only succeed through collaboration. The transition to net zero will be the biggest engineering project this country has ever seen. We need consensus to support the very industries and workers whose skills are vital for building our energy future."

He made the point that the industry had felt the direct impact of underinvestment in several ways: job security, the competitiveness of its firm's internationally and future energy bills. He added, however, that the report shows that with the right framework, the industry can still make the long-term investments needed for the UK to tackle these challenges.

Analysis of the report and interviews with OEUK leadership team members aired on Radio 4's flagship *Today* programme and STV. It also featured in major broadsheets including *The Times* and *Daily Telegraph* and international media including AFP. Media analysis revealed that the report had generated more than 440 articles and achieved a positive sentiment of 86% in terms of the tone of coverage. Several colleagues also featured in podcasts hosted by Energy Voice and Wood and on OE's in-house TV station.

OEUK's head of external relations Mike Gaskill hosted a fireside chat, sponsored by OPITO, with Brian Wilson, a former Labour energy minister (2002-3, (below *left*)).

Mr Wilson (*right*) emphasised the importance of creating a balanced energy policy which respected the three imperatives: security of supply, affordability and carbon reduction. The thought-provoking session closed with questions from the audience.

Staff retention challenges

Strategies for attracting and retaining talented people provided the focus of the 'Engage, Empower, Excel' keynote session chaired by Mr Whitehouse, which focused minds on what the offshore energy industry is doing to attract talent from the different generations.

Featuring input from a panel of representatives from the supply chain, operator, training and union communities, the session attracted many young professionals.

It asked how, in a rapidly changing energy landscape, the sector could engage better with educational institutions and mentorship programmes to supply a pipeline of skilled talent for the future.

A great example of this in action was Sabrina Ataalla, one of OEUK's business advisors. She gave a presentation on 'An overview of Energy Security & Net-Zero' that attracted an audience of more than 60 career guidance professionals. This builds on the work that OEUK's workforce engagement and skills manager Alix Thom is doing to develop the workforce of the future.

A key initiative supported by OEUK is its partnership with Developing the Young Workforce (DYW) North East. The group is one of 20 regional DYW groups in Scotland aiming

Conferences

to bridge the gap between industry and education by helping employers play an active role in preparing young people for life beyond school.

External affairs director Jenny Stanning spoke at the 'Walking the Line between energy, security, resilience and affordability, and responsibility' session.

Chaired by Ellis Renforth, Wood's president of EMEA operations, the discussion covered how oil and gas will continue to play a pivotal role in the UK's future integrated energy system.

It also looked at how the offshore energy sector can ensure the lights are kept on, while also ensuring that the transition to a low carbon energy system is managed fairly.

OEUK's North Sea Transition Deal (NSTD) team was delighted to offer presentations at OE this year. Enrique Cornejo, team lead for carbon capture and storage (CCS) and hydrogen, discussed the potential for unlocking opportunities in these two newly hatched but closely related and net-zero-emissions critical sectors.

OEUK's Programme Manager for the NSTD, Emily Taylor, sat on a panel considering low carbon initiatives with some illuminating examples from the floating offshore wind sector. She also spent some time with the Minister for Energy Security and Net Zero Graham Stuart during the conference, and together with colleagues shared our views on investing in the energy transition.

Ross Dornan (right) discusses the Economic Report with (L-R): Doris Reiter (BP), Amjad Bseisu (EnQuest), Steve Nicol (Wood) and Oliver Holder, Deloitte

Digital & Data: the NSTA's strategy and cyber security

OEUK's Head of Data and Digital, Daniel Brown, joined a panel session hosted by the North Sea Transition Authority (NSTA) to provide an update on the Offshore Energy Data and Digital Strategy.

It aims to ensure the entire offshore energy industry makes the most of the opportunities that data and digital technologies create.

One of its first achievements was the formation of the pioneering Digital Strategy Group, (DSG) chaired by the NSTA. Its members represent operators, licensees, permit holders, land owners, regulators and others industry bodies.

The DSG provides the means for all stakeholders in our industry to guide and promote data and digital good practice, while making use of the unique strengths of its member organisations to translate talk into action.

For example, the Net Zero Technology Centre's Offshore Energy Digital Architecture project – funded through the Net Zero Technology Transition Programme – is working on ways to enable operators and supply chain companies to share data with each other securely and in a compliant way. When they can do that, then the benefits need to be put into practice.

Initial investigations looking at optimising performance data for offshore equipment are very encouraging.

Another related area is cyber security. New indicators of compromise – such as web site addresses, emails, and network locations being used by hackers to target the energy industry – are being identified every minute of every day; but our industry has no way to share this information so that one company's cyber detective-work benefits every company's defences. The open-source MISP project, run by OEUK's LOGIC subsidiary, aims to automate the sharing of this information across the supply chain, making us all more secure.

The strategy is still in its early days. If your organisation would like to get involved, let us know. It will take all of us to bring the strategy to life, and to build our industry's data and digital competitiveness.

Wells of the Future

The outlook for the UKCS has never been so gloomy, despite the hostile geopolitical environment

OEUK hosted the annual Wells Seminar in the members area of its Aberdeen office on September 20.

The event drew a capacity audience of 75 and 48 organisations took part. It was dedicated to the wells needed for new energies, as well as the more familiar exploration, appraisal and production wells.

OEUK opened the conference, setting the scene with a summary of the UKCS oil and gas supply situation and looking at the range of likely wells activity in the coming few years. It is not an encouraging picture.

Higher oil prices and rising geopolitical tensions combined with technology improvements might just restore some of the lost output. In other countries, the need for national energy security has triggered major takeovers, the targets owning substantial upstream reserves. But there is no equivalent to these in the UK, a mature province.

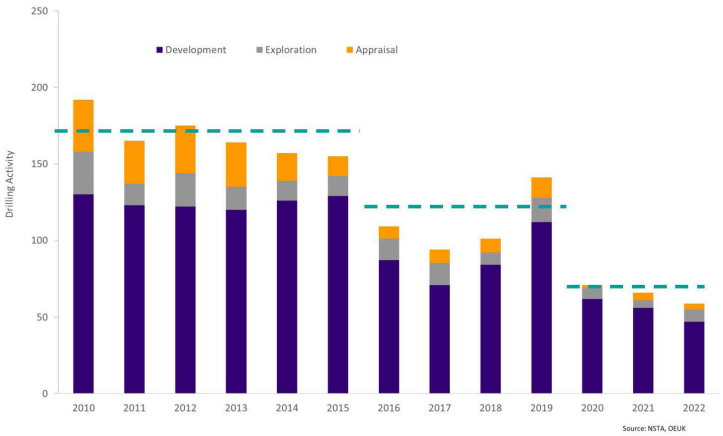
The activity is not at crisis point yet, but if the low level of activity is not addressed then there will be further production declines leading to the premature cessation of production. The energy import bill would also rise: last year it exceeded $117bn.

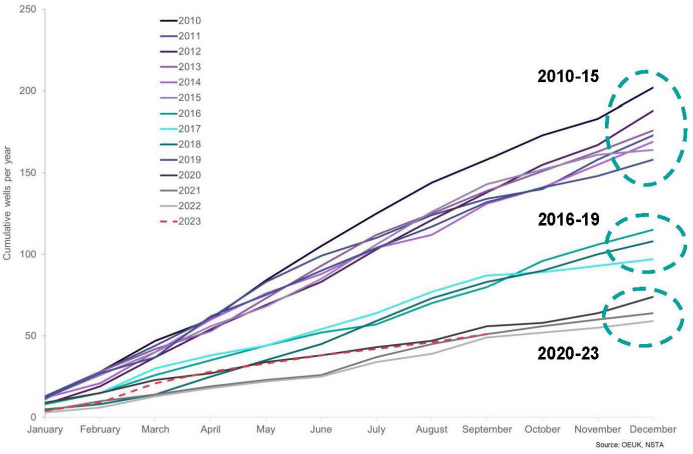
This in turn would lead to the energy transition coming off the rails, owing to the resultant loss of skills and resources.

OEUK's Director of HSE & Operations Mark Wilson noted that there had been no recovery in production after each of the three main downturns that occurred at five year intervals: the 2010 price crash; the 2015 price crash – "lower for longer" – and the post-Covid-19 crash, the last being the severest.

There is the potential for spending over £30bn on wells in the coming ten years.

2023 activity trending in line with recent years





"The UK wells community and collaboration are among our strongest resources and will help us to overcome the challenges ahead."

From left: Mark Wilson, OEUK; Brenda Wyllie, NSTA; Ben Heidenreich, Harbour Energy; Hamish Grey, 360 Energy (co-chairs of OEUK's Wells Forum).

Conferences

But if things continue on their present course, he said, decommissioning wells will constitute the majority of the upstream business each year.

One counter-measure, admittedly small, has been well interventions. These have proved to be a relatively cheap way to enhance a company's production, with average costs last year being just $10/barrel of oil equivalent and accounting for over 8% of total production. But this was fewer than the year before.

The coming two years are challenging, particularly for the supply chain, owing to the lack of confirmed work scopes. The number of wells being drilled to increase production, while encouraging, does not arrest the downward trend of production: it only softens its gradient.

The North Sea Transition Authority (NSTA)'s area manager for the Northern North Sea and West of Shetland, Brenda Wyllie, provided an overview of the ambition to stimulate activity through the visibility that its upcoming Wells Insights will provide. It examines the existing undeveloped resources as well as the challenges operators are currently experiencing. Ms Wyllie pointed out that E&A activity has declined sharply in the last 10 years. But she sees a potential bump by 2025 as commitment wells under the 32nd licensing round work their way to the top of the operators' to-do lists. The NSTA has the right to reassign licences on the basis of "right assets in the right hands," one of its guiding principles. She closed the keynote with three items to ponder:

- How quickly and strongly can we influence well activity?
- How can we provide more certainty to the supply chain?
- How can we improve the flow of communication?

The Health & Safety Executive (HSE)'s principal inspector in wells engineering and operations Grant Moody explained the consequences of ageing well stock integrity and its inspection activities. Operators must know the integrity status of old, suspended or plugged and abandoned wells and have mitigation plans ready to address well integrity failures. In future, the HSE will add CCUS and geothermal to its list of responsibilities.

Shell UK's wells operations manager Manish Kumar opened the central portion of the event laying out the obligations that he felt both personally and professionally to reduce the emissions.

Project Python UK's Managing Director, Ewen Robertson, took the audience through a journey from data collection, machine learning and artificial intelligence with a live demonstration of a carbon footprint of an energy system across the entire life cycle. This demonstrated how and where industry can get the most value for investment made in terms of emissions reduction. "An ability to make validated relative comparisons of carbon intensity for alternative energy system solutions is of potential value to operators as well as the government," he said. However, there is no standard methodology for determining an energy system's carbon intensity from Scope 1 to 3; so there is no way of comparing the carbon intensity with alternatives either.

The third speaker was Karen Spenley, Celsius Energy's UK country manager, talking about a different kind of well. She explained the company's technology and how it expands the use of existing directional, inclined wells in order to minimise geographical spread on the surface.

These wells will reduce the carbon footprint of large, public or industrial buildings such as workplaces, hospitals and leisure centres using geothermal energy.

In some cases, such buildings can see payback in less than 10 years, with a big reduction in gas or power consumption and a big cut in carbon emissions too.

The project manager for the BP-led initiative, Northern Endurance Partnership Wells Unit, Russ Haley, took the audience to 2026 when BP and partners TotalEnergies and Equinor will drill into its carbon injection and storage site. The unique technologies required in addition to the operational plans offered a fascinating insight into the potential future of wells. Industrial emitters on Humberside and Teesside will pay for the collection, transport and storage of their carbonin the Endurance saline aquifer, which in its first phase will have the capacity to receive 4mn tonnes/year by 2027. For that to happen, it will need to drill up to potentially six wells by the first half of 2026.

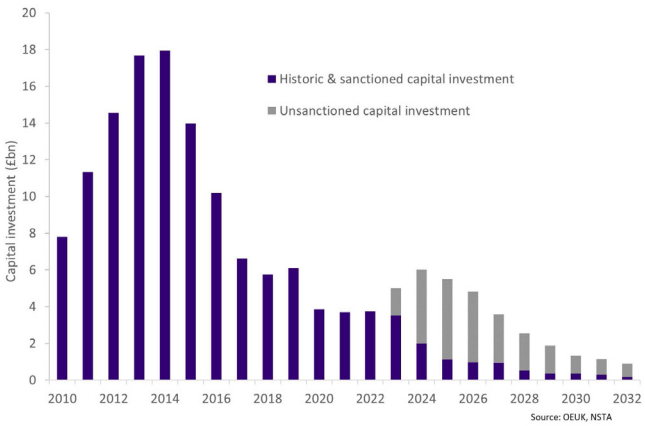
The central theme of leading and learning is reliant on competent, skilled people. Developing the Young Workforce (DYW) is a Scottish government initiative and Margo Milne & Aimee Maitland from that organisation took the audience through the Young Person Guarantee. During the discussion another 18 companies who were present at the seminar signed up to support it.

OEUK Wells Forum co-chair Ben Heidenreich of Harbour Energy and Hamish Grey of 360 Energy summed the status up as: "The UK wells community and collaboration are among one of strongest resources and help overcome the challenges ahead."

The post event discussions highlighted the outlook for Wells is challenged, this was particularly true

In conclusion, it is clear that the next few years will be real test of the upstream's ability

Investment: crucial to domestic production



OEUK's Legal Conference discusses society and the upstream

How to marry up the clarity of law with demands to safeguard the climate – and other conundrums

Developments in climate change litigation and related environmental and sustainability issues are gathering momentum, delegates learnt at OEUK's legal conference in Aberdeen on September 28. Both in-house and private practice lawyers were represented and at many levels

Welcoming the audience of 160 to Ardoe House, OEUK's legal manager Tracey Keith commented that discussions around climate change were more topical than ever. While noting that the industry is committed to reducing carbon emissions, for some it is not happening fast enough.

The conference took place the day after the UK government's decision to approve the new Rosebank oil and gas field, which led to protests by climate activists in London over the following weekend and the threat of a legal challenge in the light of the net zero objective (*see p7*).

In a presentation by lawyers from Principal Sponsor Clyde & Co LLP, Nigel Brook and his colleague Lucia Williams said climate litigation is now a global phenomenon. Among the insights they shared from their firm's Climate Litigation Tracker was the way in which US claims focusing on costs and damages brought against companies by municipalities differ from European practice. On this side of the Atlantic, litigation is driven by non-governmental organisations (NGOs) and activists seeking to change government policy.

Greenwashing – the blanket term that NGOs use to discredit the measures companies take to decarbonise – also came under the spotlight. Both the Advertising Standards Authority and the European Commission's Directive on Green Claims have issued guidance to enable companies to report with greater accuracy as compliance regulations become ever more rigorous.

Delegates also heard about practical tools, including liability risk mapping and compliance training. These help ensure lawyers are abreast of the latest developments.

An advocate with Axiom Advocates John MacGregor KC discussed the continuing challenges to the development of new oil and gas projects. He noted that recent judgements raise questions over whether courts will consider the downstream impacts of oil and gas developments.

Highlighting several cases that highlight the potential shift in legal thinking, he cited Greenpeace's unsuccessful appeal in 2021 against the development of the Vorlich field. It argued that drilling consent did not consider the climate impacts of using or burning the oil produced.

Summing up the thinking, Mr MacGregor said the recent series of cases relating to climate issues revealed an elasticity in the concept which seemed to be moving away from a hard-edged legal question to one of discretionary judgement. .

Litigation and class actions

The expansion of group litigation/class actions in the UK came into focus in a presentation by Tom Roberts and Eleanor Coates from Clyde & Co. This type of litigation is emerging as part of the increased scrutiny on the energy sector and increasing awareness of environmental and social governance criteria with claims generally concentrated on negligence or continuing nuisance. It has also led to a rise in overseas tort claims against UK parent companies, bringing into question their responsibility for overseas subsidiaries.

Alongside the topical issues of the day, the conference also covered classic technical topics including contractual interpretation, cases of joint operator agreement default and forfeiture and internal client engagement.

The one-day conference closed with a dinner featuring Dr Tharaka Gunarathne MBChB, a TV and TED lecturer, who tested the memory of attendees using his lively 'unforgettable connections' session.

Book reviews

Maximising Economic Recovery

A new approach to regulating the UK's offshore oil & gas industry

Judith Aldersley-Williams & Valerie Allan
https://www.globelawandbusiness.com/books/maximising-economic-recovery.
Globe Law and Business, 293pp (HB/digital)
ISBN 978-1-787429-70-3

For all its brevity, the phrase 'maximising economic recovery (MER)' almost stands alone: it divides two very different eras of UK oil and gas production.

The petroleum wealth of the North Sea was opened up by a competitive, lightly regulated industry.

It brought mainly US technology and some of its sharper business practices to this new province and exploited the UKCS reserves for decades.

Unlike other petroleum provinces in the region, such as Netherlands and Norway, the state had almost no equity.

It nevertheless had a conflict of interests as it both regulated the industry and taxed it.

There were cases of anti-competitive behaviour regarding infrastructure access, which new entrants, anxious to get on, were often reluctant to appeal.

But by many yardsticks this worked well: the UK became a major producer and a net exporter of oil and gas and .

Lower for longer

But this relaxed regulatory approach was abruptly firmed up in the mid-2010s as the biggest oil and gas fields became less profitable. The North Sea was less interesting as prices were expected to stay 'lower for longer.'

Seized by a sense of urgency to retain what it could, the Conservative government commissioned oil services businessman Sir Ian Wood to come up with a plan to rebuild production and revenues.

His 55-page response, *UKCS: Maximising the Economic Recovery*, was published in early 2014.

Recognising that rivalry had to give way to collaboration and that a relationship between producers and government that was too close could frustrate this, Sir Ian recommended the creation of an arms'-length, industry-funded regulator:

Andy Samuel, the first CEO of the NSTA (Credit: NSTA)

the Oil & Gas Authority, generally known as the North Sea Transition Authority.

Its first CEO, Andy Samuel (*above*), writes in the book's foreword that the industry's approach to doing business could waste a lot of upstream resources.

Formerly head of BG's European upstream division, he set to work with his 2015 Call to Action, asking for a cultural shift in leadership and behaviours. It was swiftly acted on.

He notes with some pride that the OGA's successes in seven years – he retired at the end of 2022 – can be counted in billions, whether in barrels of oil recovered and pounds invested – or saved for the exchequer.

This was despite the maturity of the basin and the progressively smaller average discovery size.

Some things remained from the old times: the importance of asset stewardship for example had been understood by the Department of Energy & Climate Change – today's DESNZ – which had already been doing annual reviews for over a decade. Other elements, now taken for granted, were absent until the Wood Report came out. For instance the OGA has the right to attend meetings between licence-holders where the agenda is relevant to their obligations; or where internal or external disputes are to be discussed.

The OGA is able to recommend solutions to these, insofar as they will aid MER: the right assets in the right hands.

The OGA also introduced a new code of business and set enforceable targets, backed by sanctions that extend to fines and, in extreme cases, partial or total licence cancellation.

Evolving role, same purpose

Written by two UK upstream experts at law firm CMS and weighing in at close to 300 dense but navigable pages, this book explains and describes the regulation of the UKCS, from the origins of the OGA and the guiding principles.

But the OGA's role is still a work in progress as it continues to reflect a changing world.

References to oil and gas have begun to be replaced with more general references to energy: such as the MER UK Forum which has become the North

Sea Transition Forum. And in 2020, for example, producers became obliged to help government meet the net zero target.

These new requirements included new burdens such as cutting greenhouse gas emissions from flaring; supporting carbon capture and storage; developing hydrogen projects and so on.

But the book also points out that a wider consideration of how to meet the net zero target is not part of the OGA's express statutory functions.

More collaboration, new technology and common data access are all among the many new weapons in the war against inefficiency. Other innovations include hackathons where specialist groups from different companies tackled problems common to all, such as how to bring down well costs, in a way that fitted with competition law.

Incidentally the book serves as a reminder of the progressive thinking within the earlier Labour government. Its Climate Change Act had already put in place a 70% (relative to 1990) cut in emissions by 2050. And it merged the environment ministry with the energy ministry (previously part of the Department of Trade and Industry) to create DECC as early as 2008. Until the Wood Report, the question of upstream regulation had been kicked about like a football between departments, depending on the government's priorities of the day.

But while that has been solved by political independence, the life expectancy for a Secretaryship of State at DESNZ remains as brief as ever.

To buy this book at a 15% discount, please visit the publisher's website (www.globelawandbusiness.com/books/maximising-economic-recovery) and enter the discount code at checkout: ***OEUK15***

Brexit and Energy Law

Implications and opportunities

Eds: Ana Stanic & Silke Goldberg

Routledge ISBN 978-1-032-41489-8 (247pp, Hb)

For much of its time as a European Union (EU) member, the UK had taken the lead in gas and electricity trade. Experience at home was invaluable abroad.

The Conservative Party's creation of an arms' length regulator, the introduction of third-party pipeline access, a virtual delivery point, standardised contracts, network codes and the end of the gas and power companies' monopolies – these were all eventually adopted in the EU in some form.

Alert to changing societal imperatives, the UK was also among the most effective contributors towards the EU's carbon emission cuts.

Since Brexit and the Trade and Co-operation Agreement (TCA) – the starting point for some of the chapters in this work – took effect, the European energy market has undergone further seismic shifts, with very different causes.

First, the Covid-19 pandemic in 2020 saw oil and gas prices fall as life changed in so many ways. And then the westward flow of Russian gas, hitherto the cheapest of all the major suppliers, was mostly replaced by LNG – a commodity that is traded at very high prices on occasion, depending on events beyond EU control.

It is not therefore as easy as it might be to separate profound short-term market shocks from the consequences of that razor-thin majority vote in 2016, when analysing Brexit to date.

Diverging policies between the two jurisdictions are not yet large enough to be felt, while the conflicting politics of EU members, such as the question of buying Russian or Azerbaijani gas, suggest that a lot of tough internal negotiation lies ahead.

However, in the book's conclusion, the editors cite research that found a significant drop in the UK's GDP at the end of 2021 for reasons that are to do solely with Brexit.

It is also hard to say if the situation will worsen, from the UK perspective. But its ability to influence the EU has weakened, implying it will be a "price-taker."

For the EU and the UK, negotiations on post-TCA business – the energy chapter could expire June 2026 – should aim not only to preserve the status quo but also anticipate areas of mutual interest ahead. Electricity interconnectors are a case in point: both sides are building out offshore wind capacity in the North Sea and related transmission infrastructure.

From the limited perspective of energy trade and security it is difficult to say which side has come off worse. The evidence in this book points to already higher commodity prices for UK consumers, as well as unnecessarily magnified problems implementing the energy transition, owing to restricted movement of goods and labour.

UK imports of CO_2 are also problematic as there is so far no agreement for trade in this waste product.

However, the TCA does make adherence to existing climate change commitments and standards an essential element for a level playing field. And it includes sanctions if either side falls behind on the Paris Agreement.

Dedicated to peace in Europe, the book ends with a plea for pragmatic co-operation and for work to start in earnest on the TCA's promised, more detailed successor.

Richly detailed and written by 18 experts in European law and energy trade, the book is part of Routledge's series on Brexit and trade. Energy is perhaps the most critical of them all.

If both sides show more diplomacy and less bravado, as events in the outside world loom ever larger, and the good relations between the UK and French governments since the Windsor Framework prove enduring, much good might yet be salvaged.

To buy this book at a 20% discount, visit www.Routledge.com and enter discount code ***BrexitEn20*** *at checkout.*

EU News

EU importers start measuring GHG content

The European Union's carbon price abatement mechanism (CBAM) took effect – with a two-year soft landing period – on October 1. Fourth-quarter data on the greenhouse gases embedded in companies' imports, directly or indirectly, must be submitted by end January 31, 2024. No money will change hands though for two years, during which time the carbon calculation methodology will become stricter.

Intended to put imports on the same footing as domestic goods in terms of their carbon content – and hence production costs – it will only apply at first to the most carbon-intensive goods: cement, iron and steel, aluminium, fertilisers, electricity and hydrogen.

The EU said it "needs the CBAM to achieve its ambitious emission reduction targets and achieve climate neutrality by 2050. The CBAM will tackle the risk of carbon leakage in a non-discriminatory way and in full compliance with WTO rules."

CBAM will eventually – when fully phased in – capture more than half the emissions in the sectors covered by the EU Emissions Trading Scheme, which parted company with the UK when the UK formally left the EU.

The objective of the transitional period is to serve as a pilot and learning period for all stakeholders – importers, producers and authorities – and to collect useful information on embedded emissions to refine the methodology.

The EU says that gradually phasing the CBAM in will also allow for a careful, predictable and proportionate transition for EU and non-EU businesses, as well as for public authorities. During this period, importers of goods in the scope of the new rules will only have to report greenhouse gas emissions embedded in their imports – direct and indirect emissions – without making any financial payments or adjustments.

The permanent system enters into force on 1 January 2026, when importers will need to declare each year the quantity of goods imported into the EU in the preceding year and their embedded GHG. They will then surrender the corresponding number of CBAM certificates. The phasing-out of free allocation under the EU ETS will take place in parallel with the phasing-in of CBAM in the period 2026-2034.

Indirect emissions will be covered in the scope after the transitional period for some sectors – cement and fertilisers – on the basis of a defined methodology outlined in the Implementing Regulation published on 17 August 2023 and guidance.

New Gas Year starts without the Dutch giant

For the first time in 60 years, Europe's Gas Year began on October 1 with the notable absence of the Groningen field. The NAM-operated swing producer, which has been producing gas since 1963, was the guarantor of security of gas supply in northwest Europe. The gas marketing operation Gasunie, half owned by the Dutch government, brought in useful revenues.

But tremors relating to production patterns did much damage to buildings over the decades. There was a particularly serious one in 2012.

The state mining authority had set a limit on rates of production but after several years' deliberation, the government decided it would be better to close it outright. So after a few years' warning it announced in late September that gas output would cease.

The decision leaves open the possibility of restarting output in exceptional circumstances next year, but it will close definitively soon after.

Production had been lowered in steps and in 2018 the economy minister said it would stop in 2022 or 2023. This decision did not change much despite the Russian invasion of Ukraine and the consequent surge in gas prices.

EC joint gas purchasing scheme extended

The third tendering round in the AggregateEU scheme for combined gas purchasing saw 39 companies bid for gas. But the industry group Eurogas has called for a referee, concerned the mechanism would continue too long.

Other traders also said it would only cement the positions of some incumbents. Traders had been unhappy about having to share information with them, despite the limited extent of the exchange (*OEUK Magazine #56, p7*).

The European Commission has now invited suppliers to submit offers for December 2023 to March 2025 for a total 16.5bn m³.

This amount shows a steady increase in volumes over the three rounds. The EC said: "After another successful round of demand aggregation, we see clearly that European market players value our mechanism to pool demand and procure gas from reliable suppliers at competitive prices."

It urged overseas suppliers to expand their customer base in Europe while also helping the EU to diversify its energy supply following Russia's illegal invasion of Ukraine in 2022 and to strengthen its security of supply. However, the EU gas industry group Eurogas is concerned that the scheme, which began life as an response to an emergency, might become a permanent feature of the energy landscape.

This was not foreseen at the start of the emergency situation and as the gas market continues to work, the need for this emergency tool will cease to exist, it said in September.

It called for a public consultation and a legal opinion from the competition directorate on its compatibility with existing law before talking about extending joint purchasing further.

Member News Corporate

TotalEnergies endorses CEO's strategic direction on climate and dividends

French major TotalEnergies is sticking with its successful multi-energy strategy and "attractive" shareholder returns policy, the board announced in a London Stock Exchange announcement following a September 20-21 seminar.

With a breakeven anchored below $25/barrel of oil equivalent, TotalEnergies is a much more efficient and profitable company today than it was 10 years ago: at the same oil equivalent price, it generated an additional $15bn of cash flow in 2022, it said.

Refocusing the oil and gas portfolio on assets and projects with low breakeven and low greenhouse gas emissions and diversifying into the renewable electricity value chain in particular had put the company in a very favourable position to take advantage of changing energy markets and prices. That strategy also led it to sell its Canadian upstream and oil sands businesses in early Q4 for US$4bn.

The lifecycle carbon intensity of energy products sold to its customers was 12% less in 2022 compared with 2015, and TotalEnergies plans to cut it further by 25% by 2030. It is committed to reducing Scope 1+2 emissions from its oil and gas operations by 40% by 2030 and by 80% for methane. TotalEnergies is committed to carbon neutrality in 2050.

Given the company's growth and financial results under his leadership, the company said it would propose that Patrick Pouyanne remain at the helm for longer at the May 2024 general meeting; and similarly Jacques Aschenbroich, the lead independent director. Mr Pouyanne became chairman and CEO in 2014.

In the same statement, Mr Aschenbroich said Mr Pouyanne had delivered "outstanding financial results", engaging the company in the energy transition faster and with more rigour than its peers.

US majors bet on growth of 'twilight' industry

US explorer Hess is merging all its assets with Chevron's, following the latter's all-share takeover valued at $53bn. Including debt, the deal cost $60bn and is expected to close next year, with both boards unanimously supporting the deal. The price represents a 10% premium to the market in the run-up to the agreement.

Among the prizes, Chevron is now a partner in the Stabroek block off Guyana and has more US shale oil and gas production, entering the Bakken for the first time.

The merger came soon after ExxonMobil announced it had made a major acquisition upstream, buying US shale giant Pioneer for $60mn.

After some years of under-investment upstream, the deals show renewed appetite for low-cost oil and gas production, especially from politically secure regions.

Chevron said the acquisition "upgrades and diversifies Chevron's already advantaged portfolio. The Stabroek block in Guyana has industry-leading cash margins and low carbon intensity that is expected to deliver production growth into the next decade. Hess' Bakken assets add another US shale business to Chevron's DJ and Permian basin operations and further strengthen domestic energy security.

The combined company is expected to grow production and free cash flow faster and for longer than Chevron's current five-year guidance. In addition, CEO John Hess is expected to join Chevron's board.

Mr Hess, said he was proud of what the company had achieved, including one of the industry's best growth portfolios. The son of the founder, he has been in the post since 1995. He said the new company has "the leadership, asset portfolio and financial resources to lead us through the energy transition and deliver significant shareholder value for years to come."

The transaction has been unanimously approved by the boards of both companies and is expected to close in the first half of 2024. The acquisition is subject to Hess shareholder approval and regulatory and other customary closing conditions.

The International Energy Agency said in its *World Energy Outlook* October 24: "The phenomenal rise of clean energy technologies such as solar, wind, electric cars and heat pumps" was reshaping our energy systems, but "as things stand, demand for fossil fuels is set to remain far too high to keep within reach the Paris Agreement goal of limiting the rise in average global temperatures to 1.5 °C."

IOG in administration, talks continue

Troubled UK independent producer IOG has put itself into administration to preserve the value of the business for its creditors, it said September 28. Shares stopped trading later that day.

The decision follows its extensive consideration of its finances following underperformance of the developed assets – declining output from the Blythe H2 well, made worse by the drop in the wholesale gas market in the past year – and the resulting creditor position.

The existing bond waiver expired on September 29 and IOG has talked with a group of senior secured bondholders and their advisors regarding a further additional capital injection and associated restructuring. Discussions are intended to continue with a view to a potential restructuring solution that protects the operating subsidiaries, which are not being placed into administration.

Expressing deep disappointment at the impact this decision would have on its many stakeholders and thanking all concerned, IOG chair Esa Ikaheimonen said that after having exhaustively worked to overcome the company's financial circumstances and not found a viable solution, the decision was inevitable.

Member News E&P

Murlach field gets OK

The Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) and the North Sea Transition Authority (NSTA) have approved operator and majority shareholder BP's plan to redevelop the Murlach field. The other partner is NEO, with 20%.

"Development of the Murlach field further demonstrates BP's strategy in action – investing in today's energy systems and, not or, investing in the energy transition," said the UK major's senior vice president Doris Reiter September 12.

Murlach will be connected to the Eastern Trough Area Project hub which has been operating in the central North Sea for 25 years, so old infrastructure will have its life extended and at lower cost than starting from scratch. Murlach is a redevelopment of a field that was previously in production a decade or so ago.

The approval of the environmental statement follows a robust public consultation process.

Discovered in 1986, Shell operated it as the Skua field from 2001 but shut it in in late 2004 and relinquished the licence along with the remaining resources.

Peak oil production is expected at 20,000 barrels/day of oil, exported through the Forties system; and peak gas production at about 17mn ft³/day, landed at Teesside terminal.

The redevelopment comprises the drilling of two new wells, installation of some new subsea equipment and topside modifications on the ETAP processing plant. Production is expected to begin in 2025.

Vysus, Siccar finish Tendeka emissions pilot

Technical engineering consultancy Vysus Group and enterprise data sharing platform Siccar have ended a pilot of their innovative Energy Transition Databox (ETD).

They were working with global completions specialists, Tendeka, an Abu Dhabi company. ETD enables companies to manage and share accurate and trusted emissions information across their supply chain. Tendeka obtained verifiable emissions data that gave it an accurate baseline for complying with regulations and deciding which initiatives would be the most economic. Tendeka, one of a number of operators and services companies who have been piloting ETD, said: "Collaboration is at the heart of the emissions challenge, and the working relationship between Tendeka and the Databox team ensured the whole process was very effective and successful," it said.

Vysus and Siccar are in the closing stages of Databox pilot projects and look forward to working further with Tendeka as they roll out the solution.

ModuSpec extends rig contracts

ModuSpec has agreed the extension of a global frame contract for rig inspection services with two upstream operators. One, for two years, is the continuation of a relationship that started over 30 years ago, the Vysus Group company said July 21. And in mid-September it extended another one, for ten.

The awards come at a time when the rig market and demand for drilling globally are surging with oil prices.

ModuSpec said the extensions represented the trust its clients had in its capabilities to support their global rig activity." The first award is anticipated to be worth over £500,000/yr. Complex rig work for this company has taken ModuSpec to Angola, Mexico and the Netherlands. The second was with BP, for blow-out prevention inspection services, it said September 14.

It has been delivering such support to the UK major for more than eight years. This extension, possibly worth $10mn/yr, means that ModuSpec could be called upon to provide support across BP's global operations, it said, naming Azerbaijan and the North Sea.

ModuSpec has also won £350,000 for work to be done on two ultra deepwater drillships for two long-standing clients, it said August 16.

The first is to support the intake and acceptance of a vessel now in the Gulf of Mexico. ModuSpec will assess its physical compliance with the client's corporate policies before it moves to the Mediterranean for work next month.

The second contract is with a state oil company, whose drillship is due to start operations in the Mediterranean this month. In addition to its physical condition, ModuSpec will also assess the robustness of the drilling contractor's management systems.

ModuSpec said its collaborative way of working supported these "challenging and time con-strained projects." The fifth- and seventh-generation units are technically complex, it said.

Aker Solutions starts cutting steel for two Norwegian projects

Plate-cutting work has begun for Norway's next two large offshore development projects, Yggdrasil and Valhall PWP-Fenris, contractor Aker Solutions said September 4.

These projects add a lot of value, including over 2,000 jobs in Norway, in addition to 100 new apprentices every year, it said. Aker Solutions signed contracts with the operator Aker BP last year that added up to its biggest every quarterly order, coming close to Nkr 50 ($4.7)bn.

The work includes four new offshore platforms including steel jackets and it will be done together with Aker BP, Siemens Energy and ABB in the fixed alliance facilities.

"After years of engineering and preparations, we are now entering the construction phase. These projects will involve hundreds of suppliers and provide large ripple effects in the form of revenue and jobs in local communities throughout large parts of Norway," said Aker Solutions

Member News M&A

Ping Farms into Fyne

Ping Petroleum UK has signed a farm-in agreement for the 75mn boe Fyne field, 16 km from its Anasuria FPSO and 175 km from Aberdeen in the central North Sea, it said September 1.

The equity split provides Ping with 42.5%, equal to fellow Malaysian company Hibiscus Petroleum which signed a similar farm-in deal, and with which it also jointly and equally owns the FPSO. Rapid Oil has 15%.

Ping's CEO Zainal Abidin Jalil said the Fyne field was "a material addition to our portfolio and adds to the value of our existing infrastructure at Anasuria, as it will extend the field life and improve the value of our ongoing integrity and asset-life extension work."

Anasuria Cluster is a balanced portfolio of producing, appraisal and exploration licences. It also incorporates the Teal, Teal South, Guillemot A and Cook field, in each of which Ping has a 19.3% interest. They all share the Anasuria FPSO.

Opportunities in the licence areas could generate value over the near term. The projects that have been identified provide field redevelopment opportunities, chances to develop existing discoveries and exploration upside which will be a focus over the next three to five years.

ME contractor Nesma takes over Kent

Middle Eastern contractor Nesma & Partners has agreed to buy global engineering and project management company Kent, it said August 1.

Kent, which had been backed by global energy investment firm Bluewater since 2015 since when its revenue has gone up tenfold to $1.4bn, is expected to become part of Nesma later this year. Nesma did not publish the price tag.

There will be no changes to the decision-making autonomy structure of Kent or its core service offering, Nesma said. Kent's leadership team will continue to deliver world-class services to the energy industry through its four service lines: consulting; engineering and projects; commissioning, completions and start-up; and operations and maintenance.

The two began collaborating in June 2022 with the creation of a joint venture, NesmaKent, the chief EPC contractor for state oil major Saudi Aramco.

Its goal is building an autonomous engineering centre of excellence to develop capabilities in engineering, procurement, and construction services relating to carbon capture, blue hydrogen, and blue ammonia.

The benefits will include improved scheduling and costs, more digitalisation, artificial intelligence, cyber resilience and low carbon technologies.

Kent has a roster of blue-chip clients, including international energy companies, national oil companies, renewable energy companies, as well as global petrochemical companies.

Nesma said: "By leveraging the strengths of both companies, we are confident that we can deliver even more value to our customers and achieve our goals for growth and success."

Kent CEO John Gilley said: "This agreement marks an exciting, ground-breaking development for Kent. With the backing and support of Bluewater over the past eight years, we have been able to cement our position as a leading global energy services provider. Owned by Nesma & Partners, the Kent brand and all our teams worldwide will have more opportunities to develop and grow our world-class lifecycle services to our clients".

Bluewater said it had enjoyed working with Kent for eight years and it was "sure that with the added support and impeccable reputation of Nesma & Partners, the future continues to be bright for the Kent business."

DNV buys US SAS company

Norwegian certification agency DNV has bought US ANB Systems, a software as a service company with which it has long enjoyed a fruitful partnership, the two said September 12.

By integrating ANB's well established business process management software with DNV's expertise, DNV said it aims to facilitate its customers' journey towards decarbonised, safe, and efficient energy systems.

Founded 25 years ago, ANB Systems has extensive expertise in digital solutions that simplify, automate and standardise processes for energy efficiency, electric vehicles, distributed generation, interconnection. The deal will enable DNV to bring products to market faster and with better integration into existing portfolios.

Bilfinger buys northwest European, US parts of Stork

Industrial services provider Bilfinger said September 6 that it has agreed to buy parts of the Stork group, a subsidiary of US Fluor Corporation.

The deal comprises operating units in north-west Europe and the US. They have more than 2,700 permanent employees and revenue of about €500mn.

The deal is expected to close in the first half of next year, subject to regulatory and works councils' approvals.

It is part of Bilfinger's aim to strengthen its core businesses, particularly in the high-performing region of the Netherlands and Belgium, it said.

Fluor said the sale advanced its strategic initiative to focus on its core businesses and capital priorities.

Stork's strong technical capabilities and geographical coverage complement Bilfinger's and will create an attractive offering to help customers in the process industry improve their efficiency and sustainability. Moreover, Bilfinger will gain broader customer access, it added.

"The combination of Stork and Bilfinger in Europe is a combination of two well-established companies, each active for about 150 years. The proposed merger of these two companies leads to a strong market position in the industrial services sector. The services provided by both companies are highly complementary," said Stork Holding CEO Taco de Haan.

Member News in brief

Corporate

CTM results vindicate strategy

Global travel management company CTM's financial year (FY) 2023 results saw revenue rocket by 70% to A$660.1mn, ahead of earnings guidance of A$648mn.

In Europe, CTM's business achieved record Ebitda of A$84.1mn – year-on-year growth of 125% was roughly twice FY19 level – and revenue was up 70% to A$143.0mn.

Managing director Jamie Pherous said: "Our performance in FY23 validates our successful strategy during the pandemic, which has given us a larger global platform. Pleasingly we are successfully converting the revenue recovery into net profit."

CTM's industry specialisms include travel management for the energy, resources and marine sectors. Global business travel has rebounded faster than expected a year ago, according to the Global Business Travel Association and Visa.

Brimmond lands ORE Catapult

Aberdeenshire-based engineering and manufacturing firm Brimmond has secured ORE Catapult's Fit4Offshore Renewables (F4OR) accreditation, it said September 3.

It means that Brimmond has proved its competence and commitment to forming an energised supply chain. Its systems, processes and knowledge are deeply embedded within the company.

The Brimmond team has also been working on its largest manufacturing project to date: a seven-figure project involving the design, manufacture, installation and commissioning of a 1.8-MW seawater jetting package.

CEO Tom Murdoch said the company was very proud of the accreditation, recognising "its hard work and extensive experience."

Bethan goes onsite

Bethan Customs Consultancy has significantly expanded its Custom Admin support service. Clients now have the invaluable opportunity to have a Bethan Customs specialist work onsite with them as an extension of their own team, it said September 14. This will save them money and time.

This groundbreaking service goes beyond traditional consultancy and training. Diane Watt, a professional from the Customs Admin team, has been instrumental in delivering this innovative approach. Ms Watt supports many companies in the energy sector.

Founder and CEO Nicola Alexander said: "We are excited about the growth potential in the customs support sector and are committed to meeting the evolving needs of our clients."

Proserv has new Saudi premises

Aberdeen-based controls technology company Proserv has moved its operations in Saudi Arabia into a dedicated, state-of-the-art facility in Dammam. The move is part of its expansion in the kingdom and follows a similar upgrade earlier this year near Chennai, India.

Close to the HQ of national oil company Aramco, the 1 km² new facility will enable Proserv to increase its digital activities. These include real-time condition monitoring and industrial automation in oil, gas and renewables.

The new base delivers key upgrades with investment directed to an in-house instrumentation calibration zone, as well as a purpose-built pressure testing facility.

3t unveils new brand

Global training organisation 3t Energy Group has unveiled its new brand showcasing its new vision and identity, it said September 5.

The new brand, launched at Offshore Europe, reinforces the cornerstones of training, technology and transformation, it said.

With eight UK and two international training centres and several expert-led sales offices globally, 3t comprises AIS Survivex, UCT, 3t Transform and Drilling Systems. They offer customers engaging and safety-critical in-person training.

CEO Kevin Franklin said the rebrand was "a natural, yet thrilling evolution of our business and our brands from where we are today."

Maersk Training, SynergyXR link

Danish companies Maersk Training (MT) and SynergyXR have set up a partnership so that the two companies can capitalise on their combined digital training expertise.

The partnership will make "learning even more immersive and accessible to learners on-demand anywhere," said MT in an August 30 statement. Learners can enjoy delving deep into realistic scenarios, such as understanding the intricacies of firefighting or doing electrical trouble-shooting from a safe distance.

MT now promises a more interactive, deeper learning experience. And with SynergyXR's diverse platform, it not only connects trainers and trainees but

Member News in brief

also bridges the industry gaps, offering unparalleled training experiences, it said.

SynergyXR said that partnering with MT went beyond technical integration: it redefined industry standards and also allowed MT a faster route to market.

People

Well-Safe sets up WSR...

International well-plug and abandonment (P&A) company Well-Well Safe Solutions (WSS) has set up a new enterprise, Well-Safe Resources, it said August 29. It focuses on deploying well engineering and project management talent worldwide.

Headed by Steve Combe, WSR will assist clients with outsourced engineering scopes, embedding specialist WSS personnel with operator teams and providing bespoke P&A decommissioning assets.

Mr Combe said he was "delighted to be joining the team at such an important period of development for the business. Well P&A activity is a specialist field with unique challenges, requiring the right mix of technical expertise, talent and ingenuity."

... and opens Asia-Pac office

The company has also appointed Massimo Delia as the first general manager of its new Australian subsidiary, it said July 20.

Based in Perth, Mr Delia has over 20 years of subsea commercial and engineering experience in a variety of strategic and managerial positions.

Australia's decommissioning agency has identified more than A$50 (£26.5) bn of work ahead. Well p&a and pipeline removal make up most of the estimated spend.

Mr Delia said: "I am eager to play my part in the next chapter of the company's growth and look forward to collaborating with my colleagues, clients and stakeholders in the UK and Australia."

ASCO appoints Australia boss

Global integrated logistics and materials management company ASCO appointed Warren McHardie as head of its Australian business with effect from July 31. He is based in Perth and the company also has offices in Darwin and Dongara.

Mr McHardie has over 20 years' experience in management roles within the marine, oil and gas, transport, logistics and automotive industries.

In an August 2 statement, ASCO said McHardie's "proven leadership capabilities, experience, and expertise make him the perfect fit to lead our team as we continue to grow our services in the region."

His focus will be on driving sustainable growth, expanding ASCO's market presence, and delivering a high level of service to customers and stakeholders.

Eolus Vint names Finnish boss

Tiina Partanen became Eolus Vint's Finland manager August 10, the Nordic renewable energy company said that day. Ms Partanen has held leading positions within both the energy field and other industry sectors including at Finnish nuclear power company Fennovoima.

Eolus has been active in Finland since 2014 and has 3.7 GW-worth of renewable energy projects in the country.

"Finland is a very interesting market for Eolus, and we aim to continue our growth there. The recruitment of Tiina is an important step in this and I am convinced that she will contribute with both competence and a strong leadership for our growing Finnish team," said CEO Per Witalisson.

Ms Partanen said she appreciated the strong values on which Eolus's operations were based and the company's knowledge gained from over 30 years in business.

BP appoints interim CEO, CFO

UK major BP has appointed an interim CEO and CFO in the wake of Bernard Looney's departure in mid-September.

Murray Auchincloss, the former CFO, has risen up to the top position and Kate Thomson, BP's senior vice president, finance for production & operations has become CFO. She has been with BP for 19 years, previously holding a number of senior financial roles, including group treasurer and head of group tax.

Before joining BP in 2004, Ms Thomson had worked in professional services firms including with Ernst & Young in M&A tax and as group head of tax for Charter. She has been a member of the board of Aker BP and other companies in the group.

Oilfield Services

Kellas starts Teesside Feed

Infrastructure operator Kellas Midstream has started front-end engineering design front-end engineering (Feed) work with Worley and Johnson Matthey on its 355-MW H2NorthEast hydrogen project in Teesside.

The final investment decision is due in 2025 with first hydrogen production coming three years later, it said in an October 3 statement. Worley will deliver a full-scope Feed package over the next 15 months, which

Member News in brief

might be followed by engineering, procurement and construction as well as work on a possible expansion project.

Johnson Matthey will deploy its leading LCH™ technology that brings over 95% carbon capture, which is higher than the UK standard specification for low carbon hydrogen.

Subsea7 finds distance is no object

Oilfield services provider Subsea7 has had a breakthrough in its remote piloting technology offering: it has put over 9,000 km between its operations in Scotland and a remotely operated vehicle (ROV) offshore Brazil. It is collaborating there with state oil company Petrobras.

Subsea7 has shown it can perform key inspection repair and maintenance tasks precisely and safely under remote control with the potential to increase operational flexibility, it said August 21.

"This was a major milestone for Subsea7," the company said. "Subsea7 has deployed remote piloting systems on ROVs in the North Sea region, but this demonstration was our first remote piloting operation conducted for Brazil."

BiSN wins QMS certificate 9001

Downhole sealing solutions provider BiSN has been awarded the ISO 9001 Certification for Quality Management Systems by the British Standards Institution (BSI).

The ISO 9001 certification is a testament to BiSN's dedication to continual improvement and its dedication to providing cutting-edge solutions within the oil and gas landscape, the company said August 24.

By undergoing a rigorous assessment of its internal processes and quality management systems, BiSN has demonstrated its ability to consistently meet and exceed customer expectations, while maintaining compliance with industry regulations and best practices, it said."

Wood, Harbour ink partnership

Engineering contractor Wood and major UK producer Harbour Energy have signed a strategic partnership covering UK North Sea operations, they said September 4. It is worth around $330mn and lasts initially for five years.

Wood will provide engineering, procurement and construction and operations and maintenance services. Digital and decarbonisation solutions are also included for a number of Harbour's offshore assets critical to UK energy security. The assets are in the J-Area, Greater Britannia Area, Solan and Armada, Everest, Lomond and Erskine hubs.

Wood said it was "incredibly proud to have been selected and trusted by Harbour Energy to partner with them across their North Sea assets."

Harbour Energy said it was "excited to develop our relationship with Wood and the signing of this contract is an important step forward in establishing our suite of long-term strategic partnerships across our North Sea assets."

EnerMech joins Total in DR Congo

Integrated solutions specialists EnerMech has won a five-year, £12mn contract with TotalEnergies EP Congo, it said August 9. The French major is building a facility at Pointe-Noire, the second largest city in DRC.

EnerMech has sub-contracted local firm Congo Services to assist in the delivery. The work scope will include specific maintenance of crane and lifting equipment and onshore and offshore parts supply for three offshore sectors.

EnerMech is no stranger to the Congo, having worked with Technip on the Moho Nord project. It has also worked with TotalEnergies in Africa before.

EnerMech VP, Africa, Steve Swanson said: "We're very pleased that [TotalEnergies] continues to see the value of the trusted and experienced service that we provide and chose EnerMech to work with them on this new project in Congo."

Hydrogen

Kent to work with Man Uni

Engineering firm Kent is to work with Manchester University on a government-funded hydrogen research project, it said July 21. It aims to reduce the cost of decarbonisation and set the UK on the path to a low-carbon future.

Named RECYCLE, the project entails constructing and testing a fully integrated innovative hydrogen production unit on site, at a cost of £5.1mn.

Kent will bring its capabilities in engineering and project development to assess the chemical looping reforming process technically and commercially, against current best available techniques.

Kent said it was "delighted" to be working alongside the university in "this cutting-edge project" as it is "aligned with Kent's purpose to be a catalyst for energy transition."

Member News in brief

Scotland eyes H2 link to EU

A purpose-built offshore pipeline to the European Union could significantly accelerate Scotland's green hydrogen production and export potential, according to a report published August 31 by the Net Zero Technology Centre (NZTC).

Funded by the Scottish government and matched by industry, NZTC's Hydrogen Backbone Link project explored ways to position Scotland as an export route to the European Union. It would repurpose oil and gas infrastructure.

The new pipeline could enable Scotland to meet up to 10% of Europe's projected hydrogen import demand by the mid-2030s and maintain it for years, while creating jobs and enable green hydrogen projects.

Europe's gas transmission system operators have been working on the development of a continental Hydrogen Backbone

South Harbour fully operational

The Port of Aberdeen's £420mn South Harbour expansion project is now fully operational, the company said September 1. The port offers 8 km of quayside, making it Scotland's largest marine infrastructure project.

South Harbour adds 1.5 km of deepwater berths (up to 15 m deep) to the port estate and can accommodate ships up to 300 m long, a significant increase on the port's previous capability of 165 m.

Her Royal Highness The Princess Royal officially opened South Harbour September 22 and a public open day was held September 24, featuring vessel tours and exhibitions from port stakeholders, among other attractions.

Technology

STC INSISO, Peterson in technology partnership

Aberdeen-headquartered STC INSISO has entered a technology partnership with international supply chain company Peterson Energy Logistics, it said mid-July. The scope will primarily involve supporting Peterson Energy Logistics with the next phase of development for its logistics technology, Lighthouse.

Lighthouse is a suite of integrated applications, built on decades of industry experience. It provides digital assurance and visibility to clients throughout the entire lifecycle of the cargo demand process.

Peterson Energy Logistics' projects and innovation director Jaye Deighton said: "We look forward to working with STC INSISO and utilising the team's expertise and proven track record in improving operational efficiency."

GreenVolt plan submitted

Offshore wind developers Flotation Energy and Vårgrønn have submitted an onshore planning application to Aberdeenshire Council for the onshore part of the 560-MW Green Volt floating offshore windfarm.

Expected to be the biggest of its kind, Green Volt will deliver renewable electricity to oil and gas platforms and also to the grid, the company said August 7.

Green Volt said: "Open and honest dialogue with local communities and stakeholders enables us to maximise the benefits of the Green Volt project to the local area while minimising any negative impacts. By stimulating a robust local supply chain, we will create nearly 3,000 jobs within the first three years and almost 100 jobs across the 35-year operation of the Green Volt windfarm.

Vårgrønn is a joint venture between Plenitude (Eni) and Norwegian private equity company HitecVision.

ESG

Neptune wins platinum for ESG

Producer Neptune Energy has won a platinum medal from the environment, social and governance (ESG) ratings organisation, EcoVadis, it said August 30. This maximum score puts Neptune in the top 1% of more than 100,000 global companies that the organisation assesses. The medal follows Neptune's best-ever ESG rating by Sustainalytics in April this year.

"Year-on-year we have improved our ESG performance and disclosures, as demonstrated by our progressively stronger ratings by both EcoVadis and Sustainalytics," it said. This is "testament to how we are delivering against our ESG strategy, including progressing our lower carbon strategy, strengthening our human rights due diligence, and building the skills of our workforce to support the energy transition," it added.

An invitation to submit your member news

Members are invited to submit news to: editorial@OEUK.org.uk

Selected items will be edited and published in this magazine and/or the Member News section of our website: OEUK.org.uk/membernews.
No guarantees of publication are given.

Guest column

Future contracts

Energy Contract Company CEO Niall Trimble compares commercial contracts for the energy transition with long-term gas deals.

Long-term sale and purchase agreements were the midwife of the European gas industry in the latter half of the 20th century. A lot of thought went into their drafting as a new, cleaner fuel could reduce the need for oil imports.

Before the days of spot trading and hubs which brought standardised agreements, buyers and sellers needed to weigh up their respective risks carefully, owing to the long-term payback needed to cover the huge investments upstream and downstream and the attendant commercial challenge of moving industrial and residential consumers to an alternative fuel.

It was key that the contract should strike a fair balance between the producer's and the buyer's interests. And both sides needed adequate protection from the vagaries of political and commercial life including competition.

Now the energy world stands on the threshold of a new era. Over the next two decades, contracts for the sale of traditional energy products such as oil and gas will increasingly be supplemented – and perhaps even replaced – by new agreements for the sale of hydrogen and for use of facilities such as carbon capture and storage plants.

This article shows how such new contracts will differ – or not – from traditional energy contracts.

Contracts for the use of CCS facilities

In many ways contracts for the use of carbon capture and storage (CCS) facilities are little different from existing agreements for the use of gas pipelines and processing facilities.

They will have to define the services provided by the facility operator and the circumstances under which services may not be supplied, such as *force majeure*, emergencies and not meeting quality specifications.

They will also cover capacity booking and penalties for any failure to provide the services and most important of all, payment. Most new contracts for sale of energy have prices linked to the price of the energy product concerned such as spot gas prices. ,But facilities contracts are often linked to a mixture of energy prices and producer price inflation (PPI). This provides a more stable revenue stream for the owner of the facility and may help with financing.

Differences in the CCS contracts may include:

- Many energy facilities have been in existence for many years and may well be fully written off. The need to raise finance to build new facilities and guarantee revenue streams may also have implications for contracts. There may be limited recourse for users in the event of plant failure and more extensive *force majeure* protection for the developers.
- All bookings will be made on the basis of capacity, rather than a combination of capacity and commodity, and these may well be linked exclusively to PPI. This would provide a more stable income stream and hence greater security for banks.
- A quality specification for CO_2 for entry into the facility.

Contracts for the sale of hydrogen

Again, many of the terms in hydrogen sales contracts will be very similar to those for natural gas. However, the hydrogen market is in its infancy and will not have the same degree of liquidity of the gas markets in northwest Europe for many years to come.

This means that initially, at any rate, contracts for the sale of hydrogen may in some ways resemble more the traditional gas sales contracts from 30 years ago rather than modern spot gas contracts.

- If alternative supplies of hydrogen cannot easily be sourced by the buyer in the event of a supplier failure, then liquidated damages may need to reflect a percentage of sales value rather than the incremental cost of replacement hydrogen.
- In order to cover financing requirements for banks, hydrogen buyers may need to provide high take-or-pay obligations to guarantee a substantial income stream for hydrogen projects.
- And there will need to be quality specifications for the supply of hydrogen.

Determining key terms in new contracts

Both CCS and hydrogen plants will be new-build, financed in all probability largely by bank debt. This will drive a number of the key contract terms. It will mean long-term contract basis of around 15 years, equal to the tenor of the bank loans.

Project developers may also seek some form of financial security to guarantee revenue streams. In the hydrogen contracts, this will mean high take-or-pay and possible additional credit security in the form of bank letters of credit. For CCS contracts for capacity, developers will probably require capacity payments equal to 100% of booked capacity and perhaps backed up by bank letters of credit as well.

Price escalation in the hydrogen sales contracts may be driven by several factors:

- Ease of securing long term supply contracts, which would probably push these deals towards the adoption of day-ahead gas prices. This could get round some of the take-or-pay issues.
- The need to on-sell the hydrogen to customers. Many of these may be large, industrial customers who are already buying gas on a day-ahead basis and who would welcome a continuation of this approach.
- Finally, hydrogen sellers and their customers may welcome an element in the pricing formula that relates the hydrogen price to the savings on carbon emission costs.

Risk allocation in the new contracts may need to reflect bankers' concerns about the financial viability of the CCS and hydrogen projects they are lending to. Normally in contracts for the use of UK facilities, if the service is not provided then there is a refund of capacity cost payments. However, some recent European contracts for capacity in LNG regasification plants do not allow refunds, even if the service is not provided. Such provision may creep into the new contracts.

Commercial sales contracts & financing

In recent years, some of the smaller UKCS gas producers have agreed gas sales contracts with buyers that provide for some up-front payment in advance of actual production.

This helps the smaller producers to finance field development.

But these deals can also involve a lower price to compensate the buyer for the risks involved. It is possible that this approach could be used in new contracts for the sale of hydrogen. The buyer would make an advance payment to aid project financing.

The risks for the buyer are that the project may be delayed and production levels be below forecast. This problem can be mitigated by a repayment period that does not start until several months after the scheduled start date and repayment volumes that are no greater than 50-60% of planned levels. However, some risks may still remain and hydrogen buyers may require some form of credit security from the project developer in order to enter into arrangements of this type.

Niall Trimble is CEO of the Energy Contract Company, based in Surrey. It assists clients with buying and selling LNG and crude oil and gas from the UKCS. It also acts as an expert witness in the event of disputes. Recent clients include the developers of LNG projects in Cyprus, South Africa and Morocco. He has worked extensively on UKCS gas sales and by 2022 he was responsible for the terms of the sale of around 15% of UK gas production. More recently he has advised several hydrogen projects on commercial agreements Formerly he worked at the one-time state-owned monopoly BG, working initially on life-of-field sales and purchase contracts.

Price & value: the GB power market

Energy Systems Catapult senior adviser Tom Luff considers possible approaches to wholesale market reform.

As the milestone targets for decarbonisation draw near, there is a huge amount to be done over the coming decade to scale up low carbon energy.

This gives added urgency to the government's ongoing review of electricity market reform.

At the moment there is a single price for power across Great Britain, despite the differing value of power around the country depending on supply, demand and availability of power lines.

Wind power has been very successful in the UK, and we need to keep the momentum going. We also have to make sure that renewable energy (RE) can be integrated into the grid – connecting it to where the demand is and being able to make the most of it when it is produced. In any scenario, connecting the renewable generation required under current arrangements to meet decarbonisation targets will require a substantial increase in cables: potentially necessitating a build rate of eight times that of previous decades. This poses an existential threat for the country's 2035 net-zero emissions power target. Alternative solutions must be explored.

We need a mix of low carbon energy sources, including nuclear and carbon capture and storage (CCS) with gas-fired power, as long as 100% of the CO_2 is sequestered.

Cutting gas emissions

But emissions from unabated gas are a problem that we will face if CCS is not built. CCS requires infrastructure for transporting and storing carbon and there will be the need for significant commercial financing. Stronger incentives may be needed to support its development.

A well-designed carbon market alongside outcome-based policy mandates – such as a requirement on suppliers to sell low carbon energy or a requirement on gas-fired power stations to reduce the carbon intensity of their power generation – would provide more effective means of driving successful deployment of the most appropriate technologies.

The future energy system will need new sources of flexibility to allow supply to match demand despite fluctuations in the generation of power that arise from variations in weather and so on. We need a level playing field between low-carbon supply (such as wind power) and demand-side measures (such as batteries) to get the most efficient mix of technologies.

To date, demand-side measures have not been able to compete fairly. RE operators have limited control over the time of delivery of their power. And a significant problem with the current energy market arrangements is that contracts for difference reward generators for producing, even when their output is not needed. This limits the incentive to store electricity for use when the wind is not blowing.

The power system needs to link up what is producing electricity with the demand for it. Markets should be designed to find the most efficient and, therefore, cheapest solutions, balancing all factors including where the renewable resource is most abundant – such as strong wind – and the distance it is from demand.

Modelling scenarios vary, but UK offshore wind generation is likely to continue to produce the majority of the renewable energy that we need. It makes sense to generate where the wind is strongest. But we need to ensure that the projects that go ahead are those that add the most value, in terms of where the demand is. This will minimise the cost to consumers connecting to the grid. When and where electricity is used has a big implication for how much it costs to produce and transport. This should be reflected in the price.

This was not something most people had to think about until recently. But the energy price crisis has shown clearly that market reform is necessary and it must go hand in hand with better infrastructure.

First, measure it...

Smart meters are an essential part of the package. Demand side response – or moving demand to meet supply – will help make the most of the renewable generation we have, reducing the amount that needs to be built and therefore bringing down costs for consumers. Consumers must be able to choose what kind of demand side response best suits their needs – and energy suppliers must develop compelling propositions to meet these needs.

Some people may be comfortable changing their behaviour to use electricity at different times. Others might invest in a battery to allow a discounted tariff reflecting the lower burden on the network.

"When and where electricity is used has a big implication for how much it costs to produce and transport. This should be reflected in the price."

Having a single price for the whole British network limits these opportunities for flexibility. Looked at in terms of capacity, the majority of liberalised power markets around the world do not have a single price. Rather, the price differs according to the place – either by zone or by node. So is not a new or untested concept and it can be done in practice.

Having a single price can also makes RE a harder proposition to sell to the public. In Scotland, local communities generally support RE but until the price of wind-generated power falls, onshore windfarms will be less attractive.

Incumbent suppliers have voiced reluctance to see the market change too much, and there are not many votes in power market reform.

With a further government consultation expected later this autumn, it will be important that meaningful reform options stay on the table in order to avoid wasted time reviving then and more challenging implication hurdles later down the line.

Energy Systems Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers capture the opportunities of clean growth on the way to Net Zero.

The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, government, academia and research. It takes a whole-systems view of the energy sector, helping us to identify and address innovation priorities and market barriers, in order to decarbonise the energy system at the lowest cost.

National Gas plans industrial hydrogen network, NIC wants natural gas-free homes

National Gas is planning a pure hydrogen network, connecting production and storage with end-users.

"Through the phased repurposing of existing high pressure gas transmission network infrastructure - alongside the construction of selected new pipelines, Project Union will create a hydrogen network of up to 2,000 km, equivalent to 25% of Britain's current methane transmission network," it said mid October.

The project is in a feasibility phase to identify a programme of 'no regrets' investments.

The programme is yielding supporting evidence to inform energy policy and enable government to make progress in realising its hydrogen ambitions, which include reaching 10 GW of low carbon hydrogen production capacity by 2030.

The day before, the National Infrastructure Commission published its five-yearly assessment recommending a national hydrogen network to connect and decarbonise major industrial centres across Britain and strengthen energy security. But it also called for an end to domestic heating running on gas – the fuel for 88% of homes in England. Heat pumps should be used instead.

Phasing out the use of oil and gas to generate electricity, heat homes and power vehicles will reduce greenhouse gas emissions, and is essential for the UK to meet its legally binding climate targets, it said.

The scale and speed of infrastructure deployment requires transformational change to planning, regulation and governance of both the transmission and distribution networks.

"The NIC's analysis demonstrates that there is no public policy case for hydrogen to be used to heat individual buildings. It should be ruled out as an option to enable an exclusive focus on switching to electrified heat."


EX

Securing oil and gas:
ExxonMobil sees a bright future

Falling carbon intensity ensures their continued use, says the US major, but coal will give way to cleaner fuels

Oil and gas will remain the principal sources of energy for the next 30 years, according to ExxonMobil's 2023 *Global Outlook*.

World GDP is projected to more than double from 2021 to 2050, with developing nations growing at more than twice the rate of developed countries

The world's emissions however will be far less than today, partly because emissions intensity has declined since the 2015 Paris Agreement.

This is the main good news, as the world's largest privately owned oil major concedes that an energy transition is underway, but not at the scale or speed needed to meet society's net zero ambitions. More oil and gas will be needed to replace depletions and limit price volatility.

Producers will therefore continue to invest upstream – as ExxonMobil's October 11 $60bn purchase of US Permian shale giant Pioneer Natural Resources and Chevron's $53bn purchase of Hess – show. Production naturally declines by 5%-7%/year without additional investment and natural gas use is projected to go up by more than a fifth by 2050, given its utility as a reliable and lower-emissions source of heat for all kinds of purposes especially power generation and as a source of blue hydrogen.

Transportation will ensure demand for oil as the world's burgeoning middle classes, notably 1bn in both India and China, are able to afford more than the basic necessities. Research by the Brookings Institution sees billions more rising out of poverty by 2030, with the global middle class almost doubling by 2030.

Industrial processes too – asphalt, chemicals, lubricants and other speciality products – will continue to use oil. Personal transport will use less oil, but "even if every new passenger car sold in the world in 2035 were an electric vehicle, oil demand in 2050 would still be 85mn b/day, the same as it was around 2010," the *Outlook* says.

Shifting balance of power

What will change is the relationship between coal, solar and wind: energy from solar and wind is projected to more than quintuple, from 2% of the world's supply to 11%, at the expense of coal. Coal demand will also give way to gas. Coal is the most polluting fuel when combusted, as it gives off noxious gases as well as CO_2.

Overall, electricity use grows 80% by 2050. Oil and natural gas are still projected to make up more than half of the world's energy supply. The utility of oil and natural gas in meeting the world's needs remains unmatched. They are energy-dense, transportable, available and affordable — and also essential raw materials.

Energy-related CO_2 emissions are projected to peak at more than 34bn tonnes/yr this decade and then decline to 25bn tonnes in 2050. But that is still more than twice as much as the 11bn tonnes in the average IPCC Low Case for keeping temperature rises below 2° C.

Developing nations will rely on an abundant supply of energy-dense fuels. For this reason, a critical goal of any energy transition will be the affordable decarbonisation of economic sectors that account for half of all energy-related emissions.

Three scalable technologies hold significant promise for hard-to-decarbonise sectors in IPCC Lower 2°C scenarios: carbon capture and storage (CCS); hydrogen; and biofuels, which can be a "drop-in substitute for fossil fuels in a low-emissions manner on a life-cycle basis."

Accordingly, ExxonMobil, which has sold most of its UKCS upstream assets, is considering reinvesting there, this time in CCS, with partners Shell in three

IEA extends its coverage to the 'transition' minerals

Minerals that are critical for clean energy technologies especially batteries and solar panels have risen up the policy and business agenda in recent years. Copper, major battery metals – lithium, nickel, cobalt and graphite – and rare earth elements are the big ones. But aluminium, manganese and platinum group metals and uranium are also relevant, the International Energy Agency says in its inaugural report on these commodities. Regular market monitoring aims to provide a clear understanding of today's demand and supply dynamics and what they mean for the future, the IEA says.

More than 10mn electric vehicles were sold last year: a 60% rise year on year. Energy storage systems grew even faster, with capacity additions doubling in 2022. Solar PV installations continue to shatter previous records, and wind power is set to resume its upward march after two subdued years. All this has destabilised prices with a knock-on effect on our ability to transform energy systems affordably. Driven by rising demand and high prices, the market size of key energy transition minerals doubled over the past five years, reaching $320bn in 2022. Demand for critical minerals for clean energy technologies is set to increase rapidly in all IEA scenarios.

But despite setbacks, the costs of all clean energy technologies today are significantly lower than a decade ago, the IEA says.

And investments by 20 large mining companies with a significant presence in developing energy transition minerals shows a strong rise in capital expenditure on critical minerals, spurred by the robust momentum behind clean energy deployment.

A broad and bold strategy is needed that brings together investment, innovation, recycling, rigorous sustainability standards and well-designed safety nets. To bolster global progress, the IEA hosted the first-ever international summit on critical minerals September 28.

licences and with Neptune in one licence (*see p8*). "If assessments prove successful, we will apply to the UK government for permission to develop the carbon storage projects, which would support the UK's ambition to store more than 50mn tonnes/yr of carbon by 2050," it said September 15.

Collaborative approach needed

The best hope for limiting emissions is broad collaboration between governments, companies, universities and others. Public policy support and generous incentives include initiatives like those in the US Inflation Reduction Act (*OEUK Magazine p24*).

ExxonMobil has clarified this in its commitment for net zero emissions from its operated assets by 2050: "As we invest in these important technologies, we will advocate for well-designed, high-impact policies that can accelerate the deployment of market-based, cost-effective solutions."

These include the establishment of carbon markets as well as taxes: "consumer preferences can also be altered over time by policies that reward choices, like a carbon tax that encourages lower-emission electricity supply."

The opposite is also true, ExxonMobil says: "Policy not enabled by competitive technology or not aligned with consumer preferences can be difficult to implement. It is hard to mandate something that consumers believe is inferior to current options."

The *Outlook* was published in August 2023 with modeling work performed in 2022 and early 2023.

Opec, IEA clash on peak oil, gas demand

In an op-ed published by UK daily *Financial Times* September 13, International Energy Agency CEO Fatih Birol highlighted research saying that this decade would see demand for oil, gas and coal reach its peak.

But given the natural decline rates in production, the peaks in demand do not remove the need for investment in oil and gas supply. This is problematic, Mr Birol warns, since the natural consequence is that there will be stranded assets – not to mention further emissions of greenhouse gases.

These are among the conclusions from this year's edition of the *World Energy Outlook* in October.

But on the positive side, demand for these fuels will peak even if there are no new policies to hasten the historic point. Coal use in China, for instance, is giving way to renewables and nuclear – helped along by a slower economy. Gas similarly is on the way out in Europe, as heat pumps spread and Europe shuns Russian gas.

Peaks for the three naturally-occurring fuels "are a welcome sight, showing that the shift to cleaner and more secure energy systems is speeding up and that efforts to avoide the worst effects of climate change are making headway," Mr Birol says.

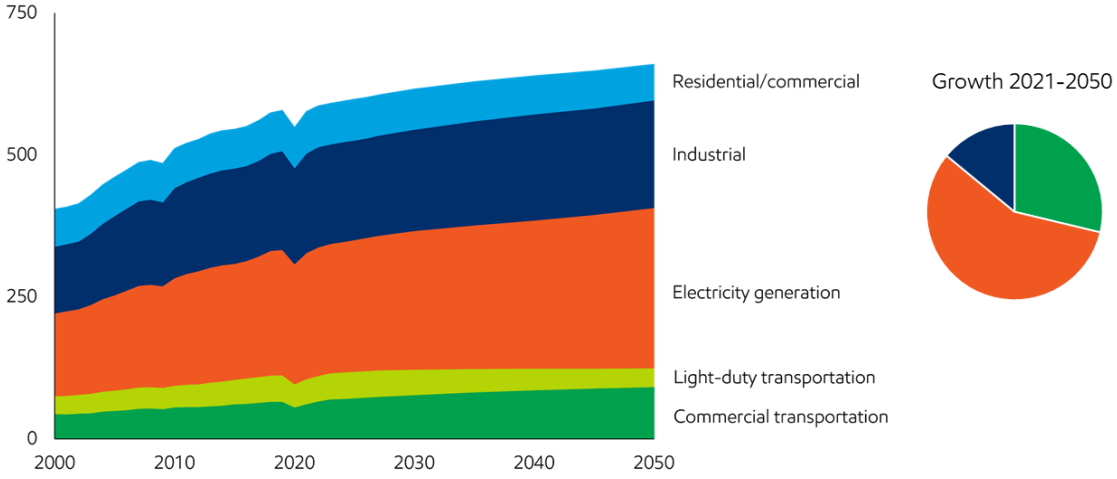
But given the projected decline rates, there is no chance that the world will limit global warming to 1.5°C. That will need faster and stronger policy action from governments. And the declines will not be linear and they will vary between regions.

The article drew a rebuttal from Opec two days later, in a statement on its website. It said that consistent and data-based forecasts did not support the peak oil assertion. It went on: " It is an extremely risky and impractical narrative to dismiss fossil fuels, or to suggest that they are at the beginning of their end.

"The difference today, and what makes such predictions so dangerous, is that they are often accompanied by calls to stop investing in new oil and gas projects," the cartel said. "Neither does it acknowledge that fossil fuels continue to make up over 80% of the global energy mix, the same as 30 years ago, or that the energy security they provide is vital."

Technological innovation is a key focus for Opec, which is why member countries are investing heavily in hydrogen projects, carbon capture and storage facilities, the circular carbon economy and in renewables.

Global energy demand by sector
Primary energy – Quadrillion Btu



Source: ExxonMobil

Mental health
How far does 'reasonable protection' legally extend?

Brodies' health & safety specialist Malcolm Gunnyeon assesses the drilling contractors' spring white paper on offshore mental health

It is only six months since the North Sea Chapter of the International Association of Drilling Contractors published its white paper "Changing minds: saving lives" in which it called for "an urgent new approach to mental health in the North Sea", but it has already delivered meaningful change.

A workshop attended by over 200 people in April resulted in the publication of a Mental Health & Well-being Charter for the drilling industry, with many organisations already pledging their commitment to it. It is hoped that the charter will help address the incredibly sobering statistic that, at any given point in time, up to 40% of those working offshore may be experiencing suicidal thoughts.

The ten-point charter (*see box below*) is both admirably focussed on, and enlightening as to the scale of, the challenge facing the energy sector.

There is no doubt that increasing awareness, delivering training, prioritising mental health and encouraging conversations combined with dedicated support and monitoring can deliver a step-change in the mental health and well-being of those working offshore. However, before any of that can succeed, the challenge of that first commitment, to initiate and embed a culture change, must be overcome.

Success will depend on employees feeling able to talk about mental health and to speak up about their own personal challenges. Many still do not and there remains a significant degree of stigma attached to poor mental health. The energy sector must address that. The development of a positive safety culture with a genuine "no fault" approach to stopping work on safety grounds is something that the sector is rightly proud of. The next step in its evolution is to ensure a culture of inclusivity and support around mental health. That is not just a moral imperative: it is a legal requirement. An organisation's safety culture will be scrutinised in the aftermath of an incident and a poor safety culture is an aggravating factor in a health and safety offence. That is true just as much for offences relating to mental health as to those relating to physical injury.

No doubt other parts of the energy sector are looking to the example being set by the drilling contractors and wondering whether they should do something similar. The answer is yes – and quickly. Despite the inherent challenge involved in embedding a fundamental culture change, the action being taken by the drilling industry makes clear what is reasonably practicable, on a day-to-day basis, in relation to protecting mental health in offshore working. Any organisation with people working offshore ignores that example at its peril.

Mens sana

The obligation under Section 2 of the Health and Safety at Work etc. Act 1974 "to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all employees" is not limited to physical health and wellbeing.

There is nothing in the wording of the 1974 Act, or any of the corresponding regulations, that limits their scope to physical risks or physical injuries. It is therefore incumbent on every employer in the energy sector to put in place all reasonably practicable measures to reduce the risk to their employees' mental health.

As with all aspects of health and safety, the critical

International Association of Drilling Contractors Charter

1. Initiate a company- and industry-wide cultural change.
2. Demonstrate transparency and accountability through internal and external reporting.
3. Build mental health and well-being awareness among employees.
4. Foster effective people management.
5. Encourage open conversations about mental health and well-being and provide employees with good working conditions, including a safe psychological space.
6. Provide comprehensive training.
7. Give mental health and well-being the same high priority as physical health.
8. Offer customised mental health support and guidance.
9. Routinely monitor mental health and well-being.
10. Share best practices.

question is what is, and what is not, reasonably practicable. In answering that question the regulators and the courts will always look at what is being done by comparable organisations and industries. The issues identified in the IADC's whitepaper are not unique to the drilling industry. They are common across the whole energy sector and as such, the example being set by the drilling contractors who have committed to the IADC's charter will become the barometer by which the whole energy sector is measured.

Stress, depression, and anxiety are now the most common forms of work-related ill-health in the UK. Although the overall prevalence of work-related ill-health has been decreasing year on year, mental ill-health is on the increase, and that trend looks set to continue, including in offshore workers. After all, they are away from the support of friends and family, and small arguments during a call home are not easily resolved from somewhere in the North Sea. Technology is also changing the experience of living offshore. Downtime is now increasingly spent alone watching television on a tablet rather than socialising with colleagues. For some that will only exacerbate feelings of isolation and anxiety.

Implementation of the behaviours enshrined in the IADC charter will benefit an organisation in more ways than just compliance with its legal duty to look after its employees' mental health and wellbeing.

"A positive safety culture with a genuine 'no fault' approach to stopping work on safety grounds is something that the sector is rightly proud of."

There is a clear correlation between good mental health in the workforce and a reduction of physical accidents. There are two reasons for this. First, fatigue, a lack of concentration and distraction – all symptoms of poor mental health – are key risk factors in workplace accidents. Duty-holders must assess the risk that a certain physical activity might pose to a team member if he is struggling with mental health.

And second, evidence shows that employees with better mental health are more engaged, and a more engaged workforce is more likely to be proactive in raising safety concerns and intervening in unsafe working practices.

Risk assessment of operational activity can easily be adapted to include poor mental health as a risk factor. However, dealing with the symptom is not enough. We need to take steps to address the underlying causes of mental ill-health in our workforce. The detail of the steps to be taken will ultimately depend on the nature of the work being undertaken and the outcome of the stress risk assessment that the HSE expects all employers to undertake. Common measures will include training of mental health first aiders, provision of confidential counselling services and management of rotas and shift patterns to reduce stress and fatigue.

Irrespective of what the law may require, supporting both the physical and mental well-being of staff is, quite simply, the right thing to do. Society now expects it of employers. At a time when the offshore energy sector's social licence to operate is in sharp focus, this is an expectation that cannot be ignored.

There is no 'one size fits all' solution, but the first step is understanding the challenges employees are facing and talking to them about any support that is required. One thing is clear: doing nothing is not an option. That could be as much of a threat to the industry's social licence to operate as failing to embrace the journey to net zero.

The IADC's development of its charter has identified a series of steps that every employer, not just those in the energy sector, can take. The IADC is to be applauded for taking the lead on this critical issue. It has shown the industry the way forward, and any organisation that chooses not to follow suit does so at its own, and its people's, risk.

Promoting mental health support offshore

Life offshore brings many hazards, apart from the purely physical. These too need serious consideration – not least because of the average worker's reticence regarding mental health, says RMI's director of UK sales, Dave Thompson.

Despite the offshore industry's recognised workplace pressures, the wind, oil, gas, and marine sectors have perpetuated the stigma regarding mental health. Not only are workers entering a highly controlled environment, but they also endure prolonged periods of time away from family and friends. Staff are expected to work in long shift patterns, often within confined spaces on a vessel or rig, which makes it difficult to even go for a walk for exercise. In this unique environment, this combination of factors can trigger new health problems and increase the likelihood for any pre-existing health problems to become amplified offshore.

According to British Medical Journal research, there is higher prevalence of psychological distress in rotational workers when compared with the general population, with the high workload and repetitive nature of offshore work being associated with mental ill health and exhaustion. Another study in 2021 revealed the prevalence of stress, anxiety, and depressive symptoms in offshore oil rig workers being as high as 25.9%, 24.6% and 30.5% respectively. Once workers become ill or are absent owing to poor mental health, this in turn can bring a high cost for businesses: it is estimated that 12bn man-days are lost every year to depression and anxiety, costing US $1 trillion in lost productivity.

While varying degrees of mental health support for workers is already in place across the sector, there is still more that can be done. RMI has provided health and safety services to the offshore industry for the past 20 years and is one of many organisations to sign up to the International Association of Drilling Contractors (IADC) North Sea Chapter Mental Health and Wellbeing Charter. The charter aims to foster and drive cultural change in how the energy sector approaches mental health among the workforce. As signatories we are committed to put into practice the ten-point plan set out by the charter, which encourages employers to consider mental health to be as important as physical health in the workplace.

RMI's involvement in this movement reinforces its reputation as remaining at the forefront of mental health support for offshore workers. Our staff regularly attend mental health conferences as best practice to ensure that our medics are continuously improving their service, identifying new avenues of support, and implementing new strategies based on feedback from the wider community.

Dave Thompson (courtesy RMI)

Our healthcare practitioners stationed offshore on rigs, wind farms and vessels around the world are responsible for the delivery of various mental health programmes, which support employees to lead a healthy lifestyle while in these challenging environments. Alongside access to 24/7 support, RMI medics promote simple practices of self-care to communities of workers: these include optimal sleep hygiene and rest, a varied and wholesome diet, regular exercise, and avoiding excessive phone use in between shifts. Mental health webinars and surveys, informal workshops, and awareness-raising campaigns are all made available, ensuring that the wellbeing of offshore workers is never neglected.

Adrian Wharam, an RMI offshore medic based on an oil rig in the North Sea, is responsible for the health and safety of over 120 crew members. Mental health

is inherently linked to physical health and, as part of his wide-ranging role, he draws on his own varied and sometimes difficult past experiences within medical and offshore environments to stress the importance of speaking out about poor mental health, reassuring workers that his door is always open to anyone, no matter how big or small their issue may seem.

Mr Wharam notes from his experiences on the rig: "A culture of silence definitely still exists in the industry. The offshore workplace has historically been a male-dominated environment, where the prevailing attitude is to 'just get on with it.' It's often considered a sign of weakness to express anything that might be bothering you. Many are also worried that they could lose their job if they admit to having any issues, which is just not true. Overcoming these challenges remains significant, but we're committed to providing the best support we possibly can for our colleagues."

Mental health programmes aren't the only initiatives that can bring these important issues to light. Other routine check-ups, such as regular intimate health clinics, facilitate one-to-one sessions which enable our health and safety practitioners to review each worker's lifestyle and record key numbers such as weight, blood pressure and body fat. In Adrian's experience, the confidentiality of these sessions means that this is where employees are most likely to open up about any issues they are experiencing which may be affecting their mental health.

At RMI, we offer tailored support depending on the individual. If a case is completely out of a practitioner's scope of work, they can refer the patient on to one of our topside doctors, to anonymous support services like the Samaritans, or to company support schemes. Our practitioners can also offer workers access to tele-psychology services if needed to set up a consultation with a psychologist. The wellbeing of each and every individual needs to be a focus and there are many ways that organisations can do this.

Nurturing a culture of openness in the offshore industry and providing comprehensive, around the clock support is essential to empower employees to have the confidence and resources to effectively prioritise their wellbeing and overall health. This will not only result in a healthier and happier workforce but in a sustainable business, setting an example for the rest of the industry.

RMI Global Solutions

RMI delivers technical, medical and security solutions to companies and governments around the world. The company has offices in the Americas, UK, and Africa, and has been recognised six times by Inc. 5000 as one of the fastest-growing companies in the United States. RMI works with Fortune 100 corporations and governments.

Website: https://rmiglobalsolutions.com/

Safety & competence

Going beyond the box-checking approach

As UK energy security remains at the mercy of mounting external risks, offshore safety standards are becoming ever more critical, writes RelyOn Nutec UK's commercial director Lee Fenton

Companies operating in our sector should do everything possible to not only meet and address the challenges posed by the energy transition, but also to make it a safe environment so that people are encouraged to work in it.

As the energy industry evolves with the integration of new sub sectors like CCUS and hydrogen we will continue to see a growing workforce with the capability to work across sectors. Training standards need to be standardised to enable workers to move between sectors faster. Competency must be addressed at the same time.

Training, in combination with ongoing competency assessments, are vital to ensure the ongoing safety of personnel and operations across the energy sector. Despite its importance, not every company places as much significance on the need for both, relying instead on training certificates to effectively check a box.

From enormous oil and gas platforms with heavy plant equipment to offshore wind turbines composed of large – and ever growing - components, energy infrastructure is, at its core, dangerous. The consequences of poor training and competency or experience – whether due to being new to the industry, or highly experienced and potentially complacent - can be fatal.

In the shadow of the 35th anniversary of Piper Alpha, a disaster that still looms heavy on the local Aberdeen community to this day, the importance of robust competency frameworks, strong leadership and a common ethos should always be at the forefront. From CEO to intern, safety should be deeply ingrained within the culture of any organisation operating in the energy sector.

What we're seeing now and will continue to see, is a melting pot of cross-sector teams who are finding their way amid changing regulations and uncertainty of training funding. Particularly in the wind industry, which is still in its relative infancy, but also way ahead of carbon capture and storage, teams are being pieced together like a jigsaw puzzle that doesn't always quite fit. But things have been improving over the last year. With more people back on rigs after Covid-19, we are seeing a lot more companies putting robust practices in place.

Ongoing talks of the energy skills passport to standardise the cross-sector skills required in oil and gas and renewables is a step in the right direction and shows signs that the sector is going some way to supporting the workforce. But, it is not yet done and dusted. And to ensure that we stay on top of safety standards, we as a sector need to be monitoring competence, as well as training and qualifications – which alone, are not enough.

Competence management systems form the backbone in maintaining the highest levels of safety, compliance and competence, to ensure that training courses do not become a 'one and done' exercise, completed just for the sake of the certificate at the end.

While training serves as the initial step towards creating a safe and efficient workforce, it is not the endpoint. Ongoing workplace-based competence assessments are essential for ensuring the continued capability of personnel to carry out the requirements of their jobs.

Competence should be a straightforward process and the growth in popularity of digital systems to manage the competence assurance process means that photographic and video evidence of tasks carried out at the worksite against specific assessment criteria can be quickly and easily uploaded in real-time. This not only speeds up the assessment process, but it also means all evidence is stored in an accessible online location which can be referred back-to for audit purposes,

commercial bids and internal verification purposes.

Ongoing programmes of competence assessment across the energy sector, including oil and gas, wind, CCUS and hydrogen, will play a pivotal role in reinforcing safety practices, and ensuring that every member of the workforce is competent and capable. Only by staying on top of who has recently done which course, and then assessing, verifying and documenting their on-the-job abilities can we truly ensure real safety.

With the energy industry rapidly evolving, prioritising safety and competence is paramount. The legacy of incidents like Piper Alpha has shown that robust competency frameworks, strong leadership, and an unending focus on safety are essential.

At RelyOn, we talk about Safety as One, an ethos that weaves its way through the workforce, from CEO to intern, but also across sectors, from renewables to oil and gas. Our comprehensive solutions go beyond training and give organisations the tools they need to effectively manage their competence and instil a safety culture across all levels. By embracing these principles, organisations can protect their workforce, enhance operational performance, and contribute to the long-term success of the energy sector.

Maximising downhole efficiency gains with data

The relative new-comer Corva is bringing value to the offshore sector with its suite of data analysis and visualisation tools. Its European business lead Phil Rudd tells OEUK how it does it.

From its origins in the unconventional onshore US gas industry in 2015, upstream software development company Corva has taken its innovative approach to real-time data management and visualisation to clients in many of the world's biggest petroleum provinces.

One reason for its rapid growth around the world is the savings it offers: clients are able to manage more rigs more effectively at the same time, with improved data quality thanks to its 24/7 remote operations team on standby to help. This means more production over the same period and so more profitability.

Word of mouth, and capital injections from oilfield service companies, have also helped the company on its way.

When it went live in 2017, it relied on a few but very large clients. Since then the company has broadened its scope of activities to include a much wider range of data. Its software is now used on one in three rigs in the US.

Corva has expanded its presence in the offshore US in the Gulf of Mexico but it is also active in the Middle East, the Far East and Europe, including the UK continental shelf. It is starting to make an impression on the international oil companies operating in Norway. Looking further ahead, clients in Africa are on its radar.

Jurisdictions vary – and so does the client

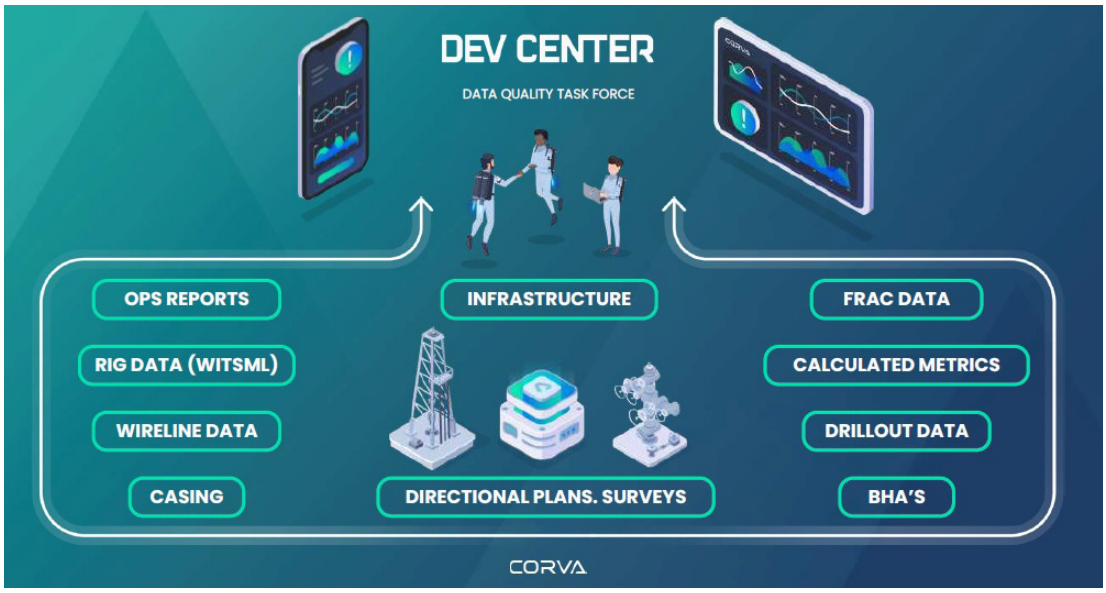
Different territories make different demands of the producer. Geology, regulations and social pressures mean unique approaches are required across different areas. Norway is one of the jurisdictions that prohibits the export of geological data, which means data must remain on servers in the country of origin.

But there is no restriction on the number of users accessing any of the data in the cloud, allowing them to see it in real time which enables a simpler decision-making process. For example, most UKCS oil and gas production is from conventional rocks and takes place offshore. And the maturity of the province means there are few surprises left for the producers.

"They have squeezed all the slack out of the system operationally, but safety concerns are where they focus their attention, operationally," Corva's senior business development manager for Europe Phil Rudd told OEUK.

Mr Rudd moved into software after over a decade spent drilling for Weatherford in Cameroon, among others locations, so he knows what data is needed, and in what form to present it, from the driller's perspective.

It is partly due to such incoming expertise that Corva's apps, designed originally to improve drilling efficiency and reliability of well completions for the hydraulic fracturing process, have been adapted to work in a



variety of geological conditions to solve a variety of problems.

In the UK North Sea, some operators have been drilling the same fields for decades and have optimised the drilling. ″But incidents can cost a month off-line, which is very expensive in terms of lost revenue and higher costs, so that is where its focus lies. Our apps now cover every aspect of the drilling process,″ he says.

Centrality of artificial intelligence

Putting artificial intelligence (AI) at the heart of its system, Corva says it can do whatever the client needs across drilling, completions and geoscience: from analytics, modelling, and geosteering visualisation to machine learning, aggregation and performance drilling. And, if it cannot do what the client wants, then its Dev Center (*see below left*) provides the client with the medium for collaboratively developing digital solutions with capital efficiency and speed.

For instance, benchmarking has enabled one deepwater offshore operator to save $13.8mn/year on shortening the slip-to-slip time.

While the time savings from standardisation may sometimes be small, if the down-hole connections for each well are sufficiently numerous and frequent and there are enough wells to add strings to, the savings can be large – and, with less downtime, bigger still in a high oil price environment. More barrels of oil equivalent can be produced each day.

The company's US founder Ryan Dawson began work in the software business and branched into the industry with the aim of making oil and gas operations more efficient by upgrading what was then embryonic artificial intelligence.

Peopled with drilling engineers, the company has developed a very wide range of cloud-based apps, some of which have been devised by an individual company that retains copyright, using the Dev Center.

"We might have something they can use our data for, which we do not know about. They can work with the Dev Center to use the data for a bespoke project because it gives them a competitive edge, or they can

"Incidents can mean a month off-line... Our apps cover every aspect of the drilling process."

license it and sell it to others as a sideline. They can put an app together in six weeks, and in some cases, using our Hackathon event, we have seen an app developed in 24 hours.

″Collaboration is hugely important for the industry, especially in the UK. We are beginning to work with the NSTA," says Mr Rudd. In the UK, it is also working with Shell on the Jackdaw project – part of the BG acquisition – and with NEO, via Petrofac. Its expertise is also being tried out in other parts of the North Sea.

Interpreting data from wells with a lag of only one or two seconds allows for the correlation of vast amounts of events in real time. No additional equipment needs to be installed: the existing WITSML already carries all the mudlogging data for interrogation and the app presents the data in an attractive way, he says.

Corva does not yet go further than offer recommendations based on the data – to do so would raise questions of liability and a "whole different world" it is not yet ready for – but a consultancy business is a possibility. For now, it is for the rig engineers to set the goals, devise the optimisation, and decide the appropriate way to stay in the pressure window, given all the data that they need from the app. "We have the data from hundreds of wells and we can see what can hold up the connection time downhole and identify the possible safety risks faster than someone scrutinising terabytes of data," he says.

The circumstances that lead up to a serious failure can also be watched for and the consequences averted the next time they seem to be close to recurring. Smooth operations have value in their own right, especially where environmental concerns are near the top of the jurisdiction's regulatory agenda.

Our industry is changing. Join us.

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