Issue 56
Summer 2023

OFFSHORE ENERGIES

The quarterly magazine for the UK offshore energy industry

Decarbonising

Can EU CCS compete with the US?
IOGP looks under the bonnet

OEUK conferences: Aviation, Exploration, CCS, Data – and many more

Kellas Midstream:
A major UK infrastructure operator prepares to grow its revenue from the opportunities arising from the energy transition

OPEX:
Applying AI intelligently to recover more oil and gas while not losing sight of emissions – James Shannon, VP Business Development

Kent:
Energy independence is a great aspiration but renewables are falling short. It is time for greater honesty, says EPC firm Kent

Vysus Group:
The former Lloyd's Register division has found its feet in independent consultancy work in oil, gas and transition-related matters world wide, its CEO David Clark says

+ Members' news & political/regulatory/commercial analysis

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Welcome to *Offshore Energies UK* #56

The run-up to the general election will intensify after the party conference season this autumn, which would be an appropriate time for the parties to take stock of the energy supply situation. A question that all candidates must expect to be asked is the importance their party attaches to the commitments made in the 2015 Paris Agreement. This is not a trick question: hydrogen market development and onshore grid expansion to match offshore power growth are challenging, given today's economy. On the other hand, heatwaves in continental Europe and low river levels supply dramatic visual cues for action, just as burning apartment blocks in Ukraine represent – along with the countless tragedies – a European energy market turned on its head.

The Conservatives' insertion of a floor price into the windfall profits tax, while welcome, has been set so low ($71.40/dated Brent and £0.54/therm for gas) and for so long (two consecutive quarters) as to appear quite out of touch with modern life. The government said it had raised £2.8bn as of June by this measure but it could cost the nation's coffers much more over the longer term, with respect to lost production, imports, jobs and taxes. It would be a sad example of the law of unintended consequences if the taxes imposed on oil and gas production suddenly ran out, with so much still to decarbonise.

But it is not a purely UK phenomenon. Continental Europe too has experienced friction as national policies rub up against realities. The Dutch government collapsed in the face of opposition to its plan to limit carbon-heavy livestock farming. France is selling nuclear power to anti-nuclear Germany, whose own access to cheap Russian gas had no back-up. Now at last it is taking a long position with LNG capacity. Meanwhile to the east, Hungary is breaking EU ranks with its more accommodating approach to Moscow and need for affordable energy. What seems to be unquestioned is that the energy transition, for all the trillions spent on it around the world, has not made a deep inroad into the share of oil, gas and coal in the energy mix.

Several companies interviewed for this and other issues of the magazine emphasise that time is running out if the deadlines for decarbonising are to be met (*see also px*). For those companies with a business model that is rooted in the UK physically, the sense of frustration is palpable. Others, with transferable skills or mobile funds, will weigh up where to put their capital. Many seem to agree that education is important: easy sloganeering must not cloud the centrality of oil and gas to our way of life. These fuels got to that position not by government decree but by virtue of their abundance, geographical spread and relative ease of handling: qualities not often found in the minerals needed for batteries and cables.

Across the Atlantic, matters are a little clearer: the US Inflation Reduction Act is held up as a way to decarbonise industry as well as boost oil production. It relies not on subsidies like the EU riposte, but on tax rebates (see the Guest Column, page 24).

But despite the clouds there is, as this magazine illustrates, a lot of buzz in our sector of industry and this must be translated into action.

We hope that visitors to our website will read this report and come away with a fuller idea of the complex work our multi-faceted industry does each day. Our conferences alone, covering exploration, the multiplying uses of digitalisation, health and safety practice, carbon capture and storage and more, show that there is a huge amount of innovation and ingenuity being applied as the imperatives of decarbonising mount. These innovations have applications in other spheres of industry – just as, indeed, this sector draws on innovation elsewhere. Sharing information, testing it and raising the quality of it is just one of the many things our industry does well.

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Cover image: FPSO *Voyageur Spirit* sails from Kishorn Port (c) 2023 A.Bryden (*see p 23*)

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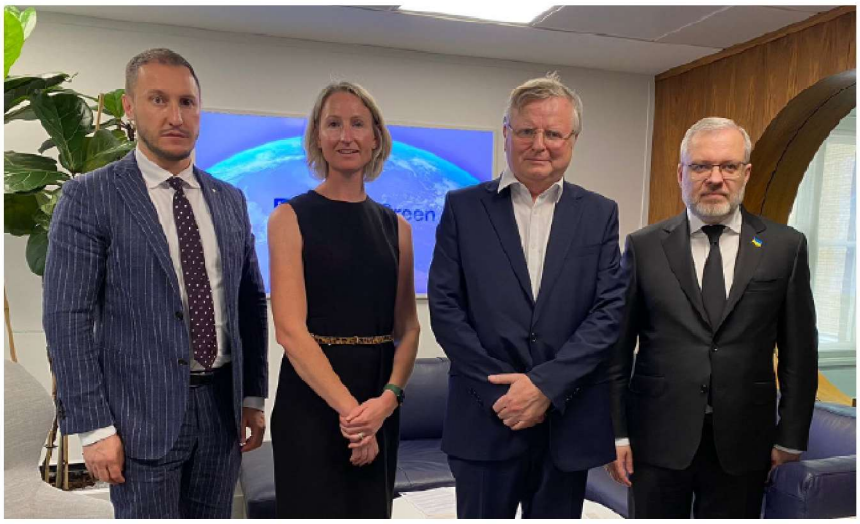
Ukraine: standing up for European security



Hands across the sea: Ukraine's energy minister German Galushchenko (far right) and deputy Yaroslov Demchenkov (far left) visited the UK in June, where they met senior OEUK executives including External Relations Director Jenny Stanning (centre, left, next to ex-Shell executive Neil Carmichael). Before taking up his present post, Mr Galushchenko lectured on energy law and led the country's legal battle against Russia for the restitution of oil and gas assets offshore Crimea, taken by force in 2014.

NSTA updates on UK offshore energy wealth

The North Sea Transition Authority has given the go-ahead to seven projects with potential to produce 100mn barrels of oil equivalent (boe) since January 2022. The total capex amounts to £1.1bn, it said May 12.

Operators further want to progress 22 projects in the coming years which, subject to robust emissions checks, are aiming at 1.5bn boe.

The figures, which highlight the scale of the potential remaining in the UK continental shelf, were presented to managing directors of the 22 largest operators at the annual Tier Zero performance review meeting.

Data from the UKCS Stewardship Survey and benchmarking insights show operators how they compare, in order to highlight best practice and ways to improve. This approach has been proven to raise standards across the industry, the NSTA said.

Efficiency fell seven percentage points to 73% in 2021 after the Covid outbreak of 2020, amid widespread maintenance shutdowns. But it bounced back "encouragingly" to 78% in 2022. The NSTA will continue working with operators to help them raise it to the longstanding target of 80%.

Regarding decarbonisation, the NSTA expects decisions to be made this year on the preferred development options for at least two electrification projects.

In addition, options to repurpose and reuse oil and gas infrastructure for low-carbon projects including hydrogen and carbon storage are being identified, forming another pillar of the NSTA's drive to integrate the UK's offshore energy systems and accelerate the transition to net zero.

NSTA CEO Stuart Payne said the North Sea boasts a vast array of oil and gas, wind and storage resources which can secure the UK's supply of cleanly-produced energy, rapidly reduce its greenhouse gas emissions, and support hundreds of thousands of skilled jobs.

Centrica boosts UK energy security

The UK's biggest energy retailer Centrica has agreed to buy 1mn tonnes/yr of US LNG from Delfin Midstream for 15 years, it said June 30. Final investment decision on the plant has not yet been taken but 2027 is the planned start-date.

The deal, with a market value of $8bn, follows a three-year supply agreement with Equinor, enough to heat 4.5mn UK homes until 2024 (which is twice the 2.4mn homes cited in the LNG deal) and its expansion of the UK Rough facility.

At the time of reopening last year, Rough could store about 30bn ft³ but now it has risen to 54bn ft³. This is still one of the lowest ratios of storage to peak demand for a European country.

"Rough can help our energy system by storing natural gas when there is a surplus and producing this gas when the country needs it during cold snaps and peak demand," it said.

Centrica's long-term ambition is to invest £2bn turning the field into the largest long duration low carbon energy storage facility in the world.

Message from our CEO

David Whitehouse
CEO,
Offshore Energies UK

The offshore industry has powered the UK for the last 50 years and has the potential to power the country for decades to come. We are fortunate that we have a world-class oil and gas industry, we have an established supply chain to build from and we have over 200,000 skilled people working in the sector.

Our recent *Supply Chain Roadmap Report* highlighted the opportunity of £200bn private sector investment in offshore energy by the end of the decade. Underpinning our ability to unlock this investment and deliver the required technologies, infrastructure and innovations we need for net zero, is earlier and more strategic engagement with our supply chains.

But make no mistake, the UK is in a global race for this energy investment - we are competing for investment with the US, European Union, and countries around the world.

With the right support, our members will anchor more highly skilled jobs up and down the country delivering sustainable long-term wealth and affordable energy security. The announcement of the Energy Security Investment Mechanism is a step in the right direction to unlock investment, but more is needed to restore confidence into our sector.

We must move away from windfall taxes and establish a stable long-term fiscal environment that encourages investment and allows a fair return across the entire energy landscape. We have more work to do to streamline our regulatory processes to provide operators, project developers and supply chain companies with greater project certainty and to accelerate investment. We need to continue to recognise that success is driven by oil, gas and renewable energy investment in an integrated system.

The demands on HM Treasury are and will continue to be significant. Historic debt, high inflation and challenging borrowing environments means that the bedrock to success and delivering growth in the economy can only be collaboration between private and public capital.

I remain convinced that the knowledge, experience, and drive our members have to make the UK a great place to invest, will turn shared ambition for the future of the UK energy sector into action and delivery.

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News

NSTA offers 21 CCS licences following 2022 formal round

The North Sea Transition Authority (NSTA) has offered 21 carbon storage licences. The last one was announced a few weeks after the first 20. "All applications have now been assessed," it said June 27.

The areas are off the west and east coasts of the UK and total 12,000 km².

The round was launched last year and was the first of its kind: previous licences were awarded case-by-case in bilateral talks with NSTA.

The government hopes that 30mn tonnes/yr of CO_2 will be stored by 2030, which is about a tenth of total UK annual emissions (341.5mn tonnes in 2021). The UK government is allocating up to £20bn supporting this new technology.

The need to share offshore space with other users of the seabed such as wind developers and petroleum operations was also considered. The seabed is a key resource area for different sectors (*see p9*).

The licensee also needs to obtain a seabed lease from The Crown Estate or Crown Estate Scotland before a project can progress. Further consents and approvals will be required ahead of any appraisal activity taking place on carbon storage licences.

NSTA CEO Stuart Payne said: "This is an exciting and important day. As a nation, we cannot meet our decarbonisation targets without carbon storage. This is net zero delivery in action.

"The UK's offshore waters remain the crown jewel of our energy mix, providing energy security, emissions reduction and carbon storage. This will require more and more integration and collaboration in a crowded space, and we are working closely with governments and agencies such as The Crown Estate and Crown Estate Scotland to ensure we maximise this amazing potential."

OEUK CEO David Whitehouse, welcoming the news, said: "The UK's offshore oil and gas industry has the expertise needed to make carbon storage a success – and these licence awards can showcase our heritage of energy production skills to the world.

"If we get this right, it will not only help the decarbonisation of heavy industry, power generation and manufacturing globally but also create growth and export opportunity for industrial communities across the UK."

The CCS Association CEO Ruth Herbert said: "This first carbon storage licensing round from the NSTA is a vital step towards unlocking the UK's full CO_2 storage potential. Given the climate emergency, we hope this will be the first of many such rounds and that further sites around the UK will have opportunity to apply in the near future." (*See also pp14-15.*)

NSTA amends E&P licence

For the first time, NSTA has revoked parts of petroleum licences insofar as they relate to Fujairah Oil and Gas UK 12, it said May 12. The licences remain in force for the other parties.

It did so because UK12 did not meet regulatory requirements. The NSTA is committed to supporting UK energy security of supply and, works to ensure that the right assets are in the right hands so that production is maximised while supporting the drive to net zero.

Notices were served on UK12 in January 2023 and as no further change of control was arranged the NSTA used its powers to revoke its part of the licences.

Piper Alpha: the dangers on offshore platforms can never completely go away

The 167 people who tragically lost their lives in the Piper Alpha North Sea oil rig disaster were commemorated in Aberdeen July 6, marking the 35th anniversary.

The memorial service took place in the North Sea Memorial Rose Gardens at the Piper Alpha Memorial, at Hazlehead Park.

The service was conducted by Gordon Craig (Oil Chaplain), alongside Calum McIlroy, an accomplished musician who played a composition written especially for the service. There was also a traditional piper.

The service included a prayer; an Act of Remembrance where the victims' names were read out; one minute's silence; and the laying of wreaths.

OEUK's HSE and Operations Director Mark Wilson (*left, addressing the OEUK/Step Change in Safety Awards*), said: "Our thoughts remain with the families, friends and colleagues who lost loved ones and we will never forget those who did not return home. "This anniversary serves as a stark reminder that we can never be complacent about ensuring safe operations in our industry. "The safety of our people has to be at the heart of all that we do, day in and day out, 24/7, because we all need to be able to go home safely.

"With each year that passes, safety remains very important and, working closely with Step Change in Safety, we will continue to strive to do our utmost to protect the workforce from harm both offshore and onshore."

Climate hopes fade as emissions rise

Independent reviews of the world of energy supply and demand published this spring have made uncomfortable reading for many governments that have pledged to cut emissions.

Economies were also badly damaged as countries that rely on imports were hit by very high prices for gas and coal.

The causes of the shortages are well known, including war in Ukraine; under-investment upstream for some years; Covid-related drilling campaign postponements; and tighter access to finance, at least in the OECD countries. One of the few items of good news was China redirecting LNG to Europe, but that was unpredictable and fortuitous.

But the international oil companies that have said they will spend more on upstream oil and gas to meet rising demand have not been given an easy ride in the media either.

In the UK, the politically independent Climate Change Committee (CCC) expressed serious concern over the government's expanded national carbon budget delivery plan in June.

"Despite over 3,000 pages of new detail, the CCC's confidence in the UK meeting its goals from 2030 onwards is now markedly less than it was in our previous assessment a year ago. A key opportunity to push a faster pace of progress has been missed," it said.

"UK greenhouse gas emissions have so far fallen 46% from 1990 levels. At COP 26 [November 2021], a stretching 2030 commitment was made to reduce them by 68%. In the remaining seven years, the recent rate of annual emissions reduction outside the electricity supply sector must therefore quadruple."

Stepping back for the bigger picture, the Energy Institute (EI) and partners KPMG and Kearney found the dominance of fossil fuels was largely unchanged last year at almost 82%, even though wind and solar both saw the biggest ever increase in newbuild capacity.

In the 72nd annual edition of what used to be BP's *Statistical Review of World Energy* (*OEUK Magazine #55*), the EI said in early June the data were skewed by Russia's invasion of Ukraine, the side-effects of which included sharp cuts in pipeline gas exports to Europe, a rewriting of global LNG trade and the trebling of European gas prices (*OEUK Magazine #55, p22*).

Globally, gas demand fell by 3% and its share in primary energy dropped from 25% to 24%.

Coal prices also reached record levels, with demand – thanks mainly to China and India – at its highest since 2014. Emissions rose 0.8% year on year to a new high of 39.3 gigatonnes.

The president of EI, Juliet Davenport, said: "Despite further strong growth in wind and solar in the power sector, overall global energy-related greenhouse gas emissions increased again. We are still heading in the opposite direction to that required by the Paris Agreement."

And Norwegian Equinor's *Energy Perspectives* agreed, saying the world is "far from being on track to meet targets and ambition set out in the Paris Climate Agreement."

Analysis by the company's head economist Eirik Waerness also points out the awkward fact that partly because of Europe's call on LNG to offset the loss of Russian gas, emerging economies in Asia had to use more coal to satisfy their own demand for energy.

EC launches international gas tender scheme ahead of winter

The European Commission (EC) has launched the first international tender for joint gas purchasing as a new mechanism for improving security of supply.

The EC says the mechanism will be instrumental in joint preparations for next winter and that it will make the best use of the storage filling season.

Europe's gas hub prices had been relatively low for much of the spring and summer, as demand for gas for storage injection was slowing, although they were still much higher than before the invasion of Ukraine. Pipelines between the UK and the continent mean that spot prices in the two markets are very closely linked.

Aggregate EU, as the tender mechanism is called, was set up following the December 19, 2022 formal adoption of the Solidarity Regulation.

Anyone may offer to sell, apart from Russian entities and entities who are also bidding for gas in the same auction. Once within the EU, gas may be freely traded across national borders. The EC has also advised countries to cut their gas demand by 15%.

Over 100 companies registered as buyers under the free-to-use mechanism, which enters all unpriced bids for gas into one, competition-law-compliant unit. In the first tender, LNG accounted for nearly a quarter of the total bid (11.6bn m^3).

EU states have to fill their gas storage facilities to 90% of their capacity by November 1, 2023. Competition rules will apply to exchanges of information under the mechanism and only the buyer and seller will know the terms of any contract. But the EC will be notified of the results with some data shared for tracking and transparency.

The EU aims to purchase 15% of its annual gas storage targets jointly and supports a timely refilling process.

Under the rules of the mechanism, the bilateral exchange of confidential information must be limited to what is necessary to negotiate and implement agreements. The exchange of commercially sensitive information in this context needs to be justified. (*For the UK-US LNG import scheme, see over.*)

UKCS gas output steps up in winter as Europe turns to LNG

Britain's gas supplies were adequate last winter, despite the reduction of Russian gas. Consumers kept a close eye on prices as expensive LNG did the heavy lifting

National Gas (NG)'s analysis of the past winter's gas supply and demand balance in Great Britain shows an increase in UK continental shelf output. This was in response to the extreme shortage of pipeline gas through the usual channels, mainly from Russia, it said in a mid-June document, *Winter Review & Consultation*.

NG, the gas transmission and metering business which has now been unbundled from the power business (National Grid), had expected flows to be steady at around 100mn m³/day. In the event, they averaged 103mn m³, slightly higher than the year before. NG is expecting a similar volume this winter too (*see Table 1*).

This reverses a trend and is a reminder of the importance of domestic reserves, even in a market-driven environment. Pipeline gas cannot flow very far before price signals draw it back again, while some expected LNG cargoes might never arrive.

NG expected Norway to deliver around 100mn m³/d in last year's *Winter Outlook*. In the event, total Norwegian production was lower than forecast. Shippers prioritised Europe where prices were higher, meaning flows to GB were down, at just under 80mn m³/d. However, this changed during a cold snap in December when prices at the National Balancing Point exceeded the Dutch Title Transfer Facility. Not only was domestic heating demand up – although many householders kept a close watch on the thermostat as bills rose – but there was less renewable energy generated as well. NG therefore expects Norwegian gas to flow to the higher priced market this coming winter too.

NG was spot on with its forecast that LNG would be the main source of flexible supply. Total supplies of 15.7bn m³, mainly from the US and Qatar, were the highest in a winter period to date.

Average daily supplies of 86mn m³ of regasified LNG came close to peak capacity and were 37% higher than the same period last year.

UK storage facilities played a vital role in security, enabling the UK to manage without EU imports for nearly all the time. The peak was seen on January 17 when 70.2mn m³ entered the NTS, breaking an 18-month record. By winter's end, inventories were higher than at the same point the previous year. Centrica brought on phase 1 of Rough, the depleted gas field off Easington, and now a year later it has expanded it. The facility was 60% full by December and it was still 27% full by mid-March when injections restarted.

Household demand was down 11%, which was seven percentage points more than NG had expected, in response to prices. However, the expected 8% cut at daily metered industrial sites in the local distribution zones did not materialise, perhaps owing to a combination of government support, longer duration fixed-term contracts and less opportunity to flex demand. They cut demand by just 4% and NG expects similar demand suppression this year too.

As always, power generation is a wild card. The consultation points out that more renewable energy leads to greater volatility in gas demand each day. Renewable generation output rapidly changes in response to weather conditions. Last winter, the range of daily gas demand for power generation widened yet further, from 9.4mn m³/d to ten times that: 95.9mn m³/d, putting the machinery under stress.

UK winter gas deliveries* (*bn m³*)

Origin	2020-21	2021-22	2022-23
UKCS	17.0	16.9	18.8
Norway	18.7	18.9	14.4
EU	4.8	0.5	0.06
LNG	8.9	11.4	15.7
Storage	2.1	1.9	2.68
Total	**51.5**	**49.6**	**51.7**

** Oct 1 - Mar 31*
Source: National Gas

Government intervenes on supply, prices

The government spent £39.3bn protecting households and businesses from spiralling energy bills between October and March, it said June 8. The government covered around half a typical household bill over the winter. Chancellor of the Exchequer Jeremy Hunt said energy regulator, Ofgem, was able to lower the price cap from £3,280 £2,074 in July.

Businesses and other organisations benefited from a £5.5bn boost under the Energy Bill Relief Scheme, the government's primary non-domestic support scheme. A further £933mn went on other support schemes, including those living off-grid and using alternative fuels. such as LPG.

On the supply side, a UK-US Energy Security & Affordability Partnership signed last December envisages "at least 9-10bn m³ over the next year via UK terminals from the US." The White House statement said it would "look to identify opportunities to support commercial contracts that increase security of supply."

Seabed users seek firm access rights

OEUK hosted a mid-May workshop in its London office to discuss the best mechanisms for allocating access to, and the use of, the UK seabed.

There are numerous competing interests to be balanced so OEUK welcomed the Seabed Users & Developers Group (SUDG) and the Department of Environment, Fisheries and Agriculture (Defra) to agree Marine Spatial Prioritisation (MSPri).

SUDG includes renewable project operators, mineral associations and cable-layers. The Crown Estate and the Marine Management Organisation are also involved.

The purpose of the workshop was to think through some of the key barriers to greater co-existence/co-location that are present; how these barriers could be overcome; and to contribute to Defra's work, leading the government's MSPri programme for English waters.

It was an extremely fruitful session, with all marine industries coming together, along with a number of regulators and wildlife charities.

It will be followed by further stakeholder discussions and events. OEUK will keep members updated on progress through the Southern North Sea Environmental Technical Group. For further information please contact cbrown@oeuk.org.uk

As stewardship of the seabed is a devolved power, Wales and Scotland will be looking at this separately. The SUDG is for anyone who uses the seabed, from the intertidal zone to the median line.

The meeting followed the March 7 parliamentary reception (*#55, p13*).

OEUK launches employee diversity survey

OEUK has launched its annual survey into offshore diversity and inclusion (D&I).

Compiled in collaboration with Brook Graham, a global consultancy firm specialising in D&I, it analyses data relating to the age, gender, ethnicity, religion and other characteristics of all the employees.

OEUK's workforce engagement and skills manager Alix Thom said the aim was to assess the rate of progress and change in workforce perception since the first such survey in 2021.

"It will help us identify opportunities to share good practice, while pinpointing areas for improvement," she said late June.

OEUK membership and industry workgroups will distibute the survey to all and it can also be accessed through OEUK's social channels.

OEUK's beach-cleaning day removes 168 kg

June 5 was World Environment Day and 2023's message was 'Beat plastic pollution.' To mark the occasion, OEUK and members spent the afternoon at Greyhope Bay in Aberdeen where we collected 168 kg of litter. There are an estimated 5,000 pieces of plastic on every mile of UK beach: if we all do a little to help, we can make a big difference.

Windfarms seek OFTOs

Britain's energy market regulator Ofgem briefed prospective investors on the £7bn of offshore transmission owner (OFTO) assets to be auctioned in 2024 and 2025. About ten offshore assets will be going under the hammer.

The guest list for the May 30 event included major names in investment banking and asset management, Ofgem said, alongside ministerial and energy industry representatives.

The assets comprise prebuilt transmission connections for offshore wind farms and provide guaranteed returns for 25 years subject to availability targets being met.

Competition law means the wind farm owner may not also own the transmission network. The windfarm developer can build the transmission connection to its own specification, with full control over timescales, then be repaid the cost of the asset when it is auctioned off. The developer can then recycle that capital into further developments.

Now 11 years old, the OFTO regime has so far brought in investment for 24 assets, with several now going through the process. The next two years will see a surge, reflecting the government's target of 50 GW of offshore wind by 2030, which is ten times more than now.

Ofgem's interim director for Infrastructure and Security of Supply Akshay Kaul said: "OFTOs are an important part of a multi-billion-pound investment Ofgem is facilitating through its regulation of energy networks. They deliver on energy security and affordability for Britain's consumers by reducing our reliance on expensive imported fossil fuels."

Those bids will then be assessed by Ofgem with offshore transmission licences granted to successful bidders, in a process that usually takes one to two years.

The Spectator Energy Summit: investing at a time of austerity

The UK has built an oil and gas industry that is now laying the foundations for a clean energy future. But how capable is it of securing the vital investment needed to get to net zero? The Spectator's Energy Summit in June shone a light on the state of play for industry and policy-makers alike.

The UK is in a race for energy investment and it is critical that it does not miss any opportunities. Enabling OEUK members to continue investing in the UK and decarbonising its energy production and supply is essential to the long-term economic health of our country. It reduces the money spent on higher carbon imports and creates wealth.

But whether or not the UK can capture these opportunities depends on decisions taken outside the industry, according to speakers at this year's OEUK-sponsored event.

Bold though the government's ambitions may be for a home-grown energy transition, it is not clear how realistic they are. Public funds are scarce, owing to the cost of living crisis, characterised by rising inflation and the accompanying wave of public-sector disputes, some settled with pay rises. And in the background is the war in Ukraine, undermining energy security and affordability.

But launching technologies that do not pay for themselves until the operators can create economies of scale – a difficulty posed and solved by the wind industry and government through contracts for differences – means that some form of state guarantees will be needed. And private funds, which piled into the UKCS a decade ago, have many other jurisdictions competing for their money.

Speaking on the OUEK panel alongside Sian Lloyd Rees, the academic Nick Butler and Peter Aldous MP, CEO David Whitehouse said: "The UK obviously has some fantastic advantages."

These include wind, fields for carbon storage and still to be tapped resources offshore – perhaps 15bn barrels of oil equivalent. "But I think the most important thing is that we also have the people and skills. And many of those are already working in our current energy sector, including with oil and gas," he said.

This is the crux of the green energy transition: putting the existing energy industry to the service of the green transition.

"When it comes to that transition, collaboration is key," Mr Whitehouse said. "That includes collaboration between the government and industry, but also between different sectors within that industry."

So where are the opportunities for that collaboration? For Sian Lloyd Rees, the UK head of Mainstream Renewable Power, one obvious example is floating wind farms. These could be the next evolution of wind power as the turbines may be harnessed to power rigs sequentially as fields are depleted.

"The technology in that market is very different from the current generation of offshore wind," she said. "But the oil and gas sector already has expertise in deepwater floating units and subsea dynamic cabling."

The consensus seems to be that the oil and gas industry, with its people, skills and capital, will be important for the 2050 goals, as long as there is cross-sector collaboration.

Militating against that though is the lack of a strong, home-growj alternative to other green investment opportunities that the US in particular has been working on. While the UK may punch above its weight in areas such as science, contracts and innovative engineering, the Opposition has also sent some loud and negative signals regarding the prospects for medium- to long-term oil and gas investment.

Time is also not on the side of producers and investors: the major financial commitments in green energy need to be made in the coming year or two, to allow the complex ties between compliant finance, contracts and licensing to form and create a firm basis for profitable decarbonisation by 2030.

But there are not many compelling reasons for companies to stay in the UK. The government's new floor price for the windfall tax will make little difference. Despite the best efforts of the North Sea Transition Authority, there is a strong chance that otherwise economically recoverable reserves will be left behind, unless the government introduces a more favourable approach soon. Missing these opportunities will benefit other gas suppliers, outside the UK.

Aviation Seminar: safety management and helicopters

OEUK hosted its all-day Aviation Seminar at its Aberdeen office June 8, drawing over 70 attendees. As with the equally successful Health & Safety Conference in March, the theme was 'leading and learning'.

Fixed wing and rotary wing (helicopter) operations are vital for transferring the offshore workforce to installations on the UK continental shelf. Helicopters provide a practical and efficient solution, and no other method would allow the same degree of mobility. Helicopters are also needed to evacuate and respond to emergencies.

With over half a million individual passenger movements every year, aviation risk remains a major accident hazard and the annual aviation seminar aims to support the continued safe operations by bringing together experts, regulators, and stakeholders to discuss emerging issues and find solutions for them.

Opening the proceedings, OEUK Health & Safety manager Graham Skinner highlighted a number of challenges facing offshore helicopter operations. One comes from contracting practices that have pushed aviation operations into unsustainable territory. Supply Chain & People director Katy Heidenrich detailed the progress made in this direction by industry work groups, improving the procurement principles that could be more widely adopted in this industry. The session also featured KPMG's operations transformation partner Al Adedayo. He pointed out that lowest-cost procurement is not consistent with environmental, social and governance issues.

The second session, on regulatory compliance, industry guidance, and assurance, featured OEUK HSE & Operations director Mark Wilson who highlighted the updates of OEUK aviation guidelines. And SMART Global Solutions' CEO Darren Edward explained how modern technology can increase the overall visibility of compliance, which is critical in aviation operations. "If you think compliance is expensive, try non-compliance," he said, quoting a former US attorney-general.

And HeliOffshore CEO Tim Rolfe and its director of operations Jim Evans described the work their organisation is doing to provide high-quality, fit-for-purpose guidance for helicopter operations around the globe. The final presentation of the session was from the International Association of Oil & Gas Producers (IOGP) Aviation Sub-committee, represented by Harbour Energy's aviation advisor Colin Cheesewright.

He updated delegates on the status of the IOGP Report 690 series of documents related to Offshore Helicopter Recommended Practices (OHRP). They assist in the safe, effective, and efficient management of offshore commercial helicopter transport operations.

The final session of the day was dedicated to learning from others operating in shared airspace. Pete Lowson, of the maritime emergency service HM Coastguard UK, described the challenges of search and rescue in modern offshore windfarms. And Orsted's aviation advisor Jacob Bach Medel and Unifly's crew training manager Mads Neilson described how the two companies work together to deliver effective operational support for windfarms. They use helicopters to winch people and equipment up to the nacelles of turbines hundreds of feet above the sea.

Swire Energy Services' global business development manager Nathan Munro described the differences between oil, gas and renewable energy operations and how Swire is passing learnings between the sectors.

The session also heard from G+ about the organisation and the development of aviation guidelines, represented again by Mr Medel. G+ is a global health & safety organisation for the offshore wind industry, working in partnership with the Energy Institute. This session covered the similarities and differences between operations in sectors. Finally, Ian Rogers of Consortiq described the challenges of using beyond-line-of-sight drones in complex airspace. He cited the example of a project to deliver chemotherapy medication in the Solent to illustrate the many factors that need consideration in order to enable operations in offshore energy in the future.

Speakers and attendees alike were impressed by the event and OEUK looks forward to hosting further constructive discussions next year.

Conferences

Exploration: CCS & ILX possibilities resonate with geoscientists

OEUK's annual Exploration & Subsurface conference, held in London jointly with BEOS, attracted over 70 delegates to what turned out to be a lively event (*see right*). This was despite the political rumblings as pre-electioneering campaigns crank up and the mood-music about new upstream operations becomes increasingly discordant.

The application of geoscience skills was the unifying factor: geoscientists are also fundamental to delivering the building blocks of the energy transition.

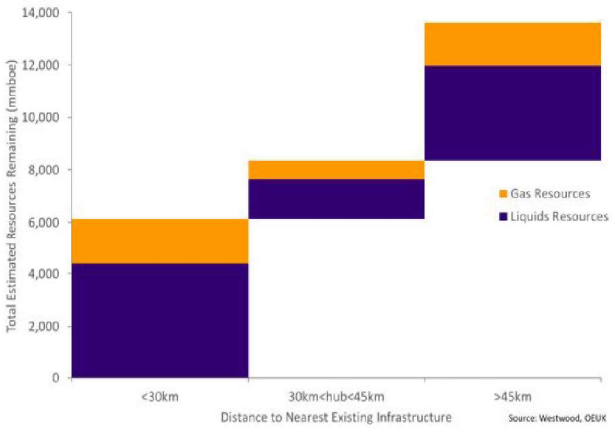
Chief among these is carbon capture and storage. The Northern Endurance Partnership for example recently completed its evaluation of a site, using the same conventional fluid sampling methods to determine the *in-situ* fluids that are used in oil and gas exploration.

The trend for exploration and appraisal (E&A) wells over the past five years has not been pretty. In 2019 the offshore regulator North Sea Transition Authority (NSTA) set a target of a five-year rolling average discovery rate of 200mn boe. Since then, the UKCS has recorded a rolling average of 120mn boe, which is barely half that.

However, 2023 could see more wells. The year started off strong, with Shell, Deltic and One-Dyas reporting that their highly anticipated Pensacola drilling revealed a lot more oil and gas in place than expected (*see p18*). Other discoveries have also been reported at Shell's Orlov field in the central North Sea, but the risk of dusters remains. But the TotalEnergies operated Benriach well was reported by 25% partner Kistos to be sub-commercial in mid June.

Upstream consultancy Westwood has indicated that the UKCS can expect to see seven exploration and four appraisal wells (E&A) drilled this year. With three E&A wells including Pensacola and Isabella already drilled, the rest of the year could be a little busier. Another consultancy Wood Mackenzie, is similarly optimistic, seeing 15 exploration wells that could be drilled in 2023, including Ithaca's K2.

ILX prospects awaiting further work



The UKCS still holds opportunities, most notably through infrastructure-led exploration (ILX). OEUK's *Exploration Insight 2022* found that resources totalling 6.1bn boe lay within 30 km of existing infrastructure, split two-thirds oil and one-third gas.

And of the 6.1bn boe, 3.6bnboe are 170 prospects greater than 10mn boe, indicating the potential for ILX projects in the UKCS.

ILX opportunities offer a multitude of benefits to exploration companies and investors alike. Their speed of development and the second wind they give existing infrastructure offer a cost-effective way of developing prospects and delaying decommissioning.

During the conference, four operators competed in a 'Dragons' Den'-style pitch to farm out shares in their prospects. The session was high stakes, with strong audience engagement, and our thanks go to Finder Energy UK, Reabold Resources, Tangram Energy and Ithaca Energy for taking centre stage.

The quicker pay-back period also helps improve UK security of energy supply which has seldom, if ever, been so tested for such a long period in recent times. As well as higher energy costs, harder-to-secure debt finance and climate compatibility checks, there is the ever more vocal court of public opinion.

Summing up the exploration landscape, the UKCS continues to develop cost-effective fields, albeit at a slower rate than was the case pre-Covid. With an anticipated 14bn boe in reserves and resources the UKCS still has plenty to give. But extracting them needs government encouragement.

The official conference finished with a lively panel discussion with the NSTA, Athena Energy, oilfield services company SLB, Bloomberg NEF and active Young Professionals debating the topics of the day. We extend our thanks to supporting sponsor RockRose Energy and to the Young Professionals Sponsor, Ithaca Energy. And we also thank those who took the time and trouble to prepare and deliver their excellent presentations.

All Energy gives level platform to oil, gas and new technologies

At this year's All Energy conference in May, OEUK's team was out in greater numbers than ever before. Taking place at Glasgow's Scottish Exhibition Centre, the UK's largest renewable and low carbon energy event broke all previous records with a total attendance of 9,700.

Overall, OEUK's direction of travel came across clearly to the capacity audience.

It was the perfect opportunity for OEUK's CEO David Whitehouse to network with leading figures from across the energy spectrum, five months into his new role. It was also an important occasion for him to meet Neil Gray MSP, the Scottish government's Cabinet Secretary for Wellbeing Economy, Fair Work and Energy, and to hear from him about the priorities ahead for the new-look Scottish government.

OEUK fielded three expert speakers at the conference reflecting the offshore energy sector's commitment to decarbonising the UK's energy system. Mark Wilson HSE director (*middle*) gave a presentation about what the sector is doing to securely meet the UK's energy needs during a session focused on energy security and net zero; the role of geopolitics and UK offshore resources.

He noted that while UK energy consumption is falling, oil and gas continue to meet 75% of the UK's needs and currently renewables are yet to make a significant contribution to the energy mix.

Thibaut Cheret (*top*), OEUK's wind and renewables manager, participated in a session about Innovation and Targeted Oil & Gas (INTOG) which plays a key role in supporting the North Sea Transition Deal's commitment to decarbonise energy through offshore wind-powered electrification.

He provided an update on the recent INTOG leasing round for offshore wind projects and explained how it will directly reduce emissions from oil and gas production and boost further innovation.

The session also included work under way to support supply chain companies so they are well positioned to support the UK's ambition to become a leader in floating offshore wind energy.

And at a fringe event organised by global energy consultancy Xodus, OEUK's supply chain and people director Katy Heidenreich joined an all-women discussion (*below, second from left*) on whether the sector is doing enough, fast enough to meet net-zero targets. She outlined key priorities including the work being done to stimulate investment in the UK and amplify efforts to promote oil and gas supply chain capability.

The event also gave an opportunity to highlight OEUK's Supply Chain Roadmap, a key tool in helping companies prepare for and transition to new energy opportunities. in the UK and amplify efforts to promote oil and gas supply chain capability.

Thibaut Cheret

Mark Wilson

Katy Heidenreich

CCS Breakfast: policy gaps delay valuable projects

Guest speakers at OEUK's carbon capture and storage (CCS) breakfast briefing in Aberdeen were enthusiastic about the prospects for this new business opportunity for the UK oil and gas industry.

Manufacturing and power generation alike need a functioning CCS system and the UK government has promised £20bn in long-term support. There is also a stick, in the form of the emissions trading scheme which will include heavy industry and power generation next year.

And much of the heavy lifting for CCS infrastructure has already been done. The NSTA says: "Dozens of pipelines could be repurposed, potentially saving operators around £7bn, massively helping future project economics."

But investors still do not yet have the confidence to commit funding to a technology with so many moving parts in the regulatory, political and commercial areas of the investment decision process.

This puts the government's 2030 target for CCS volume at risk as the outstanding issues may take a few years to resolve before taking final investment decision; and construction will take a lot longer.

Chaired by OEUK's head of policy and sustainability Mike Tholen, panellists including Harbour Energy's Steve Cox, Wood Group's Keith Anderson, Storegga's Catherine Witt and Liz Wells from the sponsor Deloitte's unpicked some of these problems. Harbour and Storegga are backing the Viking and the Acorn CCS projects respectively.

CCS vital for heavy industry

Mr Cox said that CCS was essential if hard-to-abate industries were to stay in business in the UK: steel, cement and glass would not manage without cost-effective storage of CO_2. The technology therefore is not merely a fig leaf to allow continuing gas production as long as possible, as some of its detractors claim, he said.

Agreeing, Mr Tholen said CCS should be seen as a way of enabling UK industry to continue functioning at scale throughout the transition.

Mr Cox added that the UK Energy Profits Levy makes it difficult to raise capital and companies might choose exploration in Asia or CCS projects in the Americas instead. "There is only so much money to go round," said Mr Tholen.

On the other hand, Mr Anderson made the point that at least the Wood engineers were "very enthused" about tackling the challenges. "They see it as an important contribution to the energy transition," one that is "able to retain some of the brightest young talent," he said.

Some kind of subsidy, such as a state-backed contract for differences, is needed to kick-start the market until the volumes are sufficient to lower costs to the point where a merchant model can develop. "We need scale for viability," Mr Cox said.

The window is closing with respect to projects for late 2020s injection start. "All the projects that are now in motion need certainty that they can complete the journey, he said. "We hope government will assist us to pivot our skills and resources: it could be an incredibly effective way to meet net zero emissions."

As a hedge against low local supply of CO_2 from Humberside industry, Associated British Ports is also backing the project. It would ensure adequate berthing is built in time to accommodate waterborne deliveries of liquid CO_2 from elsewhere.

With its major role as an energy supplier and refiner in continental Europe, new project entrant BP could make use of the site. "Shipping could play a material role ahead of 2030, outwith the industrial clusters," Mr Cox said.

CCS though is not a purely UK interest and other countries might provide the necessary financial incentives to supply and to accept emissions first.

The project can also support the development of new critical infrastructure over the next decade, providing an estimated £4bn of gross value add to the region and creating up to 10,000 jobs in construction.

Stakeholder support

Harbour is materially progressing with onshore pipeline consents and is talking with industry and power generation in the Immingham region.

Harbour, Storegga and Wood spoke of the need to ensure

Mr Tholen, chairing, with (L-R) Steve Cox (Harbour); Søren Reinhold Poulsen (Ineos); Catherine Witt (Storegga); Keith Anderson (Wood) and Liz Wells (Deloitte)

stakeholder and social support through honest consultation with communities along the route of pipelines carrying CO_2. In the absence of an agreed quality specification, Harbour for example, classifies the gas as a hazardous liquid in its engagement with the public.

"This has enabled a very concise safety conversation," he said, and it had been positively received by the public in Humberside and north Lincolnshire. Storegga said it also thought transparency was key in dealing with the public at large, said Ms Witt. But there are some things harder to bring to light: Ms Wells said that government policy did not mention hydrogen or CO_2 pipelines, which allows for ambiguity in how they would be licensed.

There is no mandate for anyone to provide a connection in the same way that one would to a gas pipeline, she said. Nor is it clear how to create a system architecture, future-proofed for the capacity needed, once CCS extends beyond clusters – the long-term goal.

Wood has been in supply-chain transition projects for a very long time, including the US, where Mr Anderson said the Inflation Reduction Act could draw away skills and equity.

On his wish-list is a quality specification for CO_2. "This is very important," he said. "A guideline that gave certainty would help with engineering and set a target to work towards." He also said that there could be a squeeze on materials as a number of projects coincide.

Data & Digital Conference: harvesting value from data

The answer to many of the challenges facing upstream companies lies in the more advanced use of data and digitalisation to streamline operations.

As engineering firms Kent and OPEX and others say elsewhere in this issue of the magazine, there is environmental and economic value to be extracted from understanding better the performance of wind turbines, compressors, and other remote assets. And acquiring that understanding requires constant monitoring, measuring, recording and comparing vast amounts of data.

OEUK's Head of Data & Digital, Dan Brown *(above, left)*, says these technologies will play a vital role in the delivery of an integrated offshore energy system, underpin energy security, and drive net zero prospects.

That was his synopsis of OEUK's Digitalisation Conference in June – a yearly event that promotes joined-up, cross-sector thinking on digitalising as a powerful weapon in the decarbonisation effort.

"Collaboration across the different parts of the energy sector will enable this transition to take place much more quickly," Mr Brown said, speaking after the flagship conference. "That's why conferences like this are so important – they get the right people in the same room at the right time to share success stories and learn lessons."

The conference built on the work of the Offshore Energy Digital Strategy Group, and OEUK hosted the event with support from the North Sea Transition Authority, the Net Zero Technology Centre, and the Open Data Institute with sponsorship from AMDARIS.

The day comprised interactive sessions including presentations, panel discussions and case studies, giving delegates ample opportunity to learn and help to shape the UK's digital offshore energy ecosystem.

Providing a platform to bring all of these ideas together, the event allows the industry to big strides on things like establishing common data principles across sectors, building shared data platforms and toolkits and environmental and social governance data applications, plus cost-effective ways of using digital twin technology to boost business value.

"The consensus is that the success of offshore energy integration and digital innovation lies in creating a strategic and common vision for digital skills across the whole sector," added Mr Brown, highlighting the need for collaboration.

The Offshore Energy Digital Strategy will provide a blueprint to unlocking a lot of untapped opportunities in that regard. "The OEUK digital conference is the right place to dive into it, hone the way forward, and prepare for the future," he added. "The Offshore Energy Digital Strategy is a truly cross-industry endeavour, and this joined up and complimentary approach is critical to its success."

Grampian Pride: OEUK marches in the sixth Aberdeen event

OEUK joined groups from its membership and the northeast UK to participate in its first Grampian Pride parade May 27.

Thousands of people marched down Aberdeen's Union Street in a colourful celebration of self-affirmation, dignity, equality, and increased visibility for the LGBTQ+ community.

The UK offshore energy sector has a rich and diverse heritage, with a global reach, employing people from across the world and from every part of society.

OEUK's Shared Values committee was keen to demonstrate that, as the industry's trade association, it will actively support and attract those who reflect the richness of talent in our society, to empower and truly unlock the potential that everyone has to offer the energy sector.

As a proud and openly gay member of OEUK staff, I was touched by the enthusiasm to participate from the organisation, from both LGBTQ+ staff and allies and the two OEUK offices.

Effective allyship is a crucial part of tackling discrimination and creating more welcoming environments, for both our staff and across the membership.

Allyship is a continuous process and practising good allyship creates a more welcoming environment, not only for LGBTQ+ staff but for everyone. Taking concrete steps towards greater inclusivity is a key part of fostering diverse and welcoming workplaces across the sector.

Sometimes this means uncomfortable conversations and the need to challenge discrimination in the work place, but it can also be a fun and beautiful celebration of the different groups within our workplaces.

We are a diverse community with the courage to champion positive change – this is OEUK's shared values statement. And as we champion the industry, we will also champion the diversity of the workforce across the sector, both during Pride month, and after it (returning next year for the seventh Grampian Pride).

– David Evans, Senior External Affairs Officer (back row centre, below)

Young Professionals and networking in the post-Covid world

OEUK hosted its second Young Professionals (YP) event and first in-person session of the year June 8.

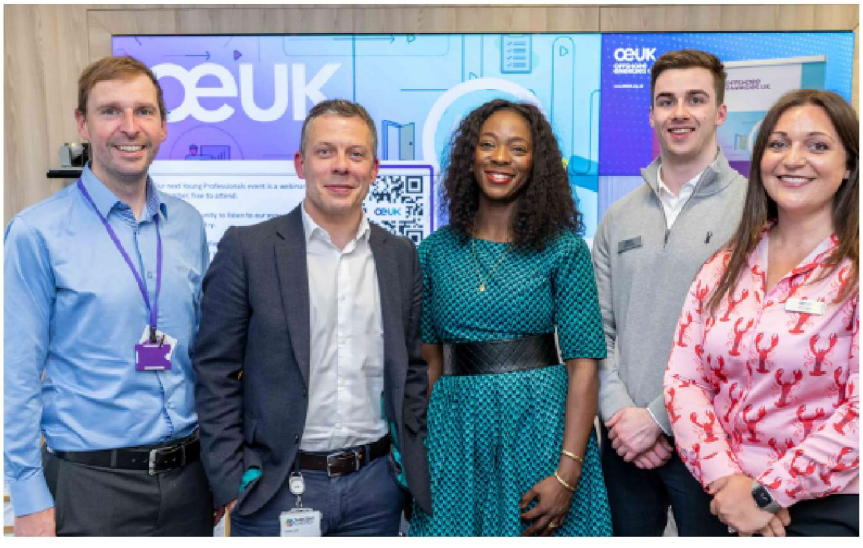
Over 70 delegates – graduates and those just starting in the industry – attended the OEUK Aberdeen office to tackle the daunting challenge of networking in a post-pandemic world. Most were under 30.

They heard from a panel of experienced professionals from across the industry including THREE60 Energy, Katoni Engineering, Harbour and OEUK.

Attendees were given insights into the value of networking, how to network effectively and the steps to take after the initial meeting.

Panellist Fraser Wyness, OEUK Executive Advisor (*second from right*), said afterwards: "It was wonderful to be joined by so many young professionals at the most recent YP event in our Aberdeen office.

"Networking can be a daunting experience, no matter your seniority, so hearing the perspectives of those in attendance was a wonderful learning experience for me. It was great to discuss the benefits of creating and developing new relationships. I am looking forward to attending our next in-person YP event and putting my new skills and knowledge into practice."



The aim to give those just starting in the industry a first-class opportunity to network, learn and engage with leaders across the industry.

Our next Young Professionals webinar will be September 14, with the next in-person session December 7. In the meantime, there are plenty of opportunities to engage in OEUK events See the events page on our website to sign up: https://oeuk.org.uk/events.

– Ben Ward, business advisor and YP

Member News M&A

Neptune exits market

Neptune Energy has agreed to sell nearly all its assets to Italian energy company Eni for $4.9bn, it said June 23. Subject to approvals, the deal is expected to close early next year. As part of the deal, Norwegian Vår Energi simultaneously signed an interconditional $2.3bn purchase agreement with Eni for Neptune's Norwegian assets, meaning Neptune's global business was valued at $2.6bn. Eni owns 63% of Vår.

Neptune's business in Germany is not part of the transactions and will continue to be owned and operated by the ultimate existing Neptune shareholders as a standalone group.

The existing upstream portfolios of the companies are low-carbon-intensity gas-focused and have complementary geographic exposure, Neptune said. Set up in 2018 and formed partly from French Engie's upstream assets, the deal includes oil and gas production in the UK – notably the Cygnus gas field – the Netherlands, Algeria, Egypt and Indonesia – as well as liquefaction capacity in Norway.

Commenting, its chairman and founder Sam Laidlaw said: "This transaction offers a new and exciting phase for Neptune, with significant growth opportunities supporting energy security and the energy transition, which will benefit from Eni's and Vår Energi's larger scale and available resources."The company also scores highly in its ESG criteria (*see overleaf*).

Prax takes over Hurricane

Private equity-backed hydrocarbons refiner and marketer Prax has bought Hurricane Energy, following approval of its £249mn bid from the North Sea Transition Authority. Hurricane CEO Antony Maris said the proposed transaction was "in the best interests of our shareholders."

In a trading statement May 26, he said: "The delivery of a technically skilled and commercially efficient, debt-free company enhanced our industry reputation and attracted outside investor interest. All this is a great credit to the team's ability and commitment... Strong operational performance at the Lancaster field and strong operational performance helped the strengthened Hurricane's finances."

All Hurricane's directors who held shares were in favour of the deal as well as two of Prax's shareholders: Crystal Amber and Kerogen.

Prax Group CEO Sanjeev Kumar Soosaipillai said: "Our long-term strategy is to be fully integrated across the oil value chain from upstream to downstream, and today marks the beginning of a new chapter for the Prax Group.

"The acquisition of Hurricane Energy is a natural progression for the Group, and will create unique opportunities for synergies with existing Prax-owned assets, as well as demonstrating our ongoing commitment to building a solid and transformative supply chain to meet the needs of our customers for many years to come."

Kistos cuts country risk with Norwegian side-step

Private upstream company Kistos used some of its profits from sales of production to expand its activities into Norway. Until late May it had been active only in the UK and the Netherlands, which have both hiked taxes on petroleum sales.

Mime Petroleum brings estimated 2P reserves at Balder and Ringhorne of 24mn barrels of oil equivalent (mn boe) at the end of 2022. In addition, Kistos estimates Mime has net 2C resources of 30mn boe, mostly additional upside in Balder and Ringhorne plus the 2021 King oil discovery. Following the acquisition of Mime, Kistos' resources are about 80mn boe.

Kistos executive chairman Andrew Austin said: "The focus now will be on immediately integrating Mime into Kistos. We look forward to working with Mime's experienced management team and leveraging their valuable knowledge of the assets and basin."

He said that Kistos' Dutch subsidiary is out of scope of the charge but added the company made a provision for it in its results just in case, "pending further clarification and the outcome of legal challenges from other parties."

Commenting more generally on the effects of the UK Energy Profit Levy, Mr Austin said: "Cancelling or scaling back North Sea projects and diverting capital elsewhere will have significant implications for local energy security of supply."

Ithaca becomes buyer of last resort for Shell's Cambo stake

Ithaca Energy and Shell have reached an agreement that could speed up the final investment decision to develop the west of Shetland Cambo oilfield, the Israeli-owned producer said in a May 5 stock-exchange announcement. It involves buying all or some of Shell's 30% stake, depending on the outcome of the six-month marketing campaign that Shell has just embarked on.

Ithaca CEO Alan Bruce said: "Securing a new owner for Shell's stake is an important step in Ithaca Energy progressing to final investment decision."

He also said the company needed better fiscal terms following the windfall tax: "We are actively engaging in a constructive manner, with the UK government in pursuit of the fiscal stability required to make critical investment decisions that will support the UK's long-term energy security."

A number of companies have said that the present gas price threshold is too low to make any difference to the application of the tax. It has to remain lower than today's price – which is partly a seasonal event and partly owing to low storage injection availability in Europe – and for as long as six months.

Cambo is the second largest undeveloped oil and gas discovery in the UK North Sea. It is expected to produce at less than half the CO_2 intensity than the average UK field, meaning the average UK basin intensity will fall. Shell dropped its plan to develop the field in 2021.

Member News

Exploration & Production

Deltic raises hopes for Pensacola reserves

Exploration company Deltic has hiked its estimate of the Pensacola resources, with recoverable oil now accounting for as much as 30%, it said July 12.

Estimated gas and oil in place could be 342mn barrels of oil equivalent (boe), which may translate into almost twice as much recoverable gas and oil as originally thought: gross P50 estimated ultimate recovery of about 99mn boe, compared with 50mn boe immediately after the completion of partner Shell's well.

CEO Graham Swindells said the discovery was "transformational for Deltic" and reinforces the quality of our technical team and the Deltic model of taking licences from award through to successful drilling.

JOG, NEO agree on FPSO for Buchan area

Jersey Oil & Gas (JOG) and NEO, as the incoming operator of the Greater Buchan Area (GBA) licence, have decided to use a floating production, storage and offtake vessel (FPSO). This is not only the cheapest option but it also gives the lowest full-cycle carbon footprint, JOG said in a stock-exchange statement July 4. It may be hooked up to one of the floating wind power developments that will be near the GBA and the key commercial terms for its use have been agreed.

All in, the cost of developing Buchan will be around $900mn. "The preferred development solution aligns with the North Sea Transition Authority (NSTA)'s obligations to maximise the economic recovery of reserves and assist with achieving the UK government's net zero target," JOG said. The same day it said the NSTA had approved a three-year extension to the second term of the P2170 "Verbier" licence, whose development will be part of the GBA.

Neptune's 11th well at Cygnus starts up

Operator Neptune Energy and partner Spirit Energy have begun producing gas from the 11th well at the Cygnus gas field in the southern North Sea, they said April 27. The tenth well began production earlier this year.

Neptune said: "We're taking steps to boost North Sea gas production which reduces the UK's reliance on less secure and more carbon intensive supplies of imported energy, and also supports the government's aim of achieving energy independence by 2040."

Spirit added: "Continuing to secure reliable and responsible supplies of energy from the UK continental shelf has never been more important."

The new well is expected to produce about 4,000 barrels/day of oil equivalent. Together with the 10th well which started up earlier this year, the Cygnus facility is expected to produce enough gas to meet the needs of around 1.9mn UK households.

ESG rating boost

Sustainalytics has given Neptune a very high rating for its environment, sustainability and governance (ESG) performance, the privately owned operator said May 9. It is in the top 3% of all global oil and gas companies in terms of reducing its exposure to ESG concerns.

As financing oil and gas companies becomes trickier, investors may consider these ratings when eyeing up investment prospects.

IWS comes up with frac data app

Digital control technology developer Intelligent Wellhead Systems has introduced the inVision™ Mobile App, it said June 22. The pioneering technology gives instant access to key wellsite operational data.

It is the latest addition to the company's portfolio of digital technologies for completion operations, further enhancing safety and reliability. It said its "incident-free safety and reliability track record continues to encourage oil and gas operators to adopt a digital infrastructure to improve wireline and hydraulic fracturing operations."

Blythe H2 well beats guidance

First gas has flowed from the Blythe H2 well in the southern North Sea, operator IOG said mid-June, adding that the teams did "an excellent job".

The well came on-stream within a week of its initial three-month guidance and at a higher flow: 42mn ft³/d, compared with 30mn-40mn ft/d guidance.

Strong collaboration with Petrofac (well operator), Shelf Drilling (rig contractor), ODEAM (in-frastructure duty holder) and Perenco (terminal operator) all helped with the safe and efficient execution of the well.

However, "mindful of current gas market and balance sheet risks," it has deferred appraisal drilling of two appraisal wells and releasing the jack-up rig from its contract after Blyth 2 operations are finished.

Its mid-June statement also said the new price floors in the Energy Prof-its Levy were too low to make much difference. "Greater focus is needed on developing domestic low carbon gas supplies to displace higher carbon intensity LNG from over-seas and improve security of supply," it said.

Energy Transition

Fennex expands in RE sector

Aberdeen-based digital tech company Fennex plans to spend £1.2mn on speeding up its growth in the renewable energy sector in the coming three years. In the process it will create up to 12 'green' jobs, it said June 20. The company partners with oil and gas operators and service companies to improve health and safety reporting through its digital safety observation management solution, BBSS (see

OEUK Magazine #53). It is also developing bespoke digital solutions to optimise operational performance and capital project management. Now, it has set its sights on bringing those benefits to the wind energy sector. The investment includes a grant of almost £200,000 from the Offshore Wind Growth Partnership, backed by Ocean Wind and Equinor. Fennex said the funding was "a significant milestone in transitioning our ground-breaking technology and expertise to the offshore wind sector."

OPEX, Repsol Sinopec extend terms of ties

Following a three-month trial of OPEX Emissions.AI technology on its Piper Bravo platform, major UKCS producer Repsol Sinopec is extending the software to several other assets. This aligns with its emission management plans, the parties said in a May 17 statement.

Repsol Sinopec said: "The technology will allow us to visually access granular energy and emis-sions intelligence through an intuitive web-based platform and identify quantifiable emissions reduction opportunities."

OPEX Group added: "While the development of leading-edge digital technologies is at the heart of what we do at OPEX, partnering with progressive companies like Repsol Sinopec and supporting them on the ambitious journey to Net Zero is what drives us every day." (*See also interview, p38.*)

ExplicitApS drone tech wins ISO

Pioneering Danish company Explicit ApS has received accreditation for its new drone-based technology that monitors fugitive methane emissions, it said April 21.

It now has ISO 17025 accreditation, the first of its kind in the world, which means the oil and gas industry may use its "sniffer" drones to verify methane emissions at site level, thereby complying with UN flagship reporting and mitigation programme OGMP 2.0.

CEO Jon Knudsen said this was a "breakthrough" in the level of accuracy and transparency offered. "We can enhance efforts to identify sources and optimise emission reduction initiatives. Being able to provide a solid quality framework around the monitoring adds additional value and contributes to better data integrity overall in climate reporting and projections," he said. The drone is also sensitive to N2O and CO2.

Synaptec wins £1mn for wind work

Scotland-based network power monitoring system supplier Synaptec has received a £1mn order from controls technology manufacturer Proserv, the companies said June 1.

The sensor system assemblies will be integrated into Proserv's ECG™ cable monitoring system for deployment on a major offshore wind farm. They will enable the operator to monitor the condition and integrity of inter-array cables.

Synaptec has already had orders for systems being deployed on the Dogger Bank Wind Farm A & B and on Equinor's Hywind Scotland, the world's first floating wind farm.

It said permanent, passive electrical monitoring is a critical ingredient in the automated scrutiny of offshore electrical infrastructure. "We are now scaling up production to deliver the system in the coming months," it said.

Kent lands Berwick Feed contract...

UK engineering firm Kent has won another major contract for SSE's Berwick Bank offshore wind project in the North Sea, it said April 26.

The front-end engineering and design contract follows Kent's recent successful delivery of the concept design.

Berwick Bank is in the outer Firth of Forth and has the potential to deliver up to 4.1 GW of installed capacity. This makes it one of the biggest offshore opportunities in the world.

Kent said it was "delighted to continue to support" SSE, following successful completion of the foundations and substation topside concept design phase.

...& Grenian H2 Feed

In early June, Kent said it won the front-end engineering design (Feed) contract for Grenian Hydrogen's six electrolytic hydrogen projects. It described the cluster of projects as "a huge step forward for the future viability of green hydrogen."

Grenian Hydrogen, a joint venture between Progressive Energy, Statkraft and Foresight, has secured government funding to develop six green hydrogen projects within the HyNet cluster in the industrial region around Liverpool Bay.

The projects will all incorporate permeable electrolyte membrane electrolysers with Kent building the OEM technology design into complete hydrogen production, storage, and delivery facilities.

Kent said its inhouse hydrogen technology expertise built up over decades of early design and Feed work on hydrogen developments, including HyNet would enable it to meet the deadline on budget.

People

RMI hires senior execs

Remote technical support specialist RMI has strengthened its senior leadership team, it said July 7. The former CEO of BP Bob Dudley has joined its Board of Directors while Dr Simon Le Clerc has become Director of Business (NHS). Mr Dudley, originally at Amoco, ran the TNK BP joint venture in Moscow before becoming the CEO of BP in 2010 for ten years. He now chairs the international Oil and Gas Climate Initiative.

His experience of key markets will aid the company's continued

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growth in the energy sector, RMI said. Dr Le Clerc's background includes emergency medicine within the NHS and a career in the British Army.

He is responsible for identifying and developing support services to the NHS. RMI said the two would "bring something truly special to RMI, each with a level of industry-specific experience that will only reinforce our position within multiple sectors to support our clients."

...& inks deal with Dogger

RMI is supplying the 3.6-GW Dogger Bank wind farm with on-site medical support, it said mid-May. Workers are 130-190 km from the coastline and exposed to environmental extremes, so RMI has played a key role in protecting workers in this remote and hazardous job site, it said.

RMI said: "While any approach of an offshore medic should be first and foremost preventative, our medics are prepared to deal with major incidents or an evacuation if required." RMI has Global Wind Organisation accreditation.

Spirit hires technical services, HSES head

Centrica-controlled producer Spirit Energy has appointed Scott McGinigal as its director of technical services and health, safety and environmental matters, the joint venture said July 5.

Mr McGinigal formerly held various leadership roles at CNOOC, including managing its major projects and its business and technical services. His role will cover many of Spirit's operations, including HSES, projects, wells, engineering and the supply chain. He said he was "delighted to be joining a team with a proven track record in decommissioning, substantial gas assets and a strategically significant and world-class carbon store in Morecambe." Spirit Energy is planning to develop a carbon storage site at the Morecambe Bay fields, following the award of a licence. The giant fields were developed as a major winter supply resource by British Gas in conjunction with Rough, the partly revived storage site.

Tendeka picks veteran as adviser

Global completions specialist Tendeka has appointed oilfield services veteran Paul Clark as global advisor for production enhancement, it said June 1. Based in Dubai, Mr Clark will oversee sales, business development, marketing and commercialisation activities where there is a strong chemical supply element.

His remit will ensure collaboration with the technology, research and development, engineering, subsurface engineering teams and other functions within the business.

His most recent role as a commercial director and area manager for Arkema Oilfield Chemicals will benefit Tendeka's product and globalisation drive. Tendeka said his "unparalleled experience" would help it expand its product portfolio.

OPITO promotes Lisa McKay

OPITO, the global safety and skills body for the energy industry, has promoted Lisa McKay, CIPD, to director of people and corporate services, it said May 23.

Ms McKay joined OPITO in 2021 following a 20-year career in operational human resources management and organisational development. Her promotion to the leadership team means in-cludes responsibility for modern apprenticeships including OGTAP apprenticeship programme.

Ms McKay said she was delighted to take on these new areas of responsibility: "Having been part of OPITO for the last two years, I know first-hand the important work we do supporting ever-changing needs of industry."

J+S Subsea hires eco-law graduate

Subsea controls specialist J+S Subsea has hired an environmental law graduate as it hopes to bring its annual turnover to £10mn in a few years.

Kairvee Tyagi will join J+S Subsea's journey towards net zero. Her work has already included creating an environmental, social and governance policy; surveying the supply chain; and tackling waste.

J+S Subsea has also had advice and expertise from economic development agency Scottish En-terprise seeking information for customers and the wider supply chain.

J+S Subsea 's head Phil Reid said: "In welcoming Kairvee to the team, we have further under-lined our commitment to ongoing enhancement of our green credentials as well as deepening our ethos of achieving growth by ensuring we have the right people on the team."

Training & Safety

Aberdeen Port launches HSE awards

Port of Aberdeen's inaugural Health, Safety & Environment (HSE) Awards attracted more than 35 organisations who had a stake in "a safer, healthier and more sustainable port."

Energy logistics firm Peterson won the 'Port Health and Safety' award for its Goal Zero strategy: four of its key operational areas achieved that goal last year.

In a May 3 statement, the port said its awards "provide a unique stage to showcase and celebrate the outstanding achievements of companies and individuals who go above and beyond to set exemplar standards and contribute to building a safer, healthier, and more sustainable Port of Aberdeen."

CompEx launches hydrogen course

Certification body CompEx has launched an online course, *An Introduction to Hydrogen*, to raise safety awareness. The explosive and hard-to-transport gas is among the low-carbon tools that are expected to play a crucial role in industry's and transport's transition to net zero. But so far its use in the UK has been confined to refineries where it is also produced.

It offers a 45-minute overview of hydrogen, the benefits of its use, safety considerations and protection measures. It compares the gas with conventional fossil fuels.

CompEx teamed up with EUTEX International, one of the approved training providers of CompEx courses, to help. The course is for sale at CompEx's online store.

AIS adds ECITB course

AIS Survivex has added a new ECITB training course, SBT 02, it said May 23. The course is aimed at those who install and assemble cone and threaded connections and have completed SBT 01 qualification.

Small bore tubing failures are widely reported as one of the biggest causes of hydrocarbon releases in the oil and gas industry so training in the correct assembly and installation of small tubing systems is critical.

AIS Survivex is the UK's largest provider of ECITB programmes and has invested heavily to replicate engineering construction environments at its sites in Aberdeen and Newcastle.

Maersk Training signs up Seadrill

Danish Maersk Training has won a three-year training management service (TMS) contract with Seadrill, a global offshore drilling contractor and existing client. The award followed a competitive tender and covers some 3,100 personnel and 16 assets, it said June 15.

Under the new contract, Maersk Training's dedicated TMS team will work in close partnership with Seadrill to provide an efficient training booking and administration service for all of Seadrill's training and competency requirements worldwide.

Maersk Training said that its high-quality, tailored training to meet specific needs were key strengths. "We look forward to working with Seadrill to ensure the highest levels of safety and competency across their global workforce," it added.

Oilfield Services

Aker Solutions, Equinor ink SWIFT deal

Aker Solutions has contracted with fellow Norwegian Equinor to deliver the first Submersible Wireless Installer for Tubing (SWIFT™), the engineering firm said June 12.

Its market advantage is a long list of operational cost and carbon-footprint savings by providing umbilical-less tubular hanging (TH) installations and retrievals that streamline operations. In automatic mode, SWIFT reduces the risk of human error by eliminating handling in the hazardous area known as "the rig red zone".

The assignment, at Norway's Johan Castberg field, will last about two years and covers 18 TH installations, starting June 2024.

SWIFT™ was developed in partnership with Envirex and will be manufactured in its facilities in Bryne, Norway.

Semco Maritime eyes expansion

International engineering and contracting group Semco Maritime has agreed to buy German Wind Multiplikator, it said June 1. The combined service business will have 455 employees operating across the entire offshore wind service value chain.

Multiplikator manages offshore wind farms and projects and offers engineering and consulting services. Included in the deal is its subsidiary Offshore Wind Solutions. No mention was made of the price tag in the Semco Maritime statement. Semco Maritime wants to leverage growth opportunities in the offshore wind market, which is expected to quadruple by 2030. Semco Maritime's aim is to become the global leader for large renewable infrastructure projects and in the operation and maintenance of offshore wind farms in particular.

Semco, Total co-operate off Denmark

Semco Maritime has won a five-year contract to supply field support personnel for core crew and campaign positions offshore Denmark, it said June 29. Starting in July 2023 it covers offshore positions on assets operated by French TotalEnergies. The group has established a deep understanding of the Danish rules and regulations as well as the specific needs of TotalEnergies through a long-term partnership that includes redeveloping the once large Tyra field. "We greatly appreciate the vote of confidence from TotalEnergies in Semco Maritime with this order," it said in a June 29 statement.

Altrad secures work at SABIC petchems plant

Altrad has secured a 4.5 year, multi-million pound contract with SABIC starting July 1. The contract has the option of four extensions, each of one year and relates to fabric maintenance at the Saudi company's petrochemical complex in Teesside, northeast England, The engineering contractor said June 29. Altrad said it looked forward to working collaboratively with SABIC. The

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contract builds on Altrad's long-term relationship with SABIC, which spans several decades.

The award of these contracts will significantly increase the scale of Altrad's teams working for SABIC, adding over 170 new people to create a team of over 200 on the site.

Corporate

Hyme awards Semco storage EPC

Energy storage specialist Hyme Energy has awarded Semco Maritime an engineering, procurement, and construction (EPC) contract related to its planned molten salts storage project in Esbjerg, Denmark. The plant will use proprietary corrosion control technology and be a game-changer for molten salt energy storage.

The engineering phase will be completed in the second quarter, with the subsequent installation phase ending in the fourth quarter of 2023.

In a May 9 announcement, Semco Maritime said the partnership would result in a "brilliant sustainable solution for the energy sector." Semco Maritime would leverage its oil and gas legacy in the service of the energy transition.

ASCO raises funds for charity...

Global integrated logistics and materials management company ASCO has raised more than £20,000 and volunteered time over the past year in support of projects internationally, it said April 27. Since its creation in 2008, the organisation's philanthropic arm has raised over £100,000.

Activities ranged from Aberdeen to Trinidad and from Canada to Australia in support of orphan-ages, food banks, shelters and medical assistance

ASCO CEO Peter France said: "We know from the feedback we get that [our teams'] efforts are making an enormous difference to their local communities and the people who live in them.... As a business we are committed to giving back to our local communities but the extra value to that comes from the generosity and commitment of our employees."

...& appoints new CFO

ASCO has appointed Tony Wright as its new Group Chief Financial Officer (CFO) following the retirement of Gary Paver, it said July 3. Mr Wright was most recently Group CFO of Lamprell PLC based in the United Arab Emirates (UAE). ASCO CEO Peter France thanked Mr Paver for his contribution to the growth of ASCO in his three years in the post.

Absoft sees growing S/4HANA demand

Aberdeen-based SAP® consulting firm Absoft announced continuing business success during 2022/23 in a July 4 statement. Rising demand for its S/4HANA, SAP Managed Service & Support and Cloud Services and the need to acquire new skills and expertise also led to a 20% growth in headcount, it said. This further affirms "its investment and commitment to being one of the UK's leading SAP partners," it said. It added that its "commitment to constantly upskilling our consultants augmented by our new hires" underpinned its capability.

AquaTerra sees turnover rise

Aberdeenshire-HQ'd integrated services provider AquaTerra Group expects its annual turnover to double to £14mn thanks to two developments. New software Veritas vastly reduces the chance of human error in compiling inspection reports, AquaTerra says. The proprietary software is more practical and efficient, giving clients access to an online web application which displays same day inspection results. This is already being used successfully on projects in Cyprus and Gran Canaria. And the creation of a marine and drilling division has created opportunities globally, it said. Previously it was offering inspection services to production assets in the North Sea. This new business arm has generated revenue of £4mn in its first 18 months, almost a third of AquaTerra's total turnover.

Port of Aberdeen revs up again

Over 6,800 vessels used the Port of Aberdeen's services last year, up 12% on 2021, marking its return to pre-pandemic activity. This was a year earlier than it forecast, with the Northern Isles ferry service markedly busier. And the trend has continued this year. The port's turnover rose 17% to £39.2mn, yielding an operating profit of £21.3mn, up 22% on 2021.

As construction at the Aberdeen South Harbour expansion nears completion in the coming weeks, the port is poised to capitalise on future growth, supporting the oil and gas, renewables, decommissioning, general cargo, and cruise sectors. Vessel and project activity have intensified following a successful "soft start" last July.

The port is planning to use a carbon intensity metric based on gross vessel tonnage, once the new Aberdeen South Harbour development has been fully operational for 12 months. It will start by converting three berths in 2024 and is counting on support from stakeholders, investors, and vessel owners.

CEO Bob Sanguinetti said the team's "expertise, coupled with our world-class infrastructure, strategic location and unrivalled supply chain on our doorstep means we are ideally positioned to capitalise on opportunities for growth in energy transition, trade and tourism."

Subsea H2 storage plan mooted

In partnership with Subsea7, the port will investigate the feasibility of storing hydrogen underwater at the new Aberdeen South Harbour. The May 30 announcement follows the award of a £150,000 grant from the Scottish government.

The 'H2Shore – Hydrogen' project will work out the most effective technology to use and decide where it would be

best sited.

Energy consultancy Xodus is tasked with scrutinising the necessary distribution and bunkering requirements, with a focus on equipment, processes and operating pr ocedures.

This study is among 32 projects to receive funding from the Hydrogen Innovation Scheme, a programme dedicated to fostering innovation in renewable hydrogen production, storage and distribution.

Brimmond expands as demand rises

Engineering firm Brimmond recorded £6.5mn turnover in 2022, its best year yet and a tenth higher than the year before, it said late May. And based on soaring demand for its services so far this year, it expects to see turnover reach £10mn for the 2023-24 financial year.

Brimmond is recruiting for five new positions. It is also expanding materially, building a facility at its premises in Kintore for fabrication and welding.

MD Tom Murdoch said: "Our experienced, hands-on technicians and engineers work hard to expertly engineer products and solutions that are not only safe and reliable, but also designed to meet the operational and maintenance needs of our clients globally. This is the crucial reason for our ongoing customer loyalty, and also our growing footprint across emerging sectors, markets and geographies."

Technology

Mitosis wins ISO accreditations

Digital construction specialist Mitosis Digital Technologies has won two ISO accreditations, it said late June. These are ISO 9001 Quality Management and ISO 27001 Information Security. The awards formalise the standard of project delivery which has been applied to the company's client base since it was set up in 2019.

Mitosis' services combine traditional 3D modelling with a timeline for project execution schedules and constructability processes. Together, they illustrate the lifespan of a project from concept to the final operating asset. The founders Dave Milne and Tony Beamish say Mitosis' 4D offering is unique within exploration, production and renewable industries, with application on a global level to greenfield, brownfield and turnaround projects.

Blue Ocean Subsea's robot tests succeed

Blue Ocean Seismic Services has finished a successful test of its autonomous undersea robots, with a number operating at the same time. In a May 30 statement, it said they can "reliably operate, accurately navigate and record quality seismic data in challenging real-world tidal conditions."

The company believes this is a world first for the sector and proof of technology. As well as outperforming a remotely operated vehicle the robots also recorded an unexpected earth tremor which occurred during the trial. The vehicles also have less impact on the seabed and sea life compared with the conventional methods of collecting seismic data.

The effective completion of this round of testing, in Loch Linnhe, is further proof of Blue Ocean Seismic Services' revolutionary technology. It brings it nearer to the point where it can commercialise its autonomous subsea vehicles, it said.

Xodus offshore bird portal yields results

Global energy consultancy Xodus has signed up 51 North Sea platforms to its not-for-profit Offshore Bird Portal (OBP) since it launched in January, it said late June (*OUEK Magzine #55, p 19*). It has also expanded its reach to other seabed users and seafarers.

Under its management, a team of ecologists maintains the portal, handles data submissions and provides a bird identification service to help offshore personnel identify species visiting assets in the North Sea.

Dr MacNeill Ferguson, Ecological Specialist at Xodus said: ""Following a successful first six months, we look forward to continuing OBP's expansion. The greater the spread of contributions and data points we have, the more informative the dataset will become."

Cover story: *Voyageur Spirit* leaves Kishorn

The staff of Kishorn Port (KPL), northwest Scotland, bade farewell to Altera Infrastructure's floating storage and offtake unit *Voyageur Spirit* in April after a nearly three-year stay.

Measuring 70 m by 65 m, the 45,145-tonne vessel demonstrated the port's "outstanding capabilities and [was] a great testament to our ability to look after all the needs of a warm stacked vessel," said the port's director, Alasdair Ferguson. It set sail for Dubai.

The *Voyageur Spirit* was floated on to the heavy load carrier vessel, *Xin Yao Hua*, believed to be the heaviest vessel ever to visit the port. Built in 2022, it has a gross tonnage of 72,275 tonnes. The whole process was carried out with the co-operation of all stakeholders and the marine team, with meticulous planning and safely delivered on time, the port said. KPL is a joint venture between Leith Scotland and Ferguson Transport & Shipping.

An invitation to submit your member news

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Guest column

Net Zero Industry Act & CCS: laudable ambition needs improvement

The International Association of Oil & Gas Producers compares the EU with the US and finds the latter's Inflation Reduction Act has more going for it than the home-grown alternative as a means to stimulating investment in CCS. IOGP's Director of European Affairs, François Régis-Mouton, explains the problems facing CCS.

In March this year the European Commission tabled its Net-Zero Industry Act (NZIA) proposal, a hastily designed response to Washington's Inflation Reduction Act (IRA).

While often presented as competing policies in view of similar goals, the starting points of the EU and US initiatives are quite different.

The NZIA is designed to reshape European Union (EU) industry and consumer behaviour to make sure the EU meets its climate objectives.

The US IRA on the other hand prioritises industrial policy by planting an entire "field of carrots" while introducing a greenhouse gas emissions reduction element.

Another notable difference is the US IRA's technology-neutral approach, while the EU deploys a combination of high-level and technology specific targets. Within these, though, some processes – such as renewable hydrogen and advanced nuclear technology – are favoured over others such as blue hydrogen.

The applications of strategic technologies are therefore more constrained than their potential would otherwise allow. This has led critics of the NZIA to call it an instrument to return to a planned economy in Europe, some even calling it the 'Zero Industry Act'.

By comparison, the US IRA resembles an all-you-can-eat buffet.

For the NZIA even to have a chance of becoming a credible alternative to the IRA and deliver meaningful impact, improvements will need to be made throughout the 'co-decision' process which will now see the European Parliament and EU member states fine-tune and negotiate the text in view of final adoption.

For the European oil and gas industry, provisions related to CCS will be the main focus of engagement in coming weeks and months.

The risk of stranded assets

IOGP Europe was encouraged to see that the EC recognises the importance of carbon capture and storage (CCS): it features in the NZIA's list of strategic net-zero technologies.

Our industry has long said that the technology was crucial for the future of industry in Europe, to keep it globally competitive, compatible with climate neutrality, and to safeguard the jobs, research and innovation associated with it.

For decades, our calls found little favour within EU policy-making circles, and the lack of an economic case for the technology did not help CCS project development in Europe.

While the EC's newfound interest in CCS is commendable, the approach chosen to scale up deployment may be insufficient to reach the ambition laid down in the NZIA.

Where the US IRA pursues and strengthens its relatively straightforward, incentive-based approach by raising tax credits for carbon storage and lowering requirements for eligibility – a principle applied across technologies in the US IRA – the NZIA would impose an obligation on oil and gas exploration and production licence-holders to develop an annual CO_2 storage injection capacity of 50mn tonnes/year, prorated on their percentage of total extraction over the 2020-2023 period. In doing so, EC officials sought to give certainty on CO_2 storage availability to industrial emitters and solve the 'chicken and egg' issue.

The result would see a dozen oil and gas licence

"Mechanisms to fund and de-risk the CCS value chain ... will be key to mitigate the investment risk by distributing the cost of carbon abatement between private and public entities."

holders who produced 10%-15% of the EU's gas consumption in 2020-2023 having to invest the magnitude of euros 20bn by 2030. This excludes UKCS production but not (for example) NAM's Dutch gas output from the Groningen field, which will soon cease.

But unless CO2 emitters and transporters have support in the form of incentives and policies that enable regulation and funding, this storage capacity may end up being unused

Shifting towards a value chain approach

Although such a level seems quite modest relative to annual EU emissions[1], reaching such a target would still be a challenge.

Even if all known CO_2 storage projects in the EU were to materialise, only 35mn tonnes/yr of CO_2 storage injection capacity would be available by 2030. And of those, only two have been authorised under the EU's CCS Directive and they would amount to less than 4mn tonnes/yr. Estimates in *Hydrogen for Europe* (2022 edition) see 250-300mn tonnes of CO_2 stored annually in 2030, and 1.4 Gt/yr in 2050.

Bridging the gap will require action at member state and EU level in three key areas:

First, achieving this ambition is dependent on many factors which are outside the control of the obligated parties. These include licences and consents given by member states' authorities, and even geological factors. A significant acceleration of planning and licensing, is therefore needed at national and local level.

Second, there remains uncertainty around CO_2 transport infrastructure and captured volumes of CO_2. CCS projects are complex and involve multiple entities along the value chains. These entities typically need to have sustainable business cases before taking investment decisions and long-term commercial arrangements need to be negotiated and concluded along the value chain to manage and allocate commercial risks and rewards.

What the EU therefore needs is also measures to ensure that capturing, transporting and storing emissions is economically viable and attracts investment. Mechanisms to fund and de-risk the CCS value chain, such as contracts for difference, will be key to mitigate the investment risk for companies by distributing the cost of carbon abatement between private and public entities.

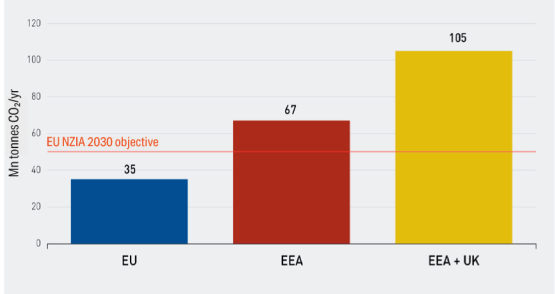
Third, developing this value chain will require all parties to engage with the public to overcome the misconceptions spread by environmental activists over the past decades.

The support of more pragmatic NGOs has been crucial to help shift the EC's perception over the past few months, and this dimension will only grow in importance once projects begin to take shape across the continent. Our industry needs to ramp up its own advocacy efforts in support of this key technology.

The NZIA and the upcoming Industrial Carbon Management Strategy offer a unique opportunity to offer real incentives across the entire value chain, instead of waving a stick over one segment only.

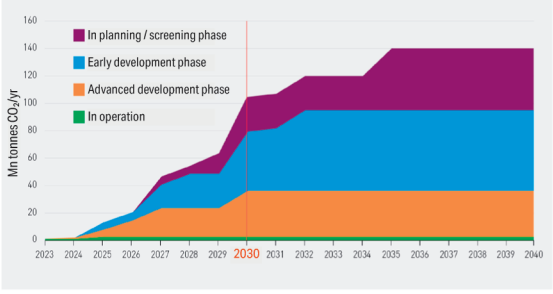
Failing to do so may see the EU sitting on stranded CO_2 storage assets while our industrial base erodes. This would benefit neither Europe's economy nor the climate.

Regional breakdown of CO_2 storage injection capacity by 2030



Source: IOGP

Build-up of CO_2 storage injection capacity in Europe



Source: IOGP

Energy transition in the UK

The last 18 months have shown the importance of greater energy independence while facing up to the realities of renewable energy. Honesty is needed if public confidence in the transition is to stay, says Kent

A successful energy transition will end with the global energy supply being predominantly sourced from commodities other than coal and hydrocarbons. But given that it has taken us well over 100 years of oil and gas to get to where we are today, making that shift is going to take a lot of time and money, The transition officer for Kent, the engineering, procurement and construction company John Kent told OEUK in an early June interview.

Decarbonisation imposes a heavy cost on consumers for some time before there is any payback and there is little long-termism in politics. Conventional oil and gas will continue to play a big part in the transition, therefore, he said.

All the more reason, then, for openness and honesty. And yet in many democracies the political cycle lasts at best four to five years. and so politicians generally say what is expedient. In Europe, families are suffering with high energy bills and inflation and governments had to borrow heavily to cope with Covid. So there is less money available for the transition than might have been expected at the start of 2020.

Wind

But the UK needs to independent of external factors and to have the ability to be masters of its own destiny. Where it has been successful – it is probably the most successful country in this respect – is developing offshore wind: that industry has grown in the last 10-12 years to become one of the most successful of its kind in the world.

That is because the government recognised the need for support at this early phase of its development and devised support schemes such as contracts for differences. As it was a nascent industry, investors needed certainty to drive the learning curve until wind was able to work on a standalone basis. It has been super successful and this fact should be recognised and celebrated.

But there are limitations now for renewables: it is doubtful that wind can be a complete solution: it is likelier it will instead act as a power source for domestic consumers. It has the potential to gain a lot more scale, but it is intermittent. This does not satisfy industry's needs for affordable energy, round the clock, for years on end. This is a problem we probably will not solve before 2030.

John Kent, Kent's Energy Transition Officer

Kent is involved in four out of every five offshore wind projects in the UK at some stage of its lifecycle, from design work to engineering and seen growth that did not seem possible ten years ago. Now we are talking not about megawatts but gigawatts. But onshore power grid connections are one of the biggest challenges, for historical reasons. The grid was designed to transport baseload, centralised power generation onshore with plenty of inertia giving stability.

Wind does have a very important part to play and it does scale up, but there are difficulties when it comes to reliability. In times of low demand it could be used for electrolysing water to make green hydrogen for transport or for injection into the gas pipelines during off-peaks. That is how I see it working out.

Hydrogen

Green hydrogen is among the most expensive means of hydrogen production: it costs about three to six times more than grey per kg; and grey – where the emissions are not captured from the production process – is half the price of blue.

So government intervention is needed to create a market, using support schemes such as contracts for differences. Four fifths of grey hydrogen is used where

it is produced – generally in refineries. Transporting it can work out more expensive than transporting products that have been made with it.

It is hard to see industrial scale demand for hydrogen unless a wider user base for hydrogen can be developed.

We won't get to scale with green hydrogen in one go: we need to build some prototypes to establish the likely cost of electrolysers, agree on standardisation and so on. This is a journey of many years and therefore it is important that we start it soon. We are involved in the Hynet project, which expects to receive full funding this year or next. We are working with the client to prepare its EPC package for the award.

The process of routinely blending hydrogen molecules in safe proportions with natural gas in the national transmission system (NTS) should not wait until there is an agreement about what colour the hydrogen should be, because every step forward is helpful. It is true that change means cost, but we have to lean into that because the global carbon budget is running out fast. Even a small percentage substitution of methane with hydrogen at the NTS level will help to cut emissions.

As a wider energy solution, though, hydrogen is a bet for the coming decades, not years: that is how long it will take to become economic on a standalone basis. That means building out enough demand through more end users. The market today only consumes a small proportion of the amount of hydrogen that will be needed to make it economic to manufacture, store and deliver hydrogen.

It will also need careful management: it has a different performance profile from other forms of energy, such as methane. These entail additional costs, as well as the changes made at the consumer's burner tip, where water is a by-product of combustion.

Carbon capture & storage

Funding blue hydrogen and carbon capture and storage (CCS) has been quite aggressive here: the UK has put policies in place to make the economics stack up, within reason. The government is committing to spending £20bn.

Until a year ago, US lagged behind UK in this, but this has now changed with Biden's Inflation Reduction Act, which uses tax relief rather than subsidies. With CCS the US is further ahead in terms of existing transport infrastructure (*see p29*).

The continent's CO2 transmission network is more developed; there are operational CCS facilities in the US; and legislation under Biden has seen burgeoning development in blue and green hydrogen and the fast-growing wind market.

If US accelerates like this to 2030 and beyond, then Europe and UK will need to begin to change their own policies, to counter the effects of the IRA. Otherwise there is a risk of industries such as petrochemicals and other energy intensive manufacturing migrating to the US where the energy input costs are also cheaper. So my guess is that both the UK and EU will change their policies with regard to renewables otherwise they risk not attracting the same scale of investment as the US.

The last few years have shown how polarised views have become. We need to turn away from such polarised thinking and find solutions. This will enable the world to move forward in a logical fashion. I hope that the gas volatility will drive longer-term thinking about investment upstream: the EU and UK need to be independent of external factors.

Educating the young is extremely important: hydrocarbons including petrochemicals have enabled a very large proportion of world's population to enjoy a very high quality of life and economic stability. They do yield greenhouse gas emissions. The debate has become more polarised: listening is also important.

"Wind does have a very important part to play and it does scale up, but there are difficulties when it comes to reliability."

Finance

At Kent we think it is better to be part of the solution, rather than to point out from the sidelines what is going wrong. We think it is better to write the cheque than be unable to influence the course of developments. Our preference is to try to change things from inside out: conventional oil and gas play an important role and we believe it is better to make them more responsible.

The oil and gas industry does need to be more responsible when it comes to lower carbon- investment if it is to satisfy the environmental, social and governance criteria. Public financing for these projects is becoming harder to negotiate and there is a risk that oil and gas will turn to Middle Eastern rather than western money. Banks can introduce levers for change.

Given that upstream projects need to drive down their emissions profile, they could finance them on the basis that their intensity has to drop by a certain percentage, or it will become costlier to borrow.

If all OECD banks took the view that upstream oil and gas were not investable owing to ESG concerns, then they would have a lot less control over the future energy mix. But if you write the cheque, you can decide what conditions to ask for.

The banks' objective should be to lend and to reward the borrower for improving the emissions intensity over time. Borrowing costs could be calibrated against measurable factors relating to emissions. This is one of the objectives of green bonds. We would like to see companies publish their carbon footprint annually.

Otherwise the power lies with the non-OECD lenders and they might be less concerned about emissions. We think that would be a better lever to pull than a straight refusal to lend which only drives them to less responsible lenders. If companies can demonstrate they are replacing diesel with electricity, or using fuel cells, or if they are using digital technology instead of flying personally to an offshore asset, then their rating goes up. We can get to the right result and behave more sustainably. There will be pain along the way though.

Transition is happening

Most companies are recognising the need to bring their emissions down. But we are not moving at the pace we need to; the emissions profile is not moving fast enough and it always comes down to economics. Governments can do more to shape policy.

With regard to the size of UK emissions relative to other parts of the world – estimates put it at 1% - we must take the broader view. If we all take a self-interested view of the world, then the energy transition will get nowhere.

Carbon has a borderless profile, and we all need to play our part. Intergovernmental dialogue policy development is needed or our legacy for future generations will be dire. We want to be responsible ancestors for the generations that will follow us.

"Educating the young is extremely important: hydrocarbons including petrochemicals have enabled a very large proportion of world's population to enjoy a very high quality of life and economic stability"

Photo:
istockphoto.com/JHVEPhoto

ExxonMobil buys major US CCS operator

The US super-major ExxonMobil killed several birds with one stone, buying oil producer Denbury's 2,000-km network of CO_2 pipelines for $4.9bn in an all-equity deal. The largest in the US, the network will be used to take the greenhouse gas into storage sites, including old oil wells to boost their recovery, which was part of Denbury's business model.

"The breadth of Denbury's network, when added to ExxonMobil's decades of experience and capabilities in CCS, gives us the opportunity to play an even greater role in a thoughtful energy transition, as we continue to deliver on our commitment to provide the world with the vital energy and products it needs," said its CEO Darren Woods July 13. About two thirds of the network is in Louisiana, Texas and Mississippi, which, with its refineries, petchems, power generation plants and onshore storage sites, is one of the country's densest markets for emissions.

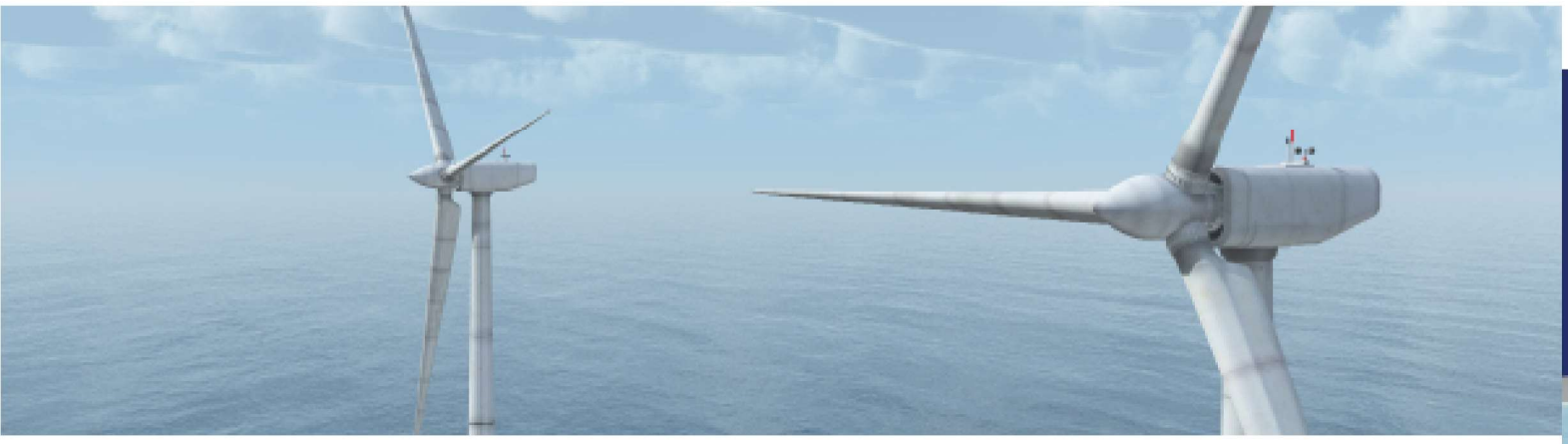
ExxonMobil has avoided "transition" assets such as wind and solar, but it has shifted a lot of dollars in outright terms, if not as a proportion of its overall spending, into decarbonisation and biofuels.

Its head of Low Carbon Solutions Dan Ammann said: "Once fully developed and optimised, this combination of assets and capabilities has the potential to profitably reduce emissions by more than 100mn tonnes/year in one of the highest-emitting regions of the US."

A cost-efficient transportation and storage system accelerates CCS deployment for ExxonMobil and third-party customers over the next decade and underpins multiple low carbon value chains including CCS, hydrogen, ammonia, biofuels, and direct air capture, it said.

Denbury said that "given the significant capital and years of work required to fully develop our CO_2 business, ExxonMobil is the ideal partner with extensive resources and capabilities."

Denbury's assets total over 200mn barrels of oil equivalent, with 47,000 boe/d of production, providing immediate operating cash flow and near-term optionality for CO_2 offtake and execution of the CCS business.



Unlocking wind turbine potential with machine learning Kent's Abid Sayeed explains the shift from availability to productivity

As offshore wind generation technology rapidly evolves, the complexity increases: the units expand, their distance from shore lengthens and they are sited in deeper waters.

New technologies are keeping pace with the changes, and wind farm operators need to stay one step ahead, not only to optimise wind revenue and extend asset integrity but also to ensure that the focus remains on the health and safety of personnel.

Current business models tend to pass the responsibility of an asset's wind generation capacity to original equipment manunfacturers and third parties.

If wind developers were to shift their focus from project development, construction and energy trade towards raising the average annual capacity of wind turbine generators, which can be achieved through closer asset monitoring and control of maintenance activities, the possibilities for optimisation and ultimately increased revenues could be endless.

There is a major challenge in changing the industry mindset from 'availability' to 'productivity' by managing wind turbine generator services and minor breakdowns based on the wind resource and trade forecasting via the wind farm regional control rooms.

By establishing regional control centres closer to operational offshore wind farms, developers can more closely monitor operations and maintenance (O&M) activities. This would allow data capture and performance history to map trends and, in turn, enable the development of better maintenance strategies for optimal output.

Access to more detailed data will also allow a shift towards predictive and reliability-based maintenance strategies, saving operational expense, particularly at sites generating more than 500 MW. When looking at larger wind farms farther offshore with harsher weather conditions, the cost and risk of O&M activities rise, making the reliable uptime of wind turbine generators all the more critical.

If wind farm operators establish themselves as 'complete asset managers' instead of 'remote customers' and remove their complete reliance on original equipment manufacturer contracts, they can directly influence and develop O&M strategies for large-scale wind farms to focus on maximum generation and increased reliability.

Machine learning, digitalisation and output

We live in a time when wind turbine generators are constantly being redeveloped and improved, but when we look specifically at O&M, there are still areas where their performance can be enhanced.

Digitalisation and machine learning can be used to predict and control wind turbine generator downtime and provide an alternative approach to how wind farms are operated and maintained to drive output and ultimately optimise revenue.

Wind turbine availability is a time-based ratio of the amount of time a wind turbine is ready to operate in a given time period divided by the total time in that period.

A guarantee of 'uptime' is often agreed between an OEM and customer based on contractual availability, which uses a similar measure in which the turbine is not ready to operate. Compensation is paid to the customer if the contracted availability is not met. Typically contractual availability guarantees are 95% for offshore wind farms.

However, what if the turbine is available 95% of the time but isn't generating because of wind speeds outside the design operating range? This leaves a 5% window where 20% of the month's revenue could be lost.

By using a mix of machine learning and condition monitoring to track wind turbine performance, stoppages may be minimised by scheduling wind turbine inspections and maintenance outside the design operating range.

First, you could calculate the theoretical maximum revenue based on the measured actual wind resource by establishing the range of wind speed within which it cuts in and out. Then, establish a key performance indicator for whether the wind turbine generator is "generating" or "not". And finally, calculate the lost revenue for when the turbine is "not" generating.

Looking deeper into O&M activities, machine learning can also be used to create standardised reason codes to improve fault tracking and analysis. Examples could include identifying high-frequency and long-duration stops.

All of this leads to increased revenue by (a) minimising the faults that cause stops and (b) minimising the time taken to respond to faults and planning maintenance and inspections at wind speeds below 'cut in'.

Although rapidly developing, offshore wind as an energy source is still in its infancy. It was only 30 years ago that the first wind farm was commissioned and only 20 years ago that the first wind farm was installed, in the UK. It had just two turbines.

In a developing industry, where so much attention is paid to scaling the many obstacles to establishing operational wind farms and ensuring their availability, attention now needs to shift to how these projects, which are a feat of modern engineering, might generate the maximum amount of wind power during their lifecycle.

Vysus takes on new energy

Following its demerger from Lloyd's Register, Vysus has set its own course as an independent consultancy. Founding CEO David Clark sets out the growth opportunities in the transition and the role for oil and gas

David Clark became Energy Director at Lloyd's Register (LR) in January, 2019. The business had a turnover of £130mn and a global footprint but it had been struggling. Mr Clark was brought in to lead a new strategy building and growing a much more focused organisation with an emphasis on the energy transition.

Following a strategic portfolio review, LR divested its Energy division, agreeing a deal with private equity firm Inspirit Capital.

Vysus Group, under Mr Clark's leadership, was born November 1, 2020, retaining the entire portfolio of LR Energy's capabilities. This enabled the business to react more in a more agile manner to the changing energy landscape and to meet the evolving requirements of its customers.

The focus from then on and throughout 2021 was very much on establishing the new identity and brand while completing the back-office set-up across its global footprint and finalising the separation from LR's business systems – all while continuing to deliver business to its global customer base and continuing to drive forward with the business strategy and doing so almost entirely remotely.

A big part of that was agreeing the company's core values – trust, partnership and passion – with its team, based in 25 different countries all over the world. After a successful first 12 months, the business continued to evolve, with the divestment of non-core assets in 2022 to align with a longer-term strategy to extend the high-end technical advisory capabilities of its consulting business. Its support of the upstream sector continues, through its ModuSpec rig assurance business.

The company sees its cross-sector expertise and geographical footprint as vital in supporting its clients with energy transition challenges.

Historically, around 90% of Vysus' revenues came from upstream oil and gas. The aim was to diversify with a regulatory and technical business that would earn only 30% from oil and gas, another 30% to be earned from purely renewable energy and 40% from integrated renewable energy and industrial process sectors.

The business is almost there, with 60% coming from sectors other than oil and gas in its consulting division. That said, the oil and gas sector remains extremely significant for Vysus as a business and while it continues to develop its sector mix, the company is committed to the oil and gas industry and its oil and gas clients.

Much of its expertise is deployable across multiple sectors and this is enhanced by the development of technology platforms – both internally within its risk management group and through external partners.

By way of example, Vysus has a collaboration agreement with software provider Kairos Technology to support the development of the digital hazard and operability study process, which enables valuable time and cost-savings for its clients.

Another partnership is with enterprise data sharing platform Siccar. In this case, the aim is developing an end-to-end 'environment, society and governance' assurance solution. The product, the Energy Transition Databox, enables companies to manage and share accurate and trusted emissions information across their stakeholders.

With companies facing increasingly complex emissions reporting requirements, accurately measuring emissions data is a major challenge. This is one of the developments Vysus has in play to support its clients' decarbonisation ambitions.

"It is clear that in the UK, we are on a trajectory to miss the vast majority of decarbonisation targets. Significant challenges remain to ensure we have the skills and particularly the infrastructure development needed to deliver on these," he told OEUK.

"We are seeing governments becoming more focused with near-term targets as the 2030 milestones become ever nearer. However there is clearly still a huge amount of work to do to be able to create these new innovative solutions.

"The oil, gas and the wider energy sector needs to continue to be producing energy with the support of government, stakeholders and the wider public. This is no longer a 'tomorrow problem'.

"It is important that we get the help needed to unlock the progress in both pilot and large-scale decarbonisation developments if we are to scale up the transition and implement initiatives to meet the changing energy requirements for domestic heating, transport and wider industry consumption.

"The UK and Aberdeen have been critical in the development of innovative technology and commercial solutions across the oil and gas sector in the past and this needs to continue. But we must build and leverage

David Clark: "Our cross-sector expertise and geographical footprint are vital in supporting our clients in the energy transition challenge."

the technology and innovations which are now being developed and deployed across international markets.

"We need to make sure we do not miss the significant opportunity which the wider UK plc can have to lead the way in the energy transition and the decarbonisation of our domestic, travel and industrial infrastructure.

"Action and pace are vital if we are to sustain and grow a vibrant and relevant supply chain capability to support not only the UK's needs but critically the enormous global market in the years and decades ahead.

"It is clear that in the UK, we are on a trajectory to miss the vast majority of decarbonisation targets."

"We have seen growing negative public opinion against the oil and gas sector, and while there are clear challenges which the sector needs to recognise and address, there is a realisation that the sector, and our extensive UK supply chain capability, will be a critical player in building the decarbonised energy infrastructure of the future.

"To date, much of the debate has been focused on the supply side of the of energy production and the closing down of hydrocarbon production. The reality is of course, that we must, in parallel, radically reconfigure the demand side which will mean huge changes for all of us in how we heat our homes, move around and manufacture the food and goods we consume.

"To achieve meaningful progress against these targets in a managed and stable way, we will all need to contribute with our skills, experience, ingenuity, expertise, and hard work," he concluded.

***David Clark** is an experienced leader with more than 30 years' industry experience. Previous roles include leadership positions with Technip, Wood and SLB; and subsequently senior roles with Aker Solutions, latterly as executive vice-president. He is a member of the Institute of Directors and the Society of Petroleum Engineers, a non-executive director with the Energy Industries Council (EIC) and is active in the UK energy industry with previous roles on a variety of advisory panels including the Energy Jobs Task Force and various industry initiatives with North Sea Transition Authority and the board of directors of OEUK.*

Kellas sets its sights on the energy transition, but time is of the essence

Kellas Midstream is implementing an ambitious plan to build on its leading position in North Sea gas infrastructure. As the debate swirls around future UKCS oil and gas development, the demands of the energy transition are opening up exciting new business opportunities. Fully achieving these plans will require end-users, producers and government to act with speed and conviction, says CEO Nathan Morgan.

The third-party gas processor and transporter Kellas Midstream, operator of the Central Area Transmission System (CATS) terminal in Teesside, earns its income now from processing and transporting North Sea gas to the UK market.

To that end, it collaborates closely with its upstream shippers on the development of innovative solutions to increase crucial domestic gas supplies.

In the case of the Humber Gathering System, CEO Nathan Morgan explained in an interview with OEUK that Kellas created an innovative commercial model to unlock the development of the Tolmount field. "This involved co-investing with Dana and Harbour to develop the gas infrastructure. Our investment in the infrastructure is recovered via a tariff mechanism, which is designed to help support the future production from Tolmount and potential satellite discoveries," he said.

In recognition of its contribution to maximising economic recovery (MER) from the UKCS, the arrangement received a MER UK Award at the 2018 Oil & Gas UK (now OEUK) awards.

"I think Kellas might be unique in offering this combination of technical and financial support to upstream players. As capital is leaving the sector, our willingness to provide funding to facilitate the development of more natural gas – a key transition fuel – in the UK is a compelling offer," he said. As it is, government initiatives have not been friendly towards domestic gas.

"But without a sustainable fiscal framework for the upstream sector, the UK will have little option but to import more expensive gas with a substantially higher carbon footprint. For example, imported LNG has a CO_2 intensity which is on average over seven times that of domestically produced gas," he says.

The combination of government policy and natural field declines means that the company is looking to develop new revenue streams, Mr Morgan said. That could include new terminal operations as well as the new businesses which help to underpin part of the energy transition.

"The fundamentals show a shortfall in domestic natural gas production relative to UK demand. We have seen the impact of the Energy Profit Levy (EPL) and strong reaction from industry. Even with the introduction of the Energy Security Investment Mechanism there is still a headwind facing the UK upstream sector which will result in operators leaving, and with them the investment, tax revenues, expertise and jobs which are required for the current energy system and for a successful transition.

"As well as increasing the EPL, a new Labour government would also cancel the ESIM, according to official statements ahead of the election campaign.

"If we do not act now to re-establish confidence in UK upstream, companies will leave the sector and it will be extremely challenging to get them to return.

"Gas transportation and processing, with the highest levels of reliability and safety, is core to our strategy and we are looking to expand our portfolio of assets via acquisition when we see a robust business opportunity.

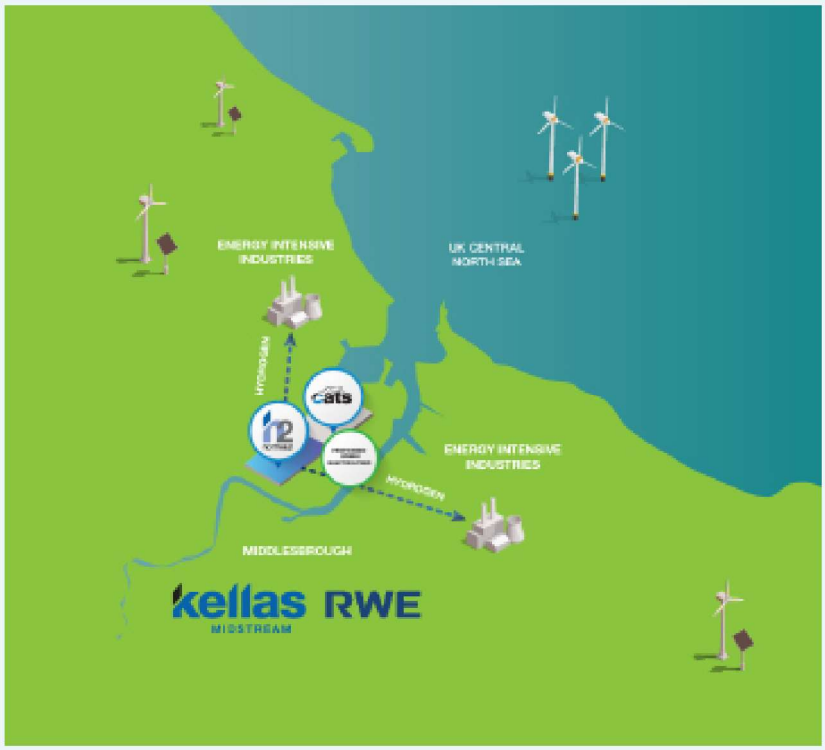
"Leveraging our expertise in managing and operating critical energy infrastructure, we are also focused on the development of low-carbon hydrogen and other energy transition infrastructure to help the UK achieve its net zero ambitions.

"For example, we are investing in the H2NorthEast project which will be at the CATS terminal at Teesside. It will help decarbonise the industrial cluster there by capturing about 2mn .tonnes/yr of CO_2 when at full capacity. Phase 1 will see the development of 355 MW/yr of blue hydrogen production, which Phase 2 will take to 1 GW/yr by the end of the decade.

"This represents a tenth of the UK's hydrogen ambition of 10 GW by 2030. We are working closely with customers and the supply chain to create a world-class project taking low-carbon feedgas from CATS, sending CO_2 to the Northern Endurance partnership for injection offshore, and distributing blue H_2 to customers around Teesside.

"H2NorthEast is a natural evolution of the Kellas business, taking us beyond gas transportation and processing to the production and sale of low-carbon

Nathan Morgan, CEO of Kellas Midstream



Company assets in a nutshell

Kellas Midstream owns, manages and operates critical energy infrastructure, transporting around 40% of the UK's natural gas production.

Its principal asset is the Central Area Transmission System, comprising an onshore terminal at Teesside, a riser platform, and a 404-km pipeline. It transports gas from 30 fields including the J-Block.

CATS and the Teesside terminal (*overleaf*) turned 30 in May and for the last 20 of those there have been no lost time incidents, thanks to the exceptional safety culture embedded at CATS which remains a priority across every aspect of operation. The company has cut the terminal's CO_2 emissions by a quarter over the past three years.

The other assets are the Esmond Transportation System, running from the Esmond field to Bacton; and the Humber Gathering System, its newest platform and pipeline. Operational since April 2022, it delivers gas to Centrica's terminal at Easington.

hydrogen to downstream customers," he said.

Owing to its higher cost relative to natural gas, low-carbon hydrogen production will initially require government support, which is likely to take the form of contracts for difference (CfDs). These CfDs will help bridge the current cost differential between gas and low-carbon hydrogen, leaving the consumer cost-neutral.

"Similar to offshore wind and other nascent industries, an enabling policy framework will play a crucial role in attracting the capital required, bringing down costs and establishing what will become a thriving, unsubsidised industry. This will play a crucial role in decarbonising the UK," Mr Morgan said.

The Department for Energy Security and Net Zero (DESNZ) is developing the Low Carbon Hydrogen Agreement in consultation with industry and ultimately the Low Carbon Contracts Company will act as the counterparty to the agreements. This is because the energy transition implies higher costs as natural resources are further decarbonised.

Mr Morgan points out that a core difference between hydrogen and the other industries for which CfDs have been used is that in other cases, for example wind, there is an established commodity market to sell into: the power market. By contrast, low-carbon hydrogen needs to establish demand and production capacity in parallel. This brings incremental complexity and the need for collaboration across multiple stakeholder groups, he says.

There are other challenges with the energy transition in the UK: the US put the Inflation Reduction Act (IRA) in place last August and this gives very clear incentives to investors and developers to promote projects that reduce emissions or increase hydrogen or CCS, Mr Morgan says. "The US has a policy framework which is broadly considered to be more straightforward than the UK.

"This has grabbed the attention of investors and is attracting significant capital. Until the UK government provides more certainty on the scale up of hydrogen and CCUS deployment, it will not be able to fulfill its clean energy super-power aspiration."

"There is growing awareness ... that oil and gas will be around for quite a bit longer and that is being expressed in the political sphere."

Pragmatic approach

"We have taken some important steps since the government's March 30 Powering Up Britain announcement but far more is needed to meet 2030 targets," Mr Morgan continues.

"There is growing awareness and acknowledgement that oil and gas will be around for quite a bit longer and that is being expressed in the political sphere, where both sides of the House are slowly adopting a more reasoned and pragmatic tone. We have also seen industry players being more vocal about the portfolio of energies, including oil and gas, that will be required for a successful transition. The issue cannot simply be reduced to a bet on A vs B; but how effectively we can combine all these technologies together to find a solution.

"On ESIM, this is a small but welcome step in the right direction. Ultimately, the price level at which the additional tax falls away is unlikely to come into effect. Although the changes that have been made might create a modest increase in some reserve-based lending capacity facilities, they won't fundamentally change the investment picture for most of the upstream players.

"Despite more robust advocacy by industry, I am still concerned that the logic of developing UK gas fields rather than importing LNG is not understood widely enough. Preventing the development of domestic resources and relying on imports only serves to undermine the UK's security of supply, and its economic, employment and decarbonisation goals. When we consider that emissions related to LNG are substantially higher than UK domestic output, there is no environmental case to import."

Green hydrogen plan with RWE

As well as the blue hydrogen project H2NorthEast, Kellas Midstream has signed a memorandum of understanding with the German utility RWE to jointly explore green hydrogen production on Teesside (*see map, p35*).

Mr Morgan said RWE "shares our drive and commitment to actively shape the future hydrogen economy and it recognises our history and our presence in Teesside.

"We have relationships with the key stakeholders in Teesside and a thorough knowledge of the evolving hydrogen and net zero landscape in the region. RWE is hugely ambitious: it plans to spend £15bn on green energy projects across the UK.

CATS terminal (courtesy Kellas Midstream)

"We have to make hydrogen available at scale in order to decarbonise hard-to-abate sectors. The projects we are developing also correspond with the 'levelling up' agenda in Westminster building on the proud industrial heritage of the northeast of the UK. The development of the hydrogen economy is a way to help reinvigorate the region and bring jobs and economic prosperity. The projects we are trying to execute address critical environmental and socio-economic objectives."

Transition a 'massive opportunity'

According to a 2021 report by McKinsey, the energy transition globally could be worth £1 trillion to the UK by 2030, he says.

"This is a material economic prize. And it is achievable: when it comes to CCUS, the UK has the geology, expertise and legacy infrastructure to be a world leader. What is needed now is more decisive action and clarity in the policy space. That will lead to investable projects that can be taken forward. There have been a number of announcements and targets set but these have not gone far enough and more clarity on implementation is required to stimulate a stream of sanctionable projects.

"Time is of the essence, both on the gas development side and for the energy transition. If you consider the timeline of a typical energy project, 2030 is not far away: the time required to establish the appropriate commercial and regulatory frameworks, to conduct detailed design and engineering, secure funding and carry out construction all point to the need for crucial decisions in the next 12-18 months. It is critical to act now. There are those who have been looking at the energy transition as a one-dimensional subject without focusing sufficiently on the imperative for affordable, sustainable and reliable energy. Robust solutions will only be found if we look at it as a multifaceted issue where no aspect is taken for granted."

"When it comes to CCS, the UK has the geology, expertise and legacy infrastructure to be a world leader."

OPEX: using AI to balance MER aspiration with net zero targets

As the technology for handing big data improves, artificial intelligence such as OPEX' emissions.AI is being harnessed to meet the twin objectives of the North Sea Transition Authority: maximising the economic recovery while achieving net zero.

On occasion, the cost of the necessary emissions mitigation measures a platform has to install outweigh the additional gains from production at an already marginal field.

But that decision needs to be based on rock-solid data. Even without that hypothetical choice, companies operating assets where safety and efficiency are paramount also need to allocate their finite resources rationally. That too needs the data to be as precise as possible or money will be wasted.

This is where companies like OPEX and solutions like emissions.AI come in. A part of ERM, the largest pure-play sustainability consultancy in the world, OPEX is a team dedicated to helping producers make these decisions.

"We find out what our client's needs are in the energy/emissions space: how to minimise energy demand and cost, or to achieve the best operational performance, or operationalise its carbon strategy and embed it in operations to engage with lenders, shareholders or regulators," OPEX VP of Business Development, James Shannon, told OEUK.

The interview came a month after OPEX signed a contract with North Sea oil and gas producer Repsol Sinopec for emissions.AI services.

"As a differentiator within industry, our team has a unique blend of skills and experience. For example, I have 20-odd years of environment management and compliance, focused on greenhouse gas emissions.

"We have a broad range of disciplines. There are a few others on my side, but the basics are underpinned by first principles engineering, and a team that comprises mechanical, chemical, process engineers. On the data side, the team consists of data analysts, data scientists and software developers who process the data an turn it into visual outputs so end users spend less time looking and more time acting."

Emissions.AI

Emissions.AI is a combination of data, analytics and artificial intelligence (AI) solutions to help contextualise data from assets mainly in the oil and gas industry to improve the efficiency of both day-to-day and strategic decision-making (*see also news item on p19*).

James Shannon, OPEX

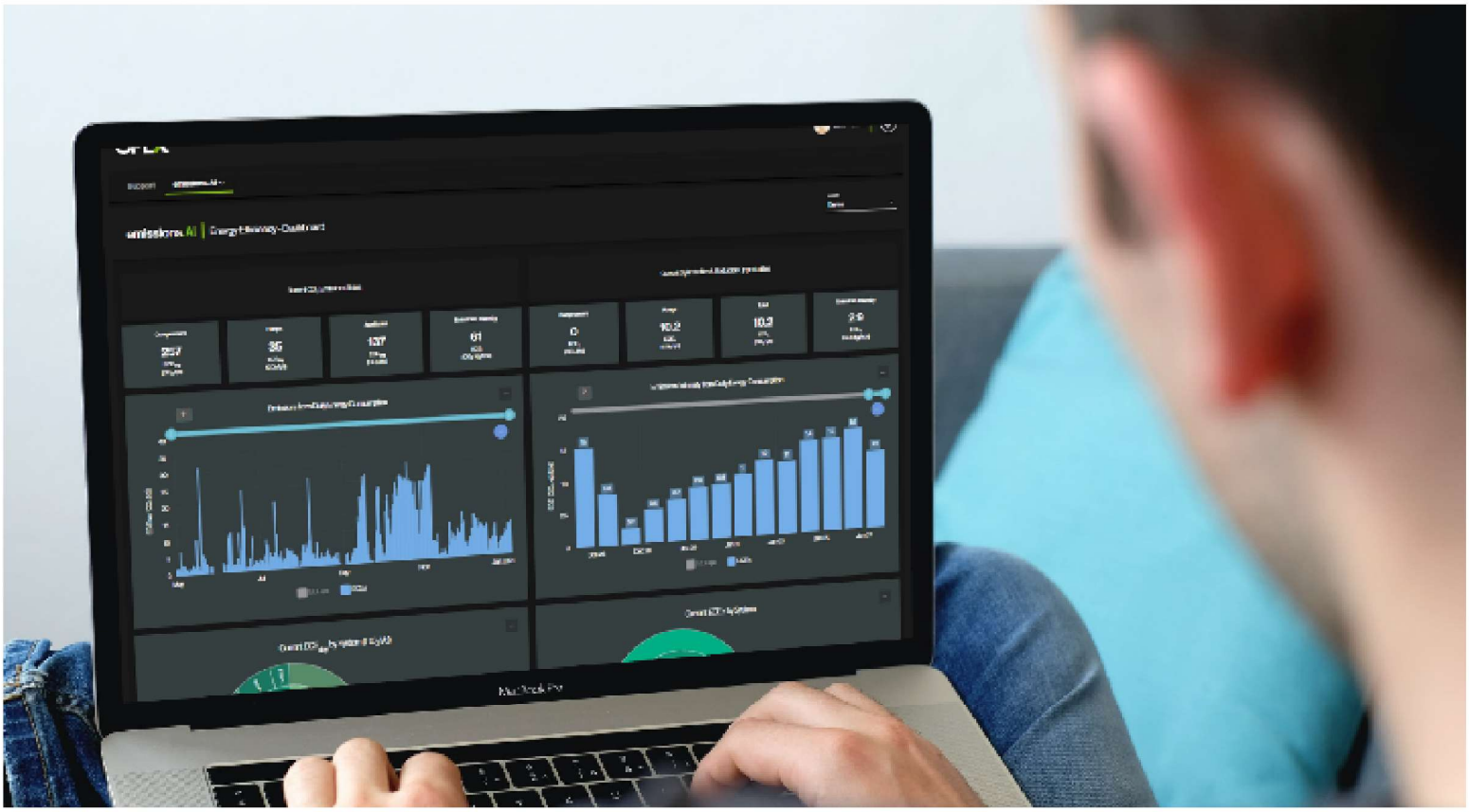
It is an energy and emissions digital twin that looks at the whole installation, using up to the minute data. The solution was designed looking at the energy flows at a granular level throughout the facility and calculating the emissions associated with each.

"We do not deploy equipment on installations; we look at telemetry data, such as the gas or diesel meters, and the energy that's consumed, and where," Mr Shannon said.

"This takes us down to the proportional energy demand of individual equipment and what it was doing at the time. The software can relate flaring data to the operation mode automatically, or it can dynamically assess production for each unit of energy input.

"All the data physically comes from existing instrumentation on the client's system, so we do not deploy anything offshore ourselves and it is all done remotely.

"Data comes from everything that generates or consumes energy and the flare system: gas-turbines, boilers, engines, compression trains, injection pumps, oil heaters – the whole energy consumption associated with production, down to the last drop of diesel or



therm of gas".

If there is not a specific meter, then we create a virtual meter which allows an indirect determination of data with no loss of granularity and without the cost of installing new hardware.

"Virtual meters use proxy data derived from known quantities such as load output, engineering designs or exhaust temperatures. We always work with clients to establish the purpose of the data, since each build is customised," he said.

"The client sends us data through various file transfer protocols and that sits in an ISO 27001 secure area in Microsoft Azure. Cloud based applications run an enormous number of calculations each second and the output sits in a web-based interface for the client to access and use, as and when necessary.

"At these complex facilities, clients are finding it increasingly difficult to bring sustainability into their business. The challenge has outgrown their existing systems approaches, be it process optimisation tools, process engineering models, or Excel-based tools.

"What we are producing is a picture of the client's energy and management costs. Ideally, the application won't highlight any opportunities for improvements, meaning that the plant is running as efficiently as possible.

"This allows the client to demonstrate operational control to stakeholders, while leaving open the question of brownfield improvements. That affects the longer-term sustainability of a company and so it is a question for the executive board. So some clients really need day-to-day help while others need a good health check.

"It used to be enough to have quarterly or even annual energy data on an asset's emissions or its flaring or its total fuel consumption. But now people need really robust data analysis to help understanding at the lowest level, be it an individual pump or heater, and to contextualise that with what else is known about other equipment's energy demand at any given minute.

"More important, they need to know not just what is their energy and emission performance but what they need to do in order to improve it. For this, they need to know what 'good' looks like.

Complex facilities with dynamic operations have variable inputs and modes of operation. Operators need to understand the reasons for an asset's variability: why it is good, bad or average on any day and what to do to correct or maintain it.

And to do that, customers need a library to compare one day with another that had similar or different profiles, looking at the performance through a variety of lenses.

If emissions.AI has been deployed across many facilities, it can summarise them all for one company. Or it can be used to compare efficient operations across a range of compressors, for instance, to help the operator determine what good operations look like for a given piece of equipment.

All this shows the importance of granular data: it contextualises the baseline. Energy and emissions data are important in compliance reporting and this is going to be embedded in every discipline in every company across the world.

It helps the operator make cost effective progress towards carbon reduction, embedding carbon into the decision-making process and it reduces the time that the engineers spend on manual intervention.

This also links in with the regulatory drive from the North Sea Transition Authority (NSTA), and its stewardship principle. It drives energy and carbon awareness and helps operators to consider emissions, production, safety and maintenance altogether, at an executive level.

Regulators such as NSTA and Offshore Petroleum Regulator for the Environment and Decomissioning

are coming to expect more granular reporting, and requiring increased efficiency in an offshore operator's use of energy. There is a cultural shift and regulators have sanctions through the licensing regime to enforce change.

This ensures that carbon reduction is embedded into the operator's behaviour. The threshold is getting higher as there is no longer any excuse for not understanding how an asset is performing. There is some flexibility: for example every company has its own value for spinning reserve and whether or not to shut down a generator, but data is needed to feed into that process in the most cost-effective manner. Engineers can spend an awful lot of time pulling data manually and then manipulating it; or they can use an automated process like ours.

MER and Net Zero

"We enable operators to make the best decision they can in the moment."

Emissions.AI can play a significant part in balancing the equation between MER and Net Zero emissions. If you consider what makes a best emissions day, it might be when your plant is shut down and you are producing nothing. But then you are not maximising the economic recovery (or generating any revenue!). When you maximise the economic recovery, that tends to mean running at absolute maximum production and availability.

That drives emissions up. Also as a field comes off plateau, as most now have in the UKCS, the average emissions intensity goes up: output falls for the same input of energy.

Our system never says cut production to lower emissions; instead it says "given this production profile, and this given operation mode, you could have achieved a lower emissions outcome using this approach, based on these historical records."

Unnecessary online power is case in point: we can see what the boilers, turbines or compressors were doing. There might have been significant periods when the operator was running a machine or boiler that it did not need to.

That would also mean reductions in fuel use and lower carbon emissions to be paid for. So there are economic and environmental costs.

So yes, a dichotomy exists but we enable operators to make the best decision they can in the moment. It is not a silver bullet but it is an important part of the information needed to help the client prioritise and solve problems.

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Europe readies for winter stresses

Gas storage is filling fast but nothing is assured

Closer dialogue between gas producers and consumers is needed to avert another crisis in the near future, the International Energy Agency warned in a July 17 report. Its new *Security Review* also includes its latest quarterly *Gas Market Report*.

Storage is likely to be full before the start of the heating season owing to a combination of favourable factors, but in a press release the same day the energy watchdog said a cold winter and the complete cut-off of Russian gas flows would be enough to deplete storage. This would make it very costly to refill the European facilities next summer, hence the need for medium-term caution in planning. These threats of shortages could persist for years (*see graph*).

LNG has become a baseload source of supply for Europe, with its share in total EU demand rising from an average of 12% over the 2010s to close to 35% in 2022 – similar to the contribution from Russia's piped gas before the invasion of Ukraine.

Ahead of the annual LNG Producer Consumer Conference in Tokyo, the IEA's Director of Energy Markets and Security Keisuke Sadamori said: "A new global gas market is taking shape after last year's crisis. Given this, responsible producers and consumers must reconsider their approaches to supply security and flexibility, co-operating even more closely. Meaningful efforts are also needed to reduce the carbon footprint of gas supply chains, including through greater use of low-emissions gases."

The Dutch Title Transfer Facility (TTF), Europe's most liquid hub, was trading at $6/mn Btu above Asian spot LNG prices in 2022, which was crucial to attract the necessary volumes of flexible LNG to Europe. Forward price curves at the end of June 2023 suggest that the European premium is expected to stay in the coming years, with TTF's premium averaging $0.3/mn Btu over Asia through 2023-25, the report says.

A big uncertainty about the price of spot LNG supplies is the possible extent of China's economic recovery, says the non-OECD-aligned Gas Exporting Countries Forum in its July gas market report. The country's monthly LNG imports reached their highest level since January 2022 in June, and the region's LNG imports rebounded to the same level in 2021, it said. "In fact, the level of gas imports in China, including both LNG and pipeline gas, continued to surge month on month, reaching their record level for the month of June."

And the Oxford Institute for Energy Studies (OIES) said in its July quarterly gas review that prices in Europe and Asia could rise sharply if Russia discontinued pipeline and LNG exports; Asian demand changed much; and/or there was a supply outage elsewhere.

"Global LNG supply is only slightly higher than 2022 and the expected increase that we estimated at the start of year has not materialised due to some unexpected issues at various plants," it said.

The OIES has also published a report about the future of Russian gas exports to Europe. Flows amounted to 8.5bn m³ Jan 1-May 20 this year. This compares with 40bn m³ last year and 59bn m³ in 2021 over the same period. Russia's only export pipeline routes to Europe now are under the Black Sea to Turkey or through Ukraine, the other routes being unusable indefinitely for different reasons.

Spot – or long-term gas?

The EU has deliberately moved towards hub pricing and away from oil-indexed, border-traded, long-term take-or-pay pipeline gas supply contracts. The latter cushion buyers and sellers from market shocks and include a degree of volume flexibility and price visibility deemed necessary in a long-term trading relationship.

By their nature they do not reflect actual gas supply and demand and not every trading company has sufficient resources to enter into them. They may also contain clauses restricting retrade. But prices are much less volatile than spot gas.

Despite the loss of Russian gas not everyone is rushing into long-term deals. The European Union's regulatory environment and doubts about the long-term future of gas in the electron-focused EU energy mix are deterrents to buyers and sellers alike.

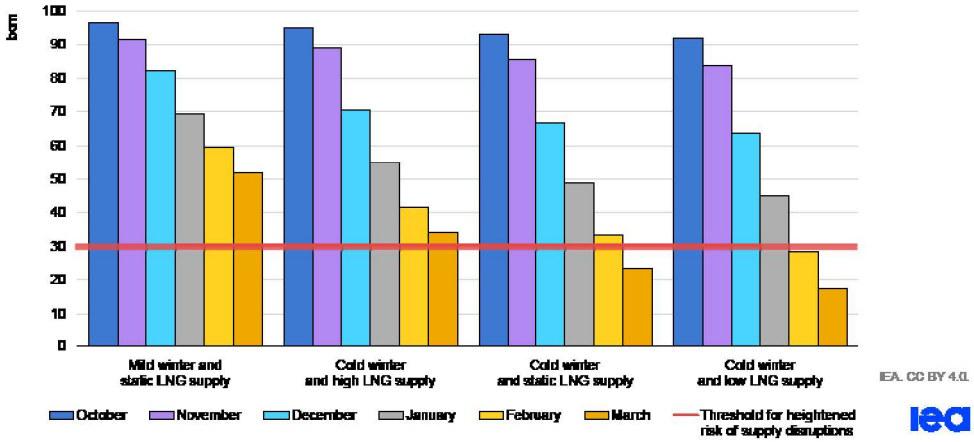
Many upstream operators want to wrap up most of their plants' prospective output in financeable, long-term deals with terms that allow less competition.

Executive summary – Towards a New Global Gas Market

Global Gas Security Review 2023
Including the Gas Market Report, Q3-2023

Full storage sites are no garantee against winter volatiliy and the risk of renewed market tensions

Potential EU gas storage trajectories without Russian piped gas under different scenarios during the 2023/24 winter season



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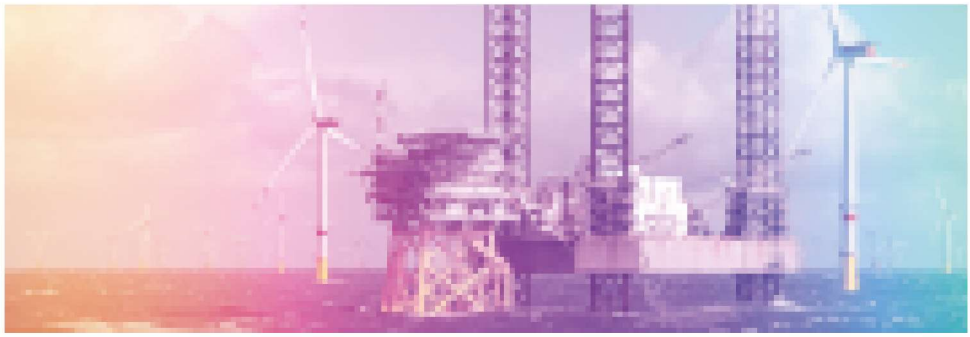

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