

OFFSHORE ENERGIES

The quarterly magazine for the UK offshore energy industry



Focus: the Netherlands struggles to adjust to life after Groningen

Health & safety investigations:
keep it professional at all costs
Partners at Brodies explain the right of discretion

RigDeluge:
combating fire and third-party risk

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UK carbon tax
Vysus Group considers what it means for consumers and importers

Changing the way the energy industry works
Cegal's data scientist Thomas Grant describes some of the impressive benefits this fast evolving technology is bringing

Cover: ExxonMobil's Fawley refinery upgrade - a possible beneficiary of the Solent carbon capture and storage round (see page 8)



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Welcome to *Offshore Energies UK* #59

Europe can count its blessings as the wholesale gas price falls: two relatively mild winters have saved it from potential humanitarian crises. And as there was therefore a lot more gas left in store each spring, it has not needed to import much to top up this summer ahead of next winter. In the UK, inflation is falling, as a result partly of a lower gas and power price cap from April.

On the reverse side, it was a disastrous year for Russia, as it enters the third year of its brutal invasion of Ukraine. Gazprom's long-planned 'pivot to the east' was no substitute, economically or politically, for the revenues and prestige it had lost in the west.

Still though, this is a very far from satisfactory position for Europe to find itself in. Not only has its manufacturing output fallen thanks to uncompetitive fuel costs; but there is also a lot less money in national treasuries for financing the kinds of projects that will be needed at scale for the transition. These include carbon capture and storage; hydrogen production; and floating wind.

The imaginary three-dimensional Penrose triangle, where any two of its wooden sides can fit together, but not the third, springs to mind. Energy that is cheap and sustainable is insecure (wind, for example); secure and cheap energy is unsustainable (coal); and secure and sustainable energy is expensive (nuclear).

And on top of that now come regulated measures to decarbonise, such as the tightening of Europe's two regional emissions trading schemes (UK and EU) and the carbon border adjustment mechanism (CBAM, now in place on a theoretical basis in the EU). These will inflate the cost of imported materials in proportion to the size of their carbon footprint. We address the positives of the CBAM and its potential to help out heavy industry in this report. Vysus and RSM discuss the necessity and indeed urgency of tackling carbon leakage, among other things, in this report.

We also have a pair of features addressing the other, upstream end of the production cycle: members Brodie and RigDeluge address respectively the questions of handling external probes in the wake of an accident; and how to prevent fires breaking out in the first place.

Fiscal instability is one of the reasons for companies such as Harbour Energy moving either abroad through mergers and acquisitions; or, at the other end of the financial scale, into new businesses, such as Kistos' investing in fast-cycle gas storage – likely to become ever more important as intermittency rises. But companies with UKCS output are exactly what should be encouraged to keep investing, for economic and political reasons.

It can be done, given the political will, although even then it needs to be backed up by political action, as the example of the Netherlands is showing (see page 18). The UK is facing a general election, but whoever wins will face the same challenge: how to keep the population warm and industry humming when their energy bills are already so much higher than they were a few years ago. The evidence so far is not encouraging. No doubt we will hear the same phrase from both sides: "There is no silver bullet." But it is the expectation from government that the offshore energy sector will rise to the challenge.

The facts now are very different from the heady days of Paris 2015. Nobody then thought that war would break out on the European Union's doorstep, at the initiative of its biggest gas supplier. Nevertheless the UK engineering and technology sectors have the ingenuity necessary to innovate and they will find a ready market offshore.

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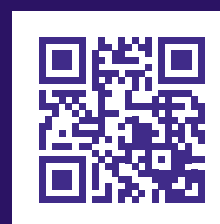
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Cover picture:
ExxonMobil's refinery at Fawley
(see p13)

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GMB sees the workforce in action

Producer EnQuest and duty-holder Bumi Armada hosted a joint industry visit from the GMB Union and Offshore Energies UK on board the *Armada Kraken* FPSO.

It is a positive step in the ongoing engagement between GMB and OEUK. As the general election comes closer, engagement is key if workers' voices are to be heard in the debate over the UK energy transition and its future industrial strategy – and ultimately their future.

During the early May visit, the attendees enjoyed a tour of the high-performing *Kraken*, which in early May reached the 70mn barrels mark, and spent time in face-to-face discussions with crew members about the importance of the energy industry to them, their families, and the communities they live in.

The highly skilled roles which exist in the oil and gas sector will be vital in delivering the UK's energy transition. Trade unions, employers and all those working in the industry are united by their desire to see the UK attract investment and create jobs to support better energy independence and prosperity.

GMB General Secretary Gary Smith said that the worker's voice had to be "front and centre of the debate over the UK's energy and industrial transition." Change should be effected by those who are already helping keep our homes warm, the lights on and the economy running, he said, rather than inflicted on them.

"As a union with deep and proud roots in our energy industries, we are determined to develop better co-operation across the offshore and wider energy sectors to maximise this important principle as we fight for the jobs, investment, and energy

security the UK needs," he said.

EnQuest's North Sea general manager Steve Bowyer said: "We are at a pivotal time for the energy industry with current and proposed fiscal policies creating an environment of uncertainty and putting at risk the investment required to maximise the economic recovery of our indigenous resources and deliver on our new energy and decarbonisation ambitions."

OEUK CEO David Whitehouse said that the 38,000 people working offshore were supported by 170,000 people in the onshore supply chain across nearly every UK parliamentary constituency. These are good jobs, providing the UK with energy security as they have done for five decades and using the very skills we need for the future. With energy at the centre of the debate, the voice of workforce is critical, he said.

The plight of Port Talbot and recent announcements from Grangemouth highlight concerns about the UK's industrial future. But the North Sea has hundreds of potential Port Talbots: they are out of sight but they should not be out of mind, he said.

He added that policy-makers had to make the most of the talent and jobs offshore and in communities on land. "Whoever wins the next general election will need an industrial strategy that delivers the economic growth that the UK desperately needs and supports highly skilled jobs, while delivering energy security," he said.

This message has been delivered to the top ministers in the Conservative and Scottish governments and the Labour Party. An election is expected this autumn.



Image credit: Michal Wachucik, copyright (c) Abermedia 2024

Message from our CEO



David Whitehouse
CEO,
Offshore Energies UK

Whoever wins this year's general election has a big task ahead of him: to produce an industrial strategy that delivers the economic growth that the UK desperately needs. It must also support the highly skilled jobs needed to ensure energy security while navigating the tricky waters of the energy transition

The skills and knowledge that the UK has cultivated have transcended geographical boundaries: our technical guidelines, best practices and talented people and skills have had a positive influence on basins elsewhere.

For us to unlock our low-carbon energy future, our integrated sector needs long-term confidence to invest into our industry so we can build a domestically successful energy transition together. Our industry has a vital role to play.

The opportunities in the UK offshore energy sector to transform how we power our society are inspiring. Working together, with an attractive investment environment and a strong industrial economy, the UK's offshore energy companies could invest £450bn in energy production by 2040. If we get this right at home, the export potential is huge.

It is estimated that it will cost £1.4 trillion to make net zero emissions a reality by 2050, with the vast majority coming from the private sector but it will not come without strings attached.

Our journey to net zero must be focused on attracting investment, growing our economy, and supporting our world class supply chain and people and skills. In June, OEUK will be releasing its Economy and People report which will provide insight into the economic contribution and workforce profile of our offshore sector. The report will focus on the offshore energy investment opportunities in the UK, pathways to growth for the sector and how we can unlock our collective growth potential.

Our sector has the evidence on why choosing a homegrown energy transition is the best answer. We must work together with key stakeholders to unleash our potential and power our future.

A handwritten signature in black ink, which appears to read "David Whitehouse".

New board members join OEUK

OEUK has appointed three senior industry leaders to its board with immediate effect, it said April 15.

Well-Safe Solutions CEO Phil Milton, Executive President of Operations at Wood Steve Nicol and General Manager, North Sea at Enquest Steve Bowyer will help OEUK continue to set the strategic agenda for the UK's offshore energy industry and its stakeholders.

The appointments come in a general election year in which OEUK is championing a homegrown transition built on the UK's offshore energy heritage. If the nation can create a globally competitive investment environment, this future offers huge opportunities for the UK's firms, their

supply chains and skilled people.

OEUK CEO David Whitehouse said the three appointees would bring experience and skills that would benefit "members and industry as we build a low carbon future across the UK to safeguard jobs, deliver energy security and unlock economic growth.

"Each of our new board members brings the kind of practical business and engineering know-how we need to build a globally competitive investment environment and offshore energy future. I look forward to working with them as we continue to champion our sector and show how it can create long-term economic growth across the UK."

SEQual at 3: Supplier Assurance in the UK's offshore energy industry

From its May 2021 launch with nine founding operators co-operating on the UKCS, SEQual has grown to number upwards of 17 buyer organisations (see below) – and over 700 suppliers. Managed by LOGIC, a wholly owned, not-for-profit subsidiary of OEUK, it was set up by companies who shared the goal of a faster, cheaper, and more compliant supply chain pre-qualification process.

Its growth is down to its design philosophy: "by industry, for industry." By following robust industry and international standards, SEQual enhances transparency and accountability, fostering a climate of mutual trust between buyers and suppliers.

And with three years' successful operations behind it, SEQual is preparing to broaden its horizons as the industry itself expands and transitions to include new energies.

Alongside oil and gas, SEQual's members now increasingly come with commercial propositions for decarbonisation. Operators of windfarms, carbon storage facilities, electrolyzers and blue hydrogen plants

are all welcome to partner up with the suppliers of the goods and services needed to make each kilowatt-hour go as far as practicable.

SEQual continues to evolve and expand its reach, and stakeholders across the energy spectrum are encouraged to explore its offerings and engage with its vision of a pre-qualified and compliant supplier ecosystem, assured once by SEQual for everyone.

As, SEQual Manager Catriona Stevenson says: "Assurance is something we all need to get right in the energy industry. Working together through SEQual, we can do this faster and more cheaply for everyone, eliminating paperwork, and cutting down time to contract by months".



For more information, please visit www.sequal.co.uk

UK energy strategy out

The Department for Energy Security & Net Zero (DESNZ) published its energy strategy in early May.

It details the relationship between market regulator Ofgem, DESNZ and the National Energy System Operator, whose first chair will be Dr Paul Golby, an engineer by training and a former head of E.ON UK. DESNZ will be the sole shareholder of the company that will plan Britain's electricity and gas networks, but which is now part of National Grid.

Energy Security Secretary Claire Coutinho said Dr Golby – who was appointed after a competitive recruitment process – would bring extensive industry experience and will help NESO to take its important first steps.

"With demand for electricity forecast to double by 2050, and with ambitious net zero goals to hit, this new organisation under his leadership will help us create a modern system that powers Britain with secure, clean energy, and keeps costs low for bill payers," she said May 3.

Dr Golby said he looked forward to working with the board, management and team as it transitions out of National Grid. "Decarbonising our energy system, whilst ensuring security of supply at an affordable cost, is one of the most important challenges facing the UK," he said.

NESO is set to launch in summer 2024 as a public corporation free from commercial interests and operationally independent from government.



Govt backs gas-fired power in its electricity market review

The government committed its support for new gas power stations in a March 12 document aimed at addressing some of the concerns about the security and the cost of energy supply. Its second consultation into reforming the electricity market recommends laws requiring gas plants to be built net-zero ready and able to convert to low-carbon alternatives such as carbon capture and hydrogen to power. The news was greeted with support across the board, with the Climate Change Committee having itself recognised the need for unabated gas generation into the 2030s.

Energy Security Secretary Claire Coutinho said that without gas backing up renewables, we face the genuine prospect of blackouts. Other countries in recent years have been so threatened by supply constraints that they have been forced back to coal... We will not let ourselves be put in that position. And so, as we continue to

move towards clean energy, we must be realistic.

“While the renewable share will increase in the years ahead, they aren’t failsafe, and future supply can only be calculated based on estimation. That is why flexible power generation is needed, to keep electricity secure and reliable, acting as back-up generators to keep the lights on.”

The consultation also includes proposals to reduce people’s bills across the country. A significant proportion of the UK’s energy is located away from areas of high demand: for example, a quarter of the UK’s renewable energy is generated in Scotland. Different wholesale prices could better match supply and demand and bring down costs for people across the country.

National Gas CEO Jon Butterworth said the timely delivery of the consultation would provide industry with policy confidence and unlock crucial

investment. Today’s announcement states unabated gas will be needed in the power system beyond 2030.

Energy Systems Catapult said it was “increasingly clear that the only way we can get to a net zero electricity system in time and without pushing up bills is to move to a market that reflects local supply and demand... While it is disappointing to see nodal pricing ruled out, improved locational signals will deliver significant benefits to consumers and opportunities for innovators. (*OEUK Magazine #57, page 30*).

Cornwall Insight said the consultation gets the UK one step closer to a secure and future-proofed energy landscape. Bolstering national power infrastructure and ensuring energy security will not only help insulate future bill-payers from global uncertainties, but also foster a sustainable path towards net zero.

Plentiful gas supply this summer: National Gas

There will be enough gas supply to meet demand this summer, according to National Gas’ annual forecast for the six-month period. It forecasts a net drop in demand to 29.0bn m³ in the April-September period, down from last year’s 33.3bn m³ (see *table below*).

The UK and Norwegian continental shelves will do most of the heavy lifting while the balance will come as liquefied natural gas (see *table*). The transmission system operator forecasts a drop in demand to 29.0bn m³ in the April-September period.

Demand includes exports to the continent and these will be lower this year. They are expected to halve, from 7.1bn m³ to 3.6bn m³. The season ahead

price differential for summer shows a slight premium for flows to continental Europe, but the spread is very close to zero.

This is for a number of reasons. First, there is new LNG import capacity in Belgium and Germany. Previously tankers delivered gas in the UK for regasification and onward transport to the continent.

Second, the continent is ending the winter withdrawal season with even more gas in store than it had last year so there will be less restocking. And French nuclear capacity is back up, displacing gas demand for power generation.

Similarly, the UK power sector’s demand for gas will also dip from 7.8bn

m³ last summer to a forecast 6.6bn m³ this year. As well as more renewable capacity on line from projects such as Dogger Bank A, the UK-Denmark Viking Link has been operational since December.

Despite easing up on demand, National Gas says that Great Britain – Northern Ireland being beyond its remit – still needs gas as its key source of flexible power to ensure energy security.

Gas can balance the grid in real time as wind and solar supplies rise and fall. “Although the total volume of gas consumed over summer is decreasing, the critical role gas plays in ‘plugging the gap’ to achieve energy security is increasing, this year’s *Summer Outlook* says.

UK summer gas supply by source (bn m³)

Source	2019	2020	2021	2022	2023	2024 forecast
UKCS	16.9	15.9	12.2	17.2	16.6	16.2
Norway	9.8	8.8	12.7	13.2	7.1	7.4
Continent	0	0	0.1	0	0	0
LNG	6	7.1	5.1	9.8	6.4	3.9
Storage	1.4	1.3	1.3	2.1	1.6	1.6
Total	34.1	33.1	31.5	42.2	31.8	29.0

Source: National Gas

NSTA issues guidance on CO₂ metering, storage sites

Upstream regulator North Sea Transition Authority published two sets of guidance for the carbon storage industry March 28.

They will help industry to prepare for the time when they can start injecting, it said.

The guidance will immediately help the licensees of the Track 1 clusters at Hynet and Northern Endurance, and Track 2 at Acorn and Viking, which are the most far advanced projects, as well as the new licensees who remain unsure

of their route to market.

One concerns the methodology for measuring the volume of the CO₂ and the exact composition of the gas as it is injected and how to do it. This ensures that the correct payments will be made under the Carbon Trading Scheme.

The other explains how to determine the exact extent of a subsurface storage site and the area the licensees must manage to prevent/detect leakage.

This precise definition is required so that any deviations from the expected

CO₂ movement and containment are clearly identifiable so that preventative or remedial action can be taken. The NSTA awarded 21 CCS licences in 2023 and it has created a dedicated NSTA carbon storage development team.

The NSTA does not instruct independent businesses on how they should operate, but planned monitoring for such events is a requirement for each carbon storage licence application.

CO₂ injections are expected to start around the end of the decade.

CCS hopes mount for the Solent Cluster

The North Sea Transition Authority (NSTA) has opened up an area around the Solent for CO₂ storage in saline aquifers. The area is a major manufacturing centre and home to ExxonMobil's refinery in Fawley.

Among other activities, it produces hydrogen from natural gas, with CO₂ as a waste product. The region as a whole emits roughly 3.2mn tonnes/yr of CO₂.

Natural gas pipeline operator SGN said in a report last November that decarbonising Solent industries could create 18,000 skilled jobs and provide an £11.9bn economic boost in the region.

Plans to deliver net zero in the region could also sustain 70,000 jobs and vitally contribute £4.4bn gross value added to

the UK economy by 2035 as industry uses hydrogen instead. Potential anchor projects, the report says, include the Solent Blue hydrogen plant, which would capture 2.7mn tonnes/yr; and a potential sustainable aviation fuel plant with carbon capture installed with initial production capacity of about 200 kilotonnes/yr from 2032. The potential carbon capture project at the Marchwood EfW plant would capture up to 90% of the site's greenhouse gas emissions.

Although most of the UK's potential storage is located in the North Sea, the English Channel is estimated to have a potential storage capacity of over 1 gigatonne of CO₂ – equivalent to the

emissions of more than 200mn cars driven in one year.

OEUK's policy and sustainability director Michael Tholen said that while the announcement was "an important step for the UK's carbon capture and storage sector," investors still needed certainty regarding specific timelines for the deployment of the £20bn government funding. Equally, CO₂ emitters also needed a regular competitive allocation process.

The government is also consulting on allowing the transport of CO₂ by road, rail, barge or ship, it said May 7. This would bring the technology within reach of more customers and enabling net zero.



OEUK staff and members visited DNV's test-site at Spadeadam, Northumberland, to discuss hydrogen and how its properties may impact its role in the energy transition. Industry is the likeliest consumer, with zero-carbon steel, glass and other products able to compete with imports once a carbon border adjustment mechanism has been introduced.

OGA Plan raises the decarbonisation bar

The regulator must pull off the feat of maximising economic recovery of UKCS reserves while minimising emissions from the process

The North Sea Transition Authority (NSTA) has tightened the requirement on producers to decarbonise their offshore assets. In a March 27 statement it said it had consulted extensively before launching its OGA Plan, which ranges across improved operational efficiencies, decarbonised electricity generation on platforms; and incentivising flaring and venting reductions, especially of methane.

The NSTA said that 14 respondents generally supported the draft plan's approach to decarbonising power generation while 17 opposed it. The consultation exercise led to some softening of the language. The NSTA has to balance maximising economic recovery, which was the objective behind its creation following the Wood Report, with the government's later ambitions (OEUK Magazine #57, p18). The NSTA said that it had made sure that its proposals were proportionate to the aims. For example, a platform's emissions intensity will be one factor to consider closely but it will also be important to balance that with the benefits of keeping cleaner assets operational for longer, it said.

MER – or lower emissions?

Closing some low-producing, high-polluting installations earlier could allow higher producing and cleaner new assets to come online while still reducing emissions from the UKCS. Operators have agreed to halve emissions by 2030 and invest £2bn-3bn on electrification. In addition, industry has itself committed to 90% reduction by 2040, and to reach net zero basin by 2050. Operators must also monitor and reduce fugitive emissions.

NSTA CEO Stuart Payne said the plan struck the right balance between maximising the economic recovery of oil and gas (MER) and emissions reduction. And companies that flare without consent, or whose flaring exceeds the consents, may expect to

be fined, depending on the tonnage and the degree of co-operation shown. The NSTA added footnotes to the electrification and low carbon power chapter to set out how the terms 'fully electrified', 'electrification ready', and 'partial electrification' relate to power generation requirements.

It also took on board feedback on new developments: they will be required to tie back 'to hosts that are fully electrified or committed, to the NSTA's satisfaction, to electrification or low carbon power'. This gives more time to ensure that the host platforms are low-carbon.

OEUK takes new approach

OEUK launched its study to evaluate how the industry will meet decarbonisation targets in early 2024. "Initial findings of the study show a clear commitment from industry to meet the 2030 target of a 50% reduction of greenhouse gas emissions based upon the 2018 baseline," said Mark Wilson, OEUK's HSE and operations director.

The study is taking a collaborative approach to its work and will include the role that technology can provide in delivering current and future decarbonisation solutions which are not limited to electrification.

The plan originated from the position that the offshore industries own, and will continue to own, the agenda. OEUK had engaged with the NSTA on the consultation for the OGA Plan and it had provided a clear recommendation for industry to demonstrate ongoing ownership of the decarbonisation journey. Regulatory intervention should only be available as a backstop if required, Mr Wilson said.

The study will outline the industry's decarbonisation performance based upon the operator stewardship survey data that is submitted annually to the NSTA. The industry decarbonisation plan/ report was a recommendation in response to the OGA Plan.

Provisional quick-start E&A licences awarded

The North Sea Transition Authority has offered a further 31 oil and gas licences in its 33rd round, chiefly for gas extraction from the southern North Sea (SNS). They have the potential to come on stream to power and heat the UK's businesses and homes within the next five years.

The latest and final tranche brings the total to 82 offers to 50 companies from the 115 bids from 76 companies across 257 blocks and part-blocks. The licences offered could add 600mn barrels of oil equivalent up to 2060, or 545mn boe by 2050.

The 31 offers are made up of 29 new licences and two mergers. Of the 29 new licences, 23 are Initial Term Phase A or B; two will be Initial Term Phase C (firm wells), and the remaining four will go straight to Second Term, meaning they can theoretically go into production more quickly.

Phase A is a period for carrying out geotechnical studies and geophysical data reprocessing; Phase B is a period for undertaking seismic surveys and acquiring other geophysical data; and Phase C is for drilling.

OEUK CEO David Whitehouse said the new oil and gas licences benefited every sector in the UK: they would secure supplies of domestic gas; reduce reliance on more carbon intensive imports from overseas; and protect jobs.

Deltic gives qualified response

Among the winners was Deltic Energy – the sole bidder for a mix of small discoveries and low risk, infrastructure led exploration prospects in the SNS.

Tempering its enthusiasm with a comment on the fiscal and political environment, it said it would "carefully consider whether accepting further licences in the UK is in the best interest of the business and its shareholders." (See p22.) But it did say the awards were more proof of its ability "to identify and acquire valuable exploration and appraisal acreage within the UKCS."

OEUK, Xodus launch nesting bird census

The offshore energy industry has launched an offshore nesting bird census (ONBC) to learn more about how endangered sea birds use platforms for nesting and rearing chicks. The data collected during June will show the geographic distribution of these unconventional breeding sites and how they are used.

Created by Dr MacNeill Ferguson, an ecological specialist from energy consultants Xodus, this is the first of a planned annual series which has been welcomed by the industry. It is also supported by the government's Joint Nature Conservation Committee.

Operators are legally obliged to avoid disturbance to nesting birds during decommissioning so data from the survey will help inform decision-making. It is hoped that all 24 Southern North Sea platform operators will take part. Dr Ferguson said that sharing ecological data benefited the environment through ecologically coherent decision making.

It is already known that kittiwakes nest on platforms in the southern North Sea, the area between East Anglia and the Netherlands.

The population of these distinctive small gulls has declined by 40% in recent years, and they are now on the International Union for the Conservation of Nature's Red List, meaning they are at risk of global



extinction. There is similar concern about razorbills, guillemots and even carrion crows which nest on offshore platforms. The bird above is a gannet.

OEUK's environment manager Caroline Brown said: "Some UK seabirds are facing a significant decline in numbers, and it is vital to have a better understanding of their nesting behaviour in order to help protect them. We are confident the aims of this important survey will appeal to our offshore workforce and have a significant value to scientists."

Helicopter safety and the supply chain

OEUK H&S Manager Graham Skinner attended the HeliOffshore Helicopter Safety Conference 25-26 April. A critical topic on the agenda was the development of sustainable supply chain practices to transform the global offshore helicopter market. Mr Skinner has worked closely with OEUK Supply Chain Manager Graeme Rafferty to collaborate with HeliOffshore and the International Association of Oil & Gas Producers' Aviation Safety Committee to ensure that a common language is used to communicate on this topic.

Mr Skinner demonstrated the practical

steps OEUK uses to embed the Supply Chain Principles, including a bi-annual supply chain survey that is designed to give feedback to purchasing companies on their performance against the principles, development of good practice guidelines such as those recently launched for the procure-to-pay process, and the Supply Chain Awards (see page x). Mr Skinner noted that the impact of non-operational departments such as legal, purchasing and procurement and human resources can all have a significant impact on frontline safety.

Helicopter crashes off Norway

A helicopter servicing the oil industry crashed in the Norwegian sector of the North Sea February 29, killing one of the passengers. Five others were taken to hospital.

Offshore Energies UK, Step Change in Safety and the Offshore Helicopter Safety Leadership Group said that the industry was "profoundly saddened to hear of the fatality and injuries of passengers and crew in the Norwegian sector."

Neither the manufacturer nor the Norwegian Civil Aviation Authority by that point had identified any technical concerns about the helicopter, which enjoys the confidence of the industry.

With 20 years in operation, the Sikorsky 92 helicopter is operated in 28 countries flying an average 13,200 hours/month. They are used in offshore crew change and search and rescue operations. OEUK's HSE & Operations director Mark Wilson said: "Our thoughts are first and foremost with all who were on this flight, their families and those involved in rescue and response following the helicopter ditching in Norway. At present there are no confirmed facts about the cause of this accident. Our priority now is to work in close co-ordination with Step Change in Safety, helicopter operators, oil and gas operators and contractors, offshore trade unions, the pilots' union BALPA, the regulators; HSE and the Civil Aviation Authority. When facts are established we will work in partnership with these bodies to ensure any learning from this tragic incident is shared across the industry and appropriate steps are taken in due course."

The crash came a month before the 15th anniversary of the Super Puma helicopter crash offshore Peterhead. That caused the deaths of 16 men.

OEUK CEO David Whitehouse, speaking at the memorial service, said: "The anniversary is another reminder of the constant vigilance we must continue to maintain towards safe operations across industry."

Share Fair 2024: a bumper edition

The outlook for business may be discouraging but the annual event drew record numbers

Bigger, broader and buzzier – that was OEUK’s 2024 Share Fair event. Attracting over 700 attendees, supported by the North Sea Transition Authority, and with sponsorship from KAEFER, SEQual, Global E&C and Equinor, the event in Aberdeen’s P&J Live provided offshore energy companies with numerous opportunities to explore new ways of working together.

Building on last year’s expansion of its scope, this flagship business development event included even more companies with interests across the energy spectrum: as well as oil and gas there were representatives from the, offshore wind, carbon capture, geothermal and hydrogen production industries. Share Fair opened with a screening of the industry manifesto that OEUK produced for this election year. It was followed by a welcoming speech from OEUK’s CEO David Whitehouse.

Observing that Share Fair had grown by 55% year on year, Mr Whitehouse said it doubled its hall space and tripled the size of its exhibition since 2023. He said Share Fair’s significant growth reflected its importance as an arena where offshore energy suppliers and innovators can connect with operators, developers and major contractors who are seeking to invest in energy expertise, innovative products and specialised services.



OEUK CEO David Whitehouse

Supply chain diversifies into renewables

Noting that supply chain companies are the backbone of the UK’s offshore energy industry, Mr Whitehouse reiterated that the companies now busy supplying goods and services to oil and gas producers are also those driving technological innovation in low-carbon energies including offshore wind power generation, carbon capture and storage and hydrogen production and transport. He underlined the value of the UK’s huge national asset: the offshore energies supply chain. It will be the key to successfully meeting the 2050 net zero targets established by the 2015 Paris Agreement.

During the event 28 leading operators and major contractors* were involved in either presenting in-advance market intelligence about their pipeline of exciting energy projects ahead or hosting one-to-one business discussions. For suppliers these sessions illuminated opportunities and provided invaluable access to key decision-makers. For contract and procurement teams, the event facilitated conversations that enabled them to update their knowledge of the expertise, innovative technology and specialist services offered by the UK supply chain companies.

There were 181 company representatives hosting one-to-one meetings with suppliers to explore ways in which their expertise and capabilities might play a role in future projects. By the time Share Fair had closed, more than 900 business discussions had taken place encompassing all areas of offshore energies.

Energy supply chain has links country-wide

While the north east of Scotland is a key energy hub, the energy supply chain is spread throughout the country. OEUK welcomed colleagues from fellow trade bodies like NOF in Durham and the East of England Energy Group in East Anglia. Their participation in Share Fair helped to broaden awareness of energy hubs around the UK.

Exciting energy transition projects are taking place in Humberside and West Yorkshire. Delegates were drawn from near and far: Caithness, London, Great Yarmouth, the West Midlands and Gloucestershire were all represented.

Attendees heard how the offshore energy sector’s contribution to decarbonising the wider economy could be a huge opportunity if investment is unlocked to enable supply chain companies to develop the capabilities required.

Growing from strength to strength, the diverse range of stakeholders participating in Share Fair included representatives from academia and training organisations. Staff from the Developing the Young Workforce (DYW) and North East Scotland College teams also shared a stand to raise awareness of current initiatives with industry and aimed at upcoming generations.



Hundreds of delegates on either side of the market meet to exchange details and find commercial partners

A winner speaks up for fair treatment and strong collaboration

Among the winners of the gold awards was the Norwegian state-controlled producer Equinor, a major oil, gas and wind energy producer on the UKCS. After accepting the award, supply chain manager Julie McWilliam said: “Equinor are committed to ensuring best practice across industry and the OEUK Supply Chain Principles are an important factor to achieve this.

“By creating a common and understandable framework, the principles have helped Equinor to achieve Gold status recognising us as a trusted and collaborative partner towards our suppliers. Promoting strong collaboration across our supply chain is a key part of ensuring we have the skills, technology and capabilities needed to support the energy transition, and this is an area we will continue to focus on.”

Shortly after the awards, OEUK published its Procure-to-Pay (P2P) Good Practice Guide to hold buyers to a consistently high standard of payment. The guidelines were devised by an OEUK working group with the aim of sharing good practice for the benefit of the energy industry.

Payment performance is an important metric in fostering healthy supply chain relationships. It is core to sustaining cash flow throughout the supply chain and essential for small-to-medium companies looking to grow their business.

The cheque’s in the post

OEUK’s 2023 Working as One survey revealed that only 62% of responses said payments were always made in full compliance with the contractual

payment terms. Respectively 67% of operator payments and only 37% of tier 1 contractor payments were on time. Even so, that was better than the 2021 survey which found that payment terms were 30 days or less for 67% of survey respondents

The health and prosperity of our energy supply chain and the full realisation of the North Sea Transition Deal, now just in its fourth year, is dependent upon sustainable contracting and a collaborative approach.

The NSTD underlines the importance of the Government Prompt Payment Code. This is reflected in OEUK’s Supply Chain Principles, which were written by the industry. Buyers have to make their best efforts to meet the 30-day payment terms.

Winners of the OEUK Gold Awards: companies best exemplifying equitable commercial practice and payment terms



Richard Foster, Centrica Energy Storage; Steven Petrie, Harbour Energy; Emily McGairy, Spirit Energy; Michael Hume, Dana Petroleum; Pauline Innes, NSTA; Martin Bruce, Neptune Energy; Brad Youngson, TAQA; Alan Cheesewright, Three60 Energy; Katy Heidenreich, OEUK; Peter Stephen, Serica Energy; Julie McWilliam, Equinor; Nigel Bell, CNR international.

Policy gaps, taxation issues pose challenges: Business Outlook

The offshore is making big strides with decarbonising but it needs greater certainty from Westminster to unlock the money that net zero will cost

The annual edition of the OEUK *Business Outlook* has extended its coverage to the supply chain for the first time. And in another first, it was launched across Britain: London, Aberdeen, Durham and Lowestoft all hosted launch events for the report that this year warned of the harm that government policies could do to the future of energy production from the UK continental shelf.

Oil and gas projects could create £145bn for the UK's supply chain. New off-shore wind farms would generate £260bn of work, new hydrogen projects a further £25bn and fresh carbon capture and storage (CCS) technology £34bn.

The existing oil and gas supply chain already has 60%-80% of the capabilities needed to develop these. And with the right conditions, the UK offshore energy sector could benefit from a global export market worth more than £1 trillion within the next 15 years. But this depends on harnessing the UK's oil and gas heritage and attracting private investment needed to maintain the UK's existing energy industry and its associated workforce. There is a question-mark over these former 'business as usual' scenarios.

To reap the benefits of a homegrown transition and unlock investment in the UK, therefore, OEUK is urging policymakers to introduce supportive policies and globally competitive taxes. OEUK's industry manifesto (*Offshore Energies UK Magazine #58, p5*) outlines the key steps government can take in partnership with industry to protect jobs and energy security and deliver cleaner and more affordable energy.

The report comes as wholesale energy prices fall to levels last seen before the invasion of Ukraine. OEUK has always said that when windfalls fall away, so should windfall taxes. The industry needs restored business confidence in the UK, as the government's Office for Budgetary Responsibility (OBR) says that £1.4 trillion of investment is needed to make net zero a reality – mostly from the private sector.

The producers' view

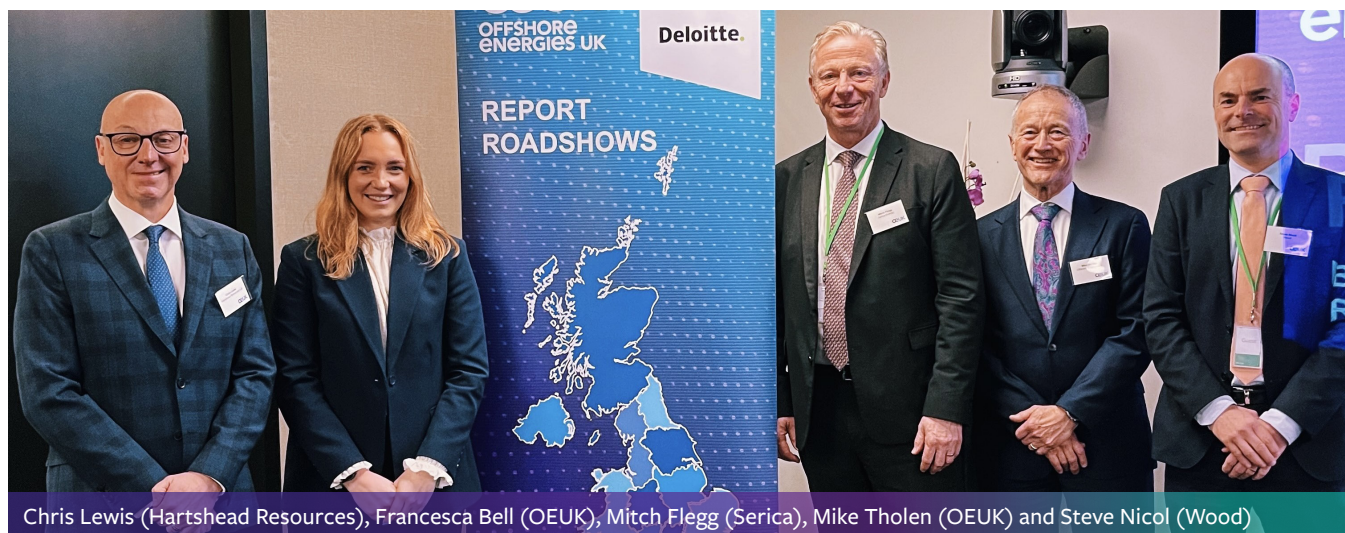
Introducing the report at the London launch of the report, at a breakfast briefing hosted by Deloitte, OEUK's sustainability and policy director Mike Tholen said the UK had to make the most of all its opportunities or it will be poorer and in a less secure position than it is in now.

Serica Resources CEO Mitch Flegg said the industry was performing really well, and it was decarbonising far faster than he had expected, yet this was going unrecognised: "We are doing an incredible job, but it does not feel like it: we are under siege from all sides. Some tension is good, it makes you do the right thing; but the headwinds we face make us feel we are running backwards. Four tax changes in two years makes modelling very difficult."

And the OGA Plan (see p13) has the potential to close infrastructure that all producers rely on, owing to the emphasis on electrification. "We need to keep the whole thing going," he said, and the company's shareholders are pressing it to look for investment opportunities in other countries.

Serica will not be producing by 2050; but for now, its staff are coming up with ideas for implementation in the coming few years that are not just in response to regulatory pressure. "This is an initiative from within: they want to see the company as part of the solution," he said.

Hartshead Resources CEO Chris Lewis said 2024 had been a challenging year so far. The company was set up in 2019 with an eye on the supply chain, opportunities for carbon capture and storage and hydrogen; and the emphasis on gas. But the challenge is the fiscal risk and inflation. And there is not much support for what the company is doing in a key sector of the economy. Balancing the twin objectives of maximising the economic recovery with decarbonisation is also a difficult job, he said. The company has £500mn to invest but it is on hold while it weighs up the political risks, he said.



Chris Lewis (Hartshead Resources), Francesca Bell (OEUK), Mitch Flegg (Serica), Mike Tholen (OEUK) and Steve Nicol (Wood)

OEUK visits East Anglia & Durham

Orbis Energy in Lowestoft hosted more than 50 delegates at the East Anglia Business & Supply Chain Outlook Breakfast Briefing, the third in the series after Aberdeen and London.

Sponsored by Deloitte and facilitated by the East of England Energy Group (EEEGR), the event included a panel session and presentations from: Katy Heidenreich, Chair, Supply Chain & People Director, OEUK; Kevin Keable, EEEGR; Ben Ward, Energy Transition Adviser, OEUK; Jonathan White, General Manager, Perenco; and Jason Hendry, Managing Director for England and Renewables Strategy, Peterson Energy Logistics.

The event provided a platform for members and attendees to discuss ways of unlocking opportunities and ensure policymakers choose a homegrown energy transition to protect jobs and economic growth here instead of relying on increasing imports.

The event was a real success, with excitement for future energy developments in the region resonating around the room. The large-scale installation of offshore wind turbines and the Bacton Thames Net Zero initiative are just two of the opportunities in the region. Lowestoft, whose roots go right back to the giant offshore gas fields that supplied most of Britain's homes and industry, is gearing up now for the development of home-grown low-carbon energy.

The annual edition of the *Business Outlook* has extended its coverage to the supply chain for the first time and questions from the audience ranged further afield than usual, with attendees eager to understand whether the offshore sector has the people, skills and supply chain to meet the growing demands of the region.

It was clear from the room that while the region holds significant potential to help the UK achieve its net zero ambitions this is not possible without supportive policy-making and investment.

Mr Hendry told delegates how important the oil and gas supply chain was, in achieving the energy transition: "As we navigate the energy transition, we face demands for cost-conscious services, sustainable jobs, and value generation delivered safely and consistently. This can only be met when our revenue stream is robust and stable... It is essential that we support our oil and gas customers and transition with them, as partners. The oil and gas supply chain is intrinsically linked to the delivery of a successful energy transition. We are all in this together

OEUK will return to Lowestoft for the publication of its annual *Economy & People Report* in June. Details for this regional engagement can be found on our website.

The report – in a nutshell

Launching the report in Aberdeen, OEUK CEO David Whitehouse said: "The UK has a £450bn domestic energy opportunity that could transform the economy and support jobs – but warning lights are flashing... Investors, firms and workers need stability, predictability and fair returns to build a low carbon future here and keep jobs in the UK. We are in a global race for investment, and UK energy companies need supportive long-term policies, a stable tax regime, and responsible rhetoric from all sides. Our journey to net zero and beyond depends on responsibly making the most of our oil and gas production,

which is at record lows.

"... We're facing a situation where we must import energy that could have been produced here and where we must rely on supply chain companies that could have been based here. The UK's world class oil and gas sector has reduced emissions by 24% since 2018."

Ross Dornan, OEUK's Market Intelligence Manager, said: "This year is a critical one for the country in general and for our industry in particular as the UK heads towards a general election. The sustainability, reliability and affordability of our energy supplies will come under ever closer scrutiny."

Made in Britain

A report published by independent consultancy Rystad Energy shows the UK has between 60% and 80% of the capabilities required to develop its low carbon energies.

But targeted investment is vital to capture the potential estimated £150bn opportunity, says the report, which was commissioned by OEUK.

The fact-based, holistic and highly granular view of supply chain demand across energy verticals reveals the need to help supply chain companies seize the potential of a projected 4% yearly increase in real-terms spending on and offshore.

Forecasts indicate this major growth phase will occur across the UK's floating wind farms, new hydrogen schemes and carbon capture and storage (CCS) projects from 2023 to 2040. Rystad Energy's analysis underlines the successful delivery of these emerging low carbon energies will hinge on the existing oil and gas supply chain delivering into them.

OEUK's Supply Chain and People Director Katy Heidenreich said the report outlined the exciting opportunities that a home-grown energy transition offered and served as a reminder to policymakers and industry of the importance of unlocking supply chain investment... We need long-term policies and a globally competitive tax system."

Sian Lloyd-Rees, OEUK Supply Chain Champion, said the analysis provided a strong case for prioritising future investment in an existing capability to support achievement of the UK's ambition for CCS, hydrogen and floating wind. In addressing both near term deployment issues and strategic concerns about the potential export of supply chain capabilities, it provides invaluable data to help us work towards delivering a successful and smooth energy transition."

Rystad said that "scaling the supply chain is paramount to reaching government targets, as well as home-shore investments and secure export revenue."

Young Professionals in London learn the confidence trick...



OEUK hosted its first Young Professionals (YP) event of the year in its London office April 18, with the theme 'How to network in person'. The 40 people in attendance swapped their different experiences and opinions on how to network effectively and with various questions raised on the best way to do it.

Katie Perrior (*right*) founder and chair of Inhouse Communications was a guest speaker and shared her views and vast experience. Among her pieces

of advice for the young generation was the importance of acting the part, or how to just "Fake it till you make it!" – a psychological approach to overcoming often imaginary problems without of course behaving unethically.

She explained that networking can be difficult, but by adopting an attitude of confidence and resilience, individuals can overcome initial challenges.

OEUK's senior energy transition adviser Laura Moyle (*left*) chaired the event and gave attendees the

opportunity to network by putting Ms Perrior's advice into practice. OEUK's Ben Ward and BP's market intelligence lead Eloise Burnett also spoke.

Feedback from the attendees showed that Ms Perrior's advice had helped them to swallow their shyness when initiating conversations.

Attending events like the YP evenings, which Halliburton sponsors, helps newcomers to the industry build networks that may well prove useful even much later on in their careers.

... While in Aberdeen, two CEOs pass on their wisdom



OEUK hosted its second YP event of the year in its Aberdeen office May 2. Titled 'Perspectives of a CEO,' guest speakers were the outgoing CEO of Serica Energy Mitch Flegg; and the CEO of the Energy Transition Zone, Maggie McGinlay (*at the podium, above*). It drew over 70 attendees.

They shared their thoughts and reflections on the UK's journey to net zero and the crucial contribution young professionals will make in this challenging task.

They also shared their insights and advice to those in attendance on what

skills are needed to be influential leaders in the offshore energy industry.

Mr Flegg provided a comprehensive overview of his career to date as well as his views on the important role that the offshore energy sector can play in unlocking economic growth and supporting highly skilled jobs across the UK, shortly before he leaves Serica.

Among his pieces of advice for young professionals was the importance of believing in yourself, seeking challenges and being surrounded by good people.

Ms McGinlay then provided background on the role of the ETZ and

the opportunity the northeast has to become a regional hub of excellence in energy transition opportunities.

Her advice to the young professionals present was to listen, be inquisitive and enjoy the journey.

OEUK's executive and strategic adviser Fraser Wyness chaired the session and fielded questions from the audience. There remain many opportunities for young professionals in the offshore energy industry as its remit extends to decarbonisation. There was plenty of food for thought as they carve out new roles for themselves.

Assuring the practical and psychological aspects of flight

OEUK held its annual Offshore Aviation conference in the Union Kirk, Aberdeen, May 9. It attracted 50% more attendees than did last year's.

The theme of the event was 'Maintaining and Sustaining' and had three plenary sessions: achieving regulatory compliance; sustaining our environment and caring for our people; and sustaining technical excellence.

In his keynote speech delivered on behalf of the Civil Aviation Authority, Richard Naylor gave a positive take on Brexit. He said that the rule making at the CAA had become freer since the UK had left the European Union.

NATS' Watch Manager Mike Simon described the complexities of offshore air traffic control at that facility: the tower covers 105,000 square miles of airspace. Other airports typically cover just a twentieth the area.

The technical director at Helideck Certification Agency, Graham Wildgoose, described common issues with offshore helideck non-compliance found during helideck audits.

And Stevie Skinner from OEG Offshore described the services to support technical compliance with offshore helicopter refuelling systems.

OEUK Supply Chain Manager Graeme Rafferty described how the Supply Chain Principles, the Working as one Survey and OEUK's Good Practice guidance can deliver value to the aviation supply chain.

Steve Robertson of LCI Analytics presented data about the use of helicopters and their future availability around the UK and globally, including presenting information about should cost models.

Viking's Paul Southwood highlighted the challenges and requirements to move from legacy firefighting foam systems to sustainable environmentally safe foams.

Joining in from the US by a video link, aviation psychologist Aedrian Bekker presented on the management of mental health for pilots in aviation, a really impactful presentation given the huge video wall used for the event.

This session was notable too for the presentation from Diane Wood of the Therapets charity. She brought along her dogs Naeso and Nola, who visit heliports to help travellers with stress and anxiety. Her accounts of feedback from travellers left few dry eyes.

Rich technical content

The technical content was delivered by Andrea Bernascone and Angelo Ambrosio, from helicopter maker Leonardo. Their presentations covered the features of their AW139, AW169 and AW189 helicopters, which are all used in the UK.

Stephen Plunkett of Offshore Helicopter Services described the development and implementation of their safety management system throughout operations. Afterwards Scott Allan described the findings of his maintenance resilience white paper developed for HeliOffshore which aims to transfer some of the learnings from flight management practices for pilots into the maintenance system.

He drives competency forward, through a 'shadowbox' programme, in the face of challenging market conditions for attracting new personnel.

And Sikorsky's Jeff Jurgens finished with a detailed review of the S-92 model of helicopter that reflected on its history but also highlighted both retrofit upgrades and new helicopters.

The event concluded with a lively networking session that emphasised the importance of getting together face to face in order to build strong relationships for collaboration in the future.

Chaired by OEUK Health and Safety Manager Graham Skinner, the event was very generously supported by OEG Energy (principal sponsor) and Survitec (supporting sponsor), NHV (lanyard sponsor) and Sikorsky (refreshment sponsor).



Book review

Carbon Capture & Storage

The legal landscape of climate change mitigation technology, by Dirk Uwer & Daniel Zimmer

Globe Law and Business has published its second edition overview of the role that carbon capture, use and storage (CCUS) technologies will play in achieving global climate ambitions.

The A4 book provides an overview of crucial factors for CCS/CCU. It aims to highlight technological and economic challenges, present related initiatives and strategies and showcase existing and planned projects across the world. Different countries use CCS for different purposes: in the US, for example, it is a means of enhancing oil recovery and so it is subject to different forces from CCS in Europe.

The authors provide a detailed assessment of the international, European and German legal frameworks and also of some of the projects on the drawing-board: Northern Endurance, Viking and Acorn, for example.

It offers an introduction to the core technologies and processes involved in the development of CCS/CCU, focusing on areas ranging from pre-/post-combustion capture, transportation and utilisation or

storage of carbon dioxide.

The scale of the opportunity and the need for CCUS in the energy transition is made apparent throughout.

The special report emphasises that while there is yet to be a significant breakthrough in the European markets there is plenty to remain positive about. Many of the jurisdictions including the EU and Germany have adapted their regulatory frameworks to address the challenges associated with capturing, transporting, utilising and storing CO₂ permanently and safely.

It also highlights the EU's efforts to ensure CCS is able to play a major role in the European Green Deal in order to decarbonise the EU energy system.

The report makes reference to the legal barriers that are yet to be overcome in the European CCUS market. In particular, outlining the major legal challenge of the lack of consensus among parties to the London Protocol regarding the export of CO₂.

At present only those nations that hold bilateral agreements with another

have the ability to transport CO₂ across borders for storage.

Amendments to the London protocol agreed by two-thirds of the member countries could facilitate trade without the need for bi-lateral agreements. Exports of CO₂ streams would facilitate the development of CCS/CCU hubs and clusters and connect 'remote' regions to appropriate storage sites.

The report concludes by making reference to perceived rise in government support for CCS/CCU technology to mitigate climate change and help achieve climate targets.

With a number of projects expected to come online in the next five years expectations are high, with many more to follow granted changes are made to the multi-level regulatory framework are implemented.

Other titles in this series are *Hydrogen Projects* and *Decarbonising Energy*. The authors are corporate lawyers at the Anglo-German firm Hengeler Mueller, specialising in mergers & acquisitions, regulated industries and competition.

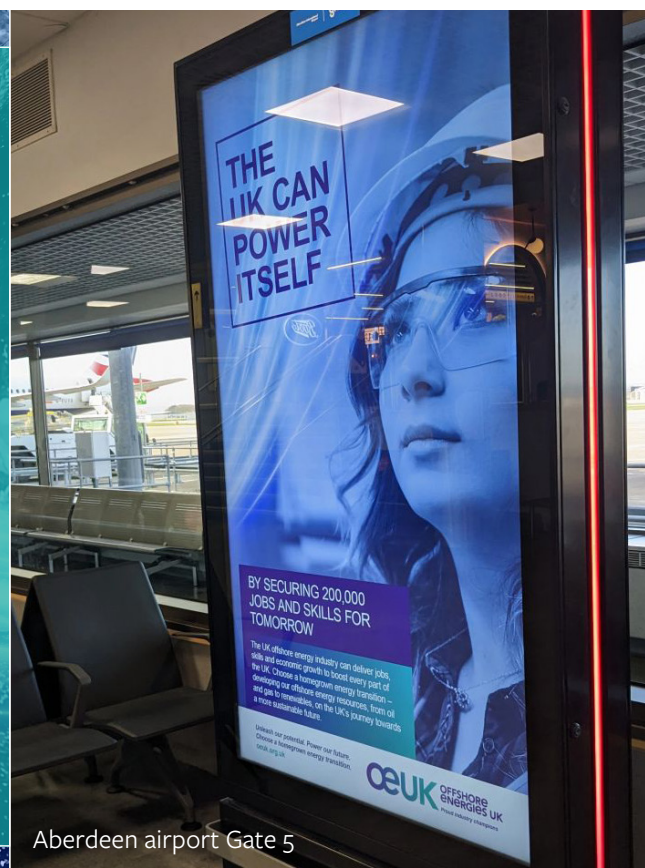
Now on a billboard near you...

OEUK has developed a range of adverts for different settings – print, online and billboards – to promote the industry manifesto (OEUK Magazine #58, p5) From now until the end of June, you will see these adverts that showcase the value that the offshore industry has contributed to society since the North Sea was opened up to hydrocarbon exploration and its potential to drive the country's further growth.

Our manifesto sets out why the UK offshore energy sector is essential for the economic and environmental prosperity of our country.

Using the catchphrase 'The UK can power itself', we hope to make the public aware of the importance of choosing a homegrown energy transition. By focusing on key themes – jobs & skills, economic growth, and security – we are showcasing the different ways in which the offshore improves life for industry, schools, health care, commerce and private citizens.

We are proud to make a huge contribution. Working round the clock, oil and gas production alone added over £20bn to the UK economy in 2022/2023. By choosing a homegrown energy transition, we can protect skills, secure investment and maximise sustainability.



Aberdeen airport Gate 5

Dutch gas output decline is bad news for the transition

A damning report by a Dutch think-tank finds that the country's gas output decline will be faster than the government had expected, frustrating key plans to decarbonise the economy

Despite the doubling of the wholesale gas price and rising concerns about northwest European energy security, Dutch drilling activity has not risen.

There are other similarities too between the UK and the Netherlands: formerly sizeable European energy producers who now find their upstream has fallen out fashion with the mainstream media. In both, social attitudes and government actions are either unhelpful or in open opposition.

Until The Hague decided to close the Groningen gas field to prevent more tremors, the Netherlands was looking at long-term prosperity for decades deriving from sales of relatively expensive winter gas exports to its neighbours from its very own giant swing gas field.

But now, according to an April 2 report published by the Hague Centre for Strategic Studies (HCSS), the situation has dramatically reversed. Less gas will come from fewer fields and expensive imports will come with a higher carbon content. With a global average of around 2% for methane leaks, and 2.5%-3% for US LNG, greenhouse gas emissions are around 30-50% higher for imported LNG than for Dutch gas. All this is happening with the tacit consent of non-governmental organisations whose

objective might be expected to be lower carbon emissions, especially as the LNG that is imported by the EU leaves poorer LNG importing countries to burn cheaper coal instead.

Government accelerator fails

The authors, with backgrounds in geophysics and gas production management, say the government's 'accelerator' for output, in the wake of Russia's winter 2022 invasion of Ukraine, did not have the expected effect (see *opposite page*). Indeed, in the following year, there was no additional gas exploration or production activity, one author Jilles van den Beukel told OEUK.

Two years after the launch of the plan, the rapid decline in production from the lesser fields has continued.

In 2023, production from small offshore fields decreased by 19%, from 8.6bn m to 6.9bn m. There is a risk that around 2030 and possibly even before, there will not be enough production to cover the operating costs of the offshore system.

If the government's plan had been implemented quickly and completely, up to 60bn m³ of additional gas could be produced from the North Sea by 2045. This could generate up to €12bn and save up to 60mn tonnes of CO₂ emissions

relative to imported LNG, according to HCSS (see *graph*).

The HCSS analysis takes 50bn m³ as the total likely output over the period, but the government's 2022 plan was predicting 100bn m³. This could have been reached by a number of approaches. The government could have introduced drastic changes, such as making exploration activities fiscally attractive; giving EBN a bigger role in these activities; and perhaps easing up on nitrogen emissions, whose regulation is particularly expensive for small operators. It could also have appointed more officials to debottleneck permitting and tried to incentivise a more technically-oriented student workforce, said van den Beukel.

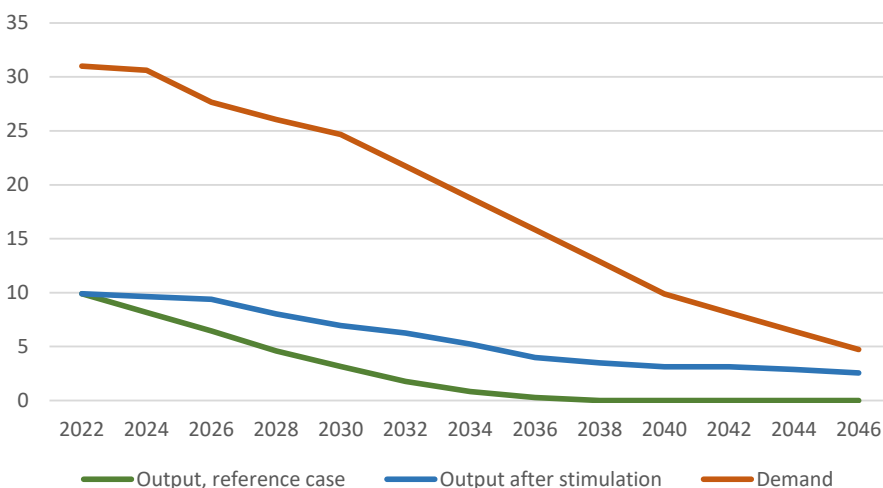
Import dependency rises

All in all, the outlook for the gas industry is bleak: high and unpredictable taxes and long approvals procedures have become an increasingly vexatious issue: producers count their pennies and focus on maximising what is left. With no plans to reverse the decision on stopping output from the giant and still viable Groningen gas field, the former biggest gas exporting country within the European Union will thus see its import dependency grow to between 70% and 90% this decade, the authors calculate. The European Commission did try to persuade the government to reverse its decision, but at home, the opposition to Groningen was too strong. Indeed, that sense of being unwelcome at home, the government's unquestioning acceptance of financial claims for structural damage to buildings in Groningen and most recently the Dutch court case against Shell for not achieving arbitrary Scope 3 reductions, all helped it decide to abandon its Dutch headquarters.

For the onshore, including the Groningen field, the decrease was as much as 43%, from 8.0bn m³ to 4.2bn m³.

The Netherlands compares unfavourably with Norway, where

Projections for Dutch gas demand and output with and without stimulation (bn m³). Source: HCSS



the tax burden is also high, but where exploration activities are fully deductible and therefore relatively cheap. Moreover, the Norwegian tax system is very stable, in contrast to the Dutch one, where the so-called solidarity levy came with retroactive effect.

What remains on the agenda are the few, modest infill wells with short pay-back times, mainly to be drilled from existing platforms and, with a bit of luck, a single new, small satellite platform. The mid-size (Neptune, ONE-Dyas) and small operators do more of this kind of work than the larger legacy players.

Methane leaks, meanwhile, have become a topic that is almost as hotly debated on social media as nuclear power. Estimates for average methane

leaks in review papers for the US are typically around 2.5% or 3%, but significantly higher estimates for specific areas are also common. NGOs will no doubt campaign vigorously against LNG because of that but also ignore the much lower carbon content of Dutch gas. In 2023, the Netherlands imported LNG equivalent to 25bn m³ of pipeline gas.

A harder transition

As far as this infrastructure is concerned, we must make an important note. The rapid decline in production means there is a real risk that offshore infrastructure will be dismantled before it is clear whether that infrastructure could have been converted for the transport and storage of CO₂ in depleted offshore gas fields,

hydrogen transport or gas storage.

Most Dutch gas producers are working on CCS projects or are considering doing so.

Hydrogen is having a much harder time. Electrolysers have actually become more expensive and industrial demand for expensive green hydrogen is slow to take off. So the forecasts for hydrogen demand in the new energy system are becoming more pessimistic. In the Netherlands, only Shell is building a plant (200 MW).

On the other hand, Norway, with low production costs and low methane leaks and scope 1 & 2 emissions, is well positioned to sell blue hydrogen within the EU. This could out-compete green hydrogen in countries such as Germany and the Netherlands.

Producers wrestle with declining output

The national association of oil and gas producers, Element.NL, describes how a former major gas exporter is adjusting to society's relatively new priorities for energy

The Dutch government requires that our energy system is reliable, affordable, safe and sustainable. These core values need to be maintained even when transitioning to a net-zero future, which means, realistically, that we must phase out unabated fossil fuels and phase in renewables.

Although the amount of renewable energy is rapidly increasing, our national energy system is still heavily dependent on fossil fuels. Natural gas makes up 36% of our energy demand and it goes to households, small and medium-sized enterprises and industry. But the recent crises in the Gulf and eastern Europe have put affordability and security of supply under pressure.

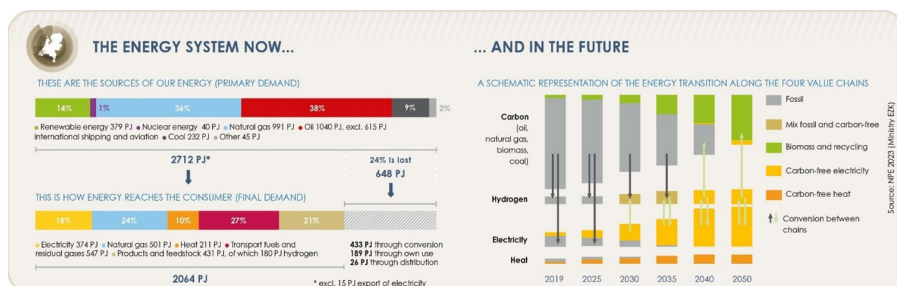
The Netherlands is one of the biggest gas consuming countries on our continent. After the discovery and development of the Groningen field in the late 1950s, it was able to transition quickly from a coal-based energy system to one based on natural gas. All Dutch households had a connection to the newly developed gas grid. Dutch gas did not only come from Groningen, but also from about 200 on- and offshore small gas fields, some of which have been in production since the nineteen-seventies.

Every cubic metre coming from the European continental shelf means less dependence on imports. There is however a dilemma: can Europe still

develop new fossil projects in a world where the effects of climate change become more visible every year? Does affordability and maintaining our standard of living justify the ongoing production of oil and gas? There is no silver bullet solution to this dilemma and a pragmatic approach is what is needed. That is why the Dutch government introduced the Acceleration Plan in the summer of 2022.

Acceleration Plan

After the start of the war in Ukraine, the Netherlands had to resort to import LNG from the US and Qatar. This is however not a long-term sustainable solution to bridge the gap between domestically produced energy and energy demand. Although the energy transition is high on the (political) agenda and significant steps are made, it is expected that the Netherlands will need natural gas for at least the next 25 years. In order to close the import gap, the Netherlands must first reduce its energy demand; second, it must increase renewable energy supply; and third, it must slow down the decline of fossil energy production.



Source: <https://www.ebn.nl/en/facts-figures/knowledge-base/infographic-2024/>

The Dutch government's answer to slow down the decline of fossil energy production, was the Acceleration Plan for offshore gas production. In July 2022, the ministry of Economic Affairs and Climate announced that measures would be taken to increase the appetite for investors to develop projects in the Netherlands.

An analysis of the reason for lagging investments showed that the main issues are the duration of the permitting process; a lack of trust in reliable and predictable government policies; and risks in exploration.

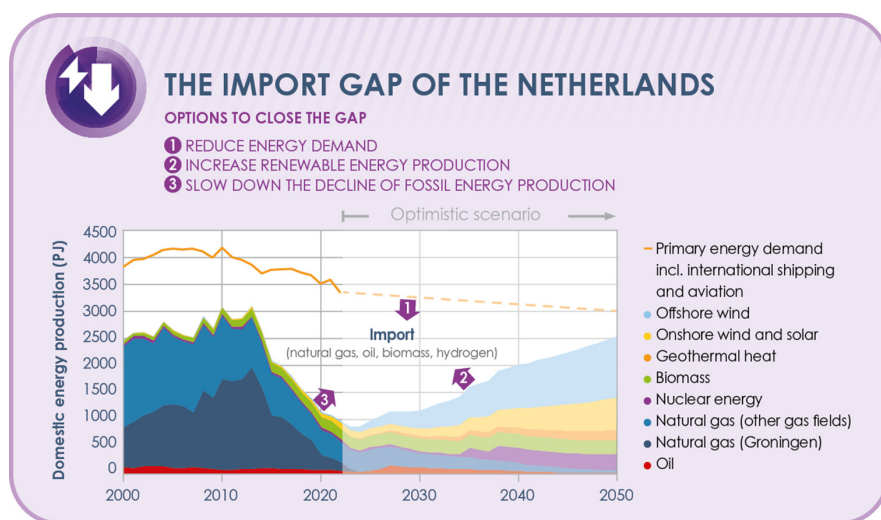
Steps were taken to ensure a

faster permitting process, as well as empowering EBN to take an enhanced role in exploration projects. It invests in oil and gas projects on behalf of the state. Ideally, there are eight to nine exploration drillings yearly. But for this year, only one is planned.

This means the Netherlands needs to raise its game in order to make the necessary projects happen. Not only to produce the critically needed natural gas for domestic supply, but also to ensure that the vital infrastructure is not decommissioned. In our future energy system, we still need the infrastructure for CCS and the production,

transportation and offshore storage of hydrogen. It is pivotal that this infrastructure is kept in place until we can reuse it. Time is therefore of the essence.

As the current Acceleration Plan has as of yet not given the results that are needed, the Dutch oil and gas industry, united in Element NL, has decided to conduct a study into unlocking the full potential of Dutch natural gas reserves, both onshore and offshore. This study will be finished before the summer of 2024 and will give an attractive proposition to potential investors and other stakeholders into investing in the Dutch oil and gas industry. It also could form a basis for an administrative agreement with the government, to give the industry the much-needed stability and reliability of future government policy.



Source: <https://www.ebn.nl/en/facts-figures/knowledge-base/infographic-2024/>

Conclusion

There are still possibilities for the Dutch oil and gas industry to develop natural gas for domestic and European consumption. The full potential of the small gas fields needs to be unlocked to ensure that the vital infrastructure needed for the energy transition is kept intact. This means bold choices for the Dutch government. It is now or never for the Dutch oil and gas industry.

IEA, UNFCCC work on Paris Agreement enforcement

The United Nations Framework Convention on Climate Change (UNFCCC) and the International Energy Agency (IEA) have jointly embarked on a “new phase of co-operation,” they said March 28. They will co-ordinate their activities more closely to facilitate better engagement and alignment of the ambitions and actions of climate and energy decision makers.

The purpose is to slow down the pace of climate change and identify appropriate metrics for tracking progress. But it has coincided with, or even triggered, an angry response from some US senators who say the IEA is overreaching its charter (see below).

The heads of the two organisations, Simon Stiell of the UNFCCC and Fatih Birol of the IEA met at the start of the Copenhagen Climate Ministerial to draw up the key topics for COP29 in Baku in November.

They include reporting on the first Global Stocktake at COP28 (the UAE Consensus) and delivery of 1.5 °C-aligned energy transitions. In addition, the two organisations will deepen their existing co-operation on data and capacity building. The IEA will produce a report on progress against the energy commitments made at COP28.

“This new era of co-operation will bring together the UNFCCC’s international

convening power and deep technical expertise on climate change with the IEA’s unparalleled energy data, analysis and policy expertise,” said Mr Birol. “COP28 delivered the first ever global agreement on energy transitions aligned with the 1.5 °C goal – a watershed moment. The UNFCCC and IEA are joining forces to ensure that these commitments are turned into action at the pace and scale needed to ensure just, equitable and affordable energy transitions that achieve the world’s shared climate goals.”

IEA, COP dialogues continue

There will also be a new series of COP-IEA High-Level Energy Transition

Dialogues this year. They will continue in partnership with Azerbaijan and provide a forum for discussing priorities ahead of COP29.

To support the next round of NDCs, the UNFCCC and IEA will also work together to provide policy advice and technical support on the development of energy-related targets that are in line with the Global Stocktake outcome and the goals of the Paris Agreement. This will include the IEA contributing to the UNFCCC's newly announced NDC 3.0 Navigator initiative.

The IEA's latest update of its *Global Methane Tracker* is the first comprehensive assessment of global methane emissions since the COP28 climate summit concluded in December.

The new IEA analysis finds that the production and use of fossil fuels resulted in close to 120mn tonnes of methane emissions in 2023, a small rise compared with 2022. Another 10 million tonnes of methane emissions came from bioenergy, mostly from the traditional use of biomass for activities such as cooking.

According to the report, the top 10 emitting countries were responsible for around 80 million tonnes of methane emissions from fossil fuels in 2023, two-thirds of the global total. The United States – the largest global producer of oil and gas – is also the largest emitter from oil and gas operations, closely followed by Russia. China is by far the highest emitter in the coal sector.

Satellites continue to bring the world's understanding of methane emissions and their sources into sharper focus. The report, which incorporates their readings along with data from other science-based measurement campaigns, notes that satellites identified a substantial increase in major fossil fuel leaks in 2023 compared with 2022, with more than 5 million tonnes of emissions detected – including from a well blowout in Kazakhstan that went on for more than 200 days.

Global methane emissions remain far too high to meet international climate targets. To limit global warming to 1.5 °C, a key goal of the Paris Agreement, methane emissions from fossil fuels need to decline by 75% this decade, according to IEA analysis.

US energy chiefs query basis of IEA's green agenda-setting

Dissatisfied senior US politicians want the IEA to show its reasoning – and account for its spending

Members of the US Senate and House Committees for Energy, John Barrasso and Cathy McMorris respectively, have taken up the matter of the IEA's expanded remit in a lengthy and hard-hitting letter March 20.

The letter also asked it about how much US money it had received and what it had been spent on. It also questioned the data underlying its forecasts.

It says the IEA has not only strayed from its core mission of promoting energy security, following its creation after a major stand-off over oil production with Saudi Arabia in 1974; but it has also been undermining that goal by discouraging sufficient investment in supplies of gas, oil and coal.

And its modelling no longer provides policy-makers with balanced, objective assessments as it has become a "cheerleader" for the energy transition. They cite French president Emmanuel Macron's comment that the IEA has become the "military wing" of the Paris Agreement. The IEA's yearly *World Energy Outlook* is no longer an economics-based analysis of trade and

energy: instead it focuses on "highly aspirational peak demand and similar back-cast scenarios," they say.

They say it was down to the IEA's publications that the US president, Joe Biden, paused approval of US LNG exports: his advisers were taken in by the IEA's "outlier" view that world gas demand is falling.

US energy agency, IEA differ

This was not the view however of the US Energy Information Agency, they wrote. In common with other forecasting entities, it believes gas demand outside the US will continue to grow at least until 2050.

"It is highly concerning that politicians are using the IEA's biased modelling to make highly controversial decisions that undermine world energy security," they wrote, before posing questions about the amount of funding the US was providing and why the IEA had stopped providing its policy-neutral scenario in 2020.

They also asked whether the IEA saw a gap between different governments' stated policies and what they were

actually doing. While some countries, notably Gulf states and producers outside the OECD are continuing to pump as much gas as possible while prices remain high, others, mainly democracies, have decided to limit funding or licensing opportunities for fossil fuel production.

This, says the Gas Exporting Countries Forum in its own market outlooks, is one of the reasons for the energy shortages, given the robust demand for energy.

The International Gas Union, which represents the gas value chain from the well head to the burner tip, described the freeze as "highly worrying" because it eroded fundamental market principles and would harm global energy security and emission reduction.

While prices were coming down, "the world is not yet through the crisis. Until new volumes of LNG come onstream, the global market will hang on a fragile balance of demand reductions and stability in the current supply level, especially when it comes to the flexible LNG, which allows bringing gas to remote markets that need it," the IGU said.

Member News

M&A

Kistos buys gas storage

Gas producer Kistos is now the sole owner of two fast-cycle gas storage sites in the UK, it said in a stock-exchange statement April 23. It paid France's EdF £25mn for the assets, one of which is inactive. It said the deal would provide business diversity and would be valuable as the UK relied more on intermittent renewable energy. Further development of the sites as hydrogen or compressed air storage is also a possibility.

Hill Top's working gas capacity is 17.8mn therms and there is a programme to increase this to 21.2mn therms. The other site has been mothballed since 2018 but Kistos plans to reactivate it.

Executive chairman Andrew Austin said he looked forward to working with the existing team and establishing Kistos' presence across the energy value chain.

Deltic farms out Selene

Deltic Energy has completed the farm-out of a 25% stake in the Selene prospect in Licence P2437, to Dana Petroleum, it said in an April 3 stock-exchange announcement. Following receipt of the required regulatory and partner consents for the transaction, announced February 7, it now has a 25% stake in the UK southern basin gas prospect. Shell has the rest and is the operator. This leaves Deltic with no exposure to 2024 drilling and testing costs up to \$49mn (gross). This is more than the operator estimates will be needed for a successful well, the company said. The Valaris 123 rig has already been contracted and work is due to start in July.

CEO Graham Swindells said Deltic was delighted to welcome Dana to the joint venture.

In the company's final results statement, chairman Mark Lappin said that the company was engaging across the political spectrum to emphasise the importance of the sector. "Our message is simple: we will need oil and gas in our energy mix for decades. A domestic supply is better for jobs, better for treasury receipts, better for energy security and better for emissions compared with imported supplies.

Ping farms into Pilot licence

Ping Petroleum has become the operator and 81.25% owner of the Pilot field, the other owner, Orcadian Energy, said April 2. Ping has a significant acreage holding east of Pilot, included in the licence. Orcadian is fully carried to the first offload of oil.

According to resource auditor Sproule, the gross 2P reserves of the Pilot field were 78.8mn barrels of oil if produced using the proposed polymer flood scheme.

Orcadian CEO Steve Brown, who facilitated the farm-out by a personal guarantee, said: "The Pilot development is a fantastic opportunity for our new partners, Ping, the UK oil and gas industry more widely, and of course for Orcadian. I am very excited by the prospects for the development and as

the major shareholder have facilitated the farm-out by providing a personal guarantee further demonstrating my commitment to Orcadian.

"Heavy, viscous oils make up a high proportion of the UK's undeveloped discovered resources and we believe that in a post-transition world we will still need hydrocarbons, specifically heavy oils and gas. Heavy oils can supply the lubricants, asphalt, and anode grade petroleum coke markets which will continue to grow even as gasoline and diesel demand falls.

"Application of well proven polymer flooding technology early in a viscous oil development can significantly reduce emissions associated with the production process."

... but Pensacola proves a tougher sell

Planning for the Pensacola appraisal well is progressing according to plan, licensee Deltic Energy said April 30. But a question mark hangs over its ownership of the licence.

It has ordered lead items and the final geotechnical site survey is due by June 2024, ready for the Valaris 123 jack-up rig once it has drilled the Selene exploration well.

But the farm-out is proving tough: "continual tinkering with the Energy Profits Levy and resultant fiscal uncertainty created by the current government, along with recent rhetoric emanating from the Labour Party, have had a severely negative effect on the ability of UK exploration and production companies to commit to long term investments in the North Sea," it said April 30. "This has resulted in many operators diverting capital away from the UKCS or delaying investment decisions, especially with respect to new large-scale opportunities like Pensacola."

There are still live discussions but there is a risk that a farm-out may not be secured before the end of May 2024. The board believes that Deltic might not succeed in accessing traditional equity capital to cover its 30% share of the Pensacola well,

estimated at about £15mn to Deltic and so the company is considering alternative sources of capital and non-traditional funding structures. Pensacola's 2C NPV10 is worth about \$200mn to Deltic, several times more than its market capitalisation. If Deltic cannot demonstrate it can fund its stake, it could withdraw from the licence.

CEO Graham Swindells said: "The struggle to find a way forward on a project like Pensacola, which is one of the largest discoveries in the North Sea in recent decades, is a real-world consequence of our political leadership using the nationally important oil and gas industry as a political football at a time when energy security is of paramount importance."

Given the impact of fiscal and political uncertainty on investment decisions we have seen a shift away from investment in larger standalone projects, like Pensacola, towards more affordable, lower risk opportunities which defer decommissioning or increase infrastructure life such as Selene, and the Company's Syros prospect in the Central North Sea, where we have seen an enhanced level of interest."

Drilltools' first decade crowned with big award

Aberdeen drilling valve rental firm Drilltools has marked its first 10 years in business with a major new contract

In January it secured a 12-month contract to supply 10 state-of-the-art drilling flapper safety valves to a large offshore drilling operation in Malaysia. The first consignment was delivered in February.

This represents a substantial opportunity for Drilltools to showcase its expertise and contribute to the success of a vital component of the energy sector.

Drilltools director Jeff Knight thanked the company's clients, partners, and the dedicated team that has been instrumental in the company's success. "This new contract is a testament to the quality of our products and the trust our clients place in us," he said.

ASCO extends contracts

Aberdeen-headquartered logistics and materials firm ASCO has won a string of contract extensions with three clients amounting to over £20mn over three years, it said March 19.

The three are long-standing clients: Centrica Energy Storage, TotalEnergies and BP. For Centrica, ASCO will provide onshore and offshore operations on manned and unmanned offshore platforms and maintenance and project activities as it prepares to invest £1-2bn this decade redeveloping Rough field and make it hydrogen ready, to support the energy transition.

For BP and TotalEnergies, ASCO will supply a fully integrated service across northeast Scotland, including quayside operations and air and sea transport.

It said the trio of extensions testified to the high calibre of the services it had given the three clients.

Kent lands BP, Repsol work

Engineering firm Kent has won a five-year global completion and commissioning services framework agreement from BP

and Repsol, it said March 4.

Kent's specialists will become an integral part of the UK major's commissioning and completions management team, ensuring a standardised approach, it said.

It has also won a three-year framework contract with Repsol for the Spanish producer's operations in the Norwegian sector of the North Sea, it said April 10. The "prestigious contract" includes engineering support, procurement, construction and installation packages.

Kent said the award "not only exemplifies our leading-edge capabilities in the offshore engineering domain but also strengthens our enduring relationship with Repsol Norge and its assets for over 20 years."



PBS extends TotalEnergies UK North Sea contract

PBS has extended a general maintenance and operations contract (GMOC) with TotalEnergies for its seven North Sea sites (see above) including the Shetland Gas Plant.

Its five-year contract was due to expire in mid 2025 but TotalEnergies extended it until the end of May 2026.

The largest GMOC of its kind in the UK, PBS delivers integrated operations, maintenance, engineering, construction, facilities

management and access solutions through its 1100 highly skilled staff.

Aberdeen's PBS consists of Ponticelli UK, Brand Energy & Infrastructure Services and Semco Maritime.

PBS said last year had seen step-change improvements in its critical work-streams, timely shutdown delivery and an excellent overall safety record which involved 2mn man-hours liquidated in the year.

Semco Maritime beats its 2023 targets

Semco Maritime accelerated growth, lifted profitability and boosted its order book in 2023, it said April 18, summarising its annual report. Both business areas – Renewables and Conventional – delivered operational and financial performances that beat its expectations. Revenue grew by 47% to Dkr 5bn, lifting earnings 51% to Dkr 305mn for a profit margin of 6%.

The strong performance was helped by a high-capacity utilisation rate, good project execution and prudent cost management combined with lower prices throughout the year.

Wood wins Elgin decarb deal

Consulting and engineering firm Wood has won a new decarbonisation contract with TotalEnergies to re-use gas that would have been flared.

The 23-month contract, part of the Elgin-Franklin Flare Gas Recovery System Project, means 40 new jobs on or offshore. Wood had earlier completed a field study and front-end engineering design. The contract includes the coordination of operations, procurement and design aspects for the Elgin asset.

Wood's senior vice president for UK operations Martin Simmonite said his company was "committed to delivering sustainable solutions that contribute to a low carbon future."

Wood has worked with TotalEnergies for over 20 years, supporting a variety of projects and contracts globally.

Member News in brief

Training

Mintra partners with ASCO

Digital learning and human capital management specialist Mintra has signed a strategic partnership with ASCO subsidiary North Sea Lifting (NSL). This will expand NSL's reach beyond the ASCO website.

NSL's suite of 21 specialist lifting titles, such as Rigging and Lifting, will be hosted on Mintra's learning and competency system Trainingportal, NSL said in a March 14 statement. NSL said it was "the start of a collaborative partnership which will allow our eLearning courses and service offerings to reach new markets and customers."

Mintra said the collaboration broadened its library of courses and reinforced its leadership in safety-critical education.

RMI joins Armed Forces

Medical, security and risk management company RMI has formalised its support for the military by signing the Armed Forces Covenant (AFC).

Signatories of the AFC recognise that current and former service personnel should not be disadvantaged in the workplace. They might even merit special provision, especially when they have given the most, RMI said.

RMI has long valued service personnel for their military skills and qualifications when recruiting, owing to the unique conditions of army life. The challenges they face when they leave the military are often complex, but their skills and experience are invaluable and enduring, RMI said.

OPITO launches collision avoidance standard.

Global offshore safety and skills organisation OPITO has launched a training standard for avoiding collisions near offshore installations.

The not-for-profit organisation designed the Safe Offshore Marine Operations (SOMO) – Offshore Installations & Energy Structures Safety Zone standard in co-ordination

with stakeholders including regulator Health & Safety Executive in response to a recommendation from the Marine Safety Forum.

In a March 19 statement, OPITO's product development manager Sarah Hutcheon said: "Those undertaking this training will be equipped with the knowledge and understanding to identify and recognise any potential hazards and unsafe practices. We look forward to the positive impact this new training standard will have as it is rolled out globally."

Maersk Training, Green Marine hasten fuel switch

Maritime training specialists Maersk Training (MT) and shipping fuel company Green Marine have formed Maersk Training powered by Green Marine, they said April 24.

"The urgency for decarbonisation in the maritime industry is undeniable," said MT's Jan Tore Knutsen. "This partnership with Green Marine allows us to leverage their unparalleled expertise in methanol operations and combine it with our extensive training experience to equip seafarers with the skills they need to navigate the green transition."

Green Marine has over a decade's experience in operating methanol-powered vessels and said it was "thrilled to partner with Maersk Training, a recognized leader in maritime training."

Step Change endorses Salus

Step Change in Safety, the membership-led energy industry safety organisation, has taken the significant step of endorsing a member's process safety awareness training course. It is the first time the organisation has collaborated this closely with a member to fulfil its mission of cutting accidents offshore.

The course will be actively promoted to Step Change in Safety's members, having undergone rigorous testing and evaluation by the organisation's leadership team.

Salus Technical said in a May 13 statement that the course has become a cornerstone of its business, with the headcount of the team growing from

five to 11 in the past year.

Over 1,500 participants have taken part, coming from companies such as Serica Energy, Petrofac and Neptune Energy. This has helped the company expand into new areas in engineering, software development, and training.

Decarbonisation

Mocean/Verlume end Orkney tests

The Mocean/Verlume wave energy generation and storage test has successfully completed its first year off Orkney and will be ended in spring, the two companies said March 5.

The £2mn Renewables for Subsea Power (RSP) project connected the Blue X wave energy converter – built by Edinburgh company Mocean Energy – with a Halo underwater battery storage system developed by Aberdeen intelligent energy management specialists, Verlume (see below). The energy generated may be used to power subsea wells, replacing diesel; or stored in the Halo system.

"The test programme has been a tremendous success," Verlume said. It has drawn financial interest from a wide range of companies including the European majors TotalEnergies and Shell, Thai producer PTTEP and private equity and academic institutions. (For more details, see OEUK Magazine #58, p23.)

Spirit Energy, Peak Cluster call for new route to market

Centrica subsidiary Spirit Energy and the Peak Cluster partnership of UK lime and cement manufacturers have asked government for a clear route to market for their carbon capture and storage (CCS) plan. At the moment there are only Track 1 and Track 2 projects that have funding.

Spirit Energy is operator of the proposed Net Zero Morecambe (NZM) plan to sequester emissions from industry in former gas fields in Liverpool Bay from 2030. This is not in either of those two categories. In their May 15 report, the parties said

a third route to market would unlock private investment in CCS projects that are needed to ensure the UK can hit its net-zero targets. This would not require the government to write a blank cheque, just to provide certainty for investors. The partnership calls for measures to expedite the delivery of projects like its own to leverage the growth potential of CCS and deliver significant socio-economic benefits to the UK.

All going well, the project will capture and transport emissions from cement and lime manufacturers in the northwest to Barrow (*below*) for injection in the Morecambe Bay fields. Geological surveys are continuing offshore and gas production may continue until 2030.



Infrastructure

Lynx Line opens for business

Kellas Midstream and North Sea Midstream Partners (NSMP) announced the successful commissioning of the Lynx Line April 16.

Linking the Central Area Transmission System to the Teesside Gas Processing Plant, the line is a win-win for both companies, NSMP CEO Sayma Cox said. It delivers optionality for North Sea producers and ensures security of operation of a major UK gas transmission system.

Originated and funded by NSMP, the project was delivered on schedule and on budget within six months of a construction agreement being signed between the relevant parties.

The Lynx Line project would not have been possible without the collaboration

and support NSMP received from Kellas, the Lynx Line anchor customers and project partners Camm-Pro, Wood and PX Group.

Kellas Midstream COO Alan Murray said that NSMP, the CATS terminal owners and his own company's customers had showed their collective expertise in safely delivering a fast-paced project. "We look forward to continuing our collaboration to meet the evolving needs of our customers," he said.

Aberdeen to deepen quays

Port of Aberdeen's plans to upgrade the South Harbour for floating wind have progressed to Stage 2 of the Scottish government's wind power programme, it said in an April 2 statement. Deepening the quay will enable it to handle most of the ScotWind and INTOG project turbine designs.

Looking further ahead, it also positions the port to handle major component exchanges with tow-in, tow-out operations.

CEO Bob Sanguinetti said the Scottish Offshore Wind Energy Council's decision was "a significant vote of confidence from both the Scottish government and industry in our £420mn expansion." A final investment decision is expected to follow Stage 2.

The port has also made strategic internal appointments to its leadership team as it targets growth in the energy, trade, and tourism sectors.

Peter Suttie has become the port's operations manager; Benji Morrison is the harbour master and Lewis Matheson is his deputy. John Wilson has joined the executive leadership team as the head of engineering. The port accounts for 45% of Scotland's total vessel traffic.

In a March 15 statement, CEO Bob Sanguinetti said: "These internal promotions demonstrate our commitment to develop and invest in our people so they are empowered with the values and capability to create and deliver prosperity for generations. It's an exciting time to be at Port of Aberdeen!"

Montrose becomes Scotland's first plug-in port

Montrose Port Authority (MPA) has become the first port in Scotland to provide an onshore power service for energy supply vessels, it said May 3.

It is the result of a £1mn investment between MPA and Plug Shore Power Ltd, the UK branch of Norwegian charging company, Plug. This is Plug's first UK joint venture. Since 2019, Plug's shore power installations have collectively saved over 52,000 tonnes of CO₂.

Corporate

Moduspec sales marks end of Vysus restructuring

Scotland-headquartered Vysus Group has ended its restructuring programme with the sale of its rig business Moduspec earlier in the month, it said March 13. This was the fifth such move for the former Lloyds Register subsidiary since it demerged in late 2020.

The firm will now focus its activities on its global technical and regulatory consultancy and technology business. It has a permanent presence in 15 countries and is active in all key global energy hubs. It is now targeting a 15% growth over 2023 revenues.

"We see particular opportunities to capitalise on our internationally renowned experience in hydrogen, renewables, and nuclear," said CEO David Clarke. See also OEUK Magazine #58 for a Vysus opinion piece on the energy transition).

BP simplifies to add value

BP is simplifying its organisational structure in order to grow its value, it said April 19.

Three of its organisations – regions, corporates and solutions – will be integrated into the business functions, so BP will now be supported by five functions: finance; technology; strategy, sustainability & ventures; people & culture; and legal. This will reduce duplication and reporting line complexity. The UK major's executive leadership team will reduce in size to ten members but its financial reporting

Member News in brief

structure remains unchanged.

William Lin, who previously led regions, corporates & solutions, will now lead the gas & low carbon energy business, succeeding Anja-Isabel Dotzenrath who is retiring. Emeka Emembolu will head BP's technology function, taking over from Leigh-Ann Russell who is leaving BP for an external opportunity.

CEO Murray Auchincloss said that this did not affect BP's direction of travel but the company had to deliver as a simpler, more focused and higher value company.

Imrandd launches asset ALERT system

Aberdeen-based industrial data and engineering consultancy Imrandd has launched an asset management solution, ALERT, that cuts down on inspection time – and costs – for offshore operators. It was part-funded by the Net Zero Technology Centre.

The integrated dashboard displays a live, round-the-clock snapshot of an asset's performance to provide instant insights into its current condition while forecasting the future states of safety-critical systems.

Imrandd founder and CEO Innes Auchterlonie said in a March 26 statement: "We are committed to empowering asset owners and operators with exceptional tools to meet their asset integrity needs, it's what our R&D team thrives on."

Data firm Cegal buys GSES in friendly deal

Aberdeen hydrocarbon digitalisation firm Cegal has bought UK-Dutch GSES in a friendly takeover and the two teams will be integrated into Cegal's EnergyX group.

GSES' comprehensive hydrocarbon accounting experience will promote and implement Cegal's EnergyX portfolio for their shared global customer base. In Cegal's March 11 statement, GSES described EnergyX as "the new industry standard in hydrocarbon management."

Following the acquisition on April 1,

GSES will move into Cegal's Aberdeen office within Prime Four Business Park, Aberdeen's global energy hub.

Energy confidence report finds oil & gas 'resilient'

A report by Norwegian certification company DNV published April 10 reveals a resilient optimism within the energy sector. This is despite prevailing caution and political uncertainty. Its *Industry Insight Survey* shows the oil and gas sector has regained confidence, rising from 58% in 2022 to 68% in 2024, reflecting recognition of the industry's pivotal role while navigating the transition.

Electrical power meanwhile has dipped from 87% to 76%, while renewables have experienced a similar downward trend, from 87% to 78%.

This decline mirrors a broader shift in industry growth expectations and organisational confidence. Rising costs and supply chain disruptions are posing significant hurdles to project viability and the pace of energy transition, the report finds.

Vysus CEO David Clark steps down

Vysus Group is preparing for its new role as a specialist technical advisory consultancy and it has announced some changes at senior level.

CEO David Clark will step down but remain on the board of directors in a non-executive role. Thomas Aas Saethre, the senior vice president of Vysus Consulting, will replace him.

CFO Geoff Morrison and Human Resources Director Jodie Gilles will leave in the coming months. The announcement follows the completion of a series of structured divestments of non-core businesses such as Moduspec, the rig company.

Inspirit Capital, which owns Vysus, said: "We would like to thank David and the senior team for their leadership on the carve-out and creation of Vysus Group over the last three and half years and

the subsequent growth and successful divestment of the non-core services lines.

"David will continue to provide his domain and market expertise at board level, as a non-executive director, as we take the Consulting business forward in its new structure."

Empirisys, Step Change launch safety survey

Data science company Empirisys and member-led safety organisation Step Change in Safety (SCIS) launched their Process Safety Workforce Survey April 18. More than 450 senior leaders from 73 companies responded to last year's survey, showing a high level of engagement. Average scores were also high, indicating a confident and reflective industry, Empirisys said.

In addition to developing and delivering the survey, Empirisys' team of data scientists and engineers will utilise machine learning, diagnostics and AI driven tools to analyse the information uncovered and provide actionable insights.

Empirisys CEO Gus Carroll said the company shared SCIS' commitment to protecting and, wherever possible, enhancing the safety of the energy sector workforce.

Empirisys expands in Aberdeen

Specialist process safety and data science company Empirisys has opened a larger office in central Aberdeen. This is "part of its ongoing rapid growth plans and commitment to the North Sea energy industry," the Cardiff headquartered company said.

Oil, gas, decommissioning and the energy transition are all areas that could benefit from its expertise in process safety, based in the northeast of Scotland, its March 13 announcement said.

The company has more than doubled its turnover since 2022 and it expects to accelerate core product growth as its workforce expands. Greater face-

Member News in brief

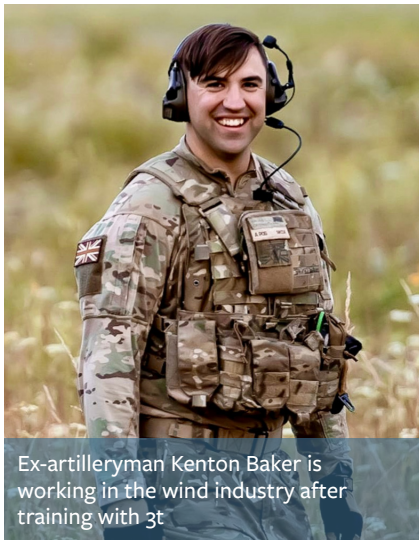
to-face contact in the region will boost the delivery of new contracts, it said. (For more on Empirisys, please see also OEUK Magazine #58, p50.)

3t launches Norwegian bonds

Specialist energy sector training company 3t has issued bonds on the Norwegian stock exchange that attracted \$100mn in financing for its planned strategic acquisitions, it said May 9.

3t said it would deliver further value for its global customer base, prospective customers, and investors.

“This financing will provide us with the necessary resources to pursue strategic opportunities we have on the horizon complementing our existing capabilities. These plans will accelerate our expansion into growing markets, ultimately fortifying our position as the industry frontrunner,” it said (see below).



Ex-artilleryman Kenton Baker is working in the wind industry after training with 3t

Crondall joins ORE catapult

Floating and subsea energy specialist Crondall Energy has joined the Offshore Renewable Energy (ORE) Catapult (ORE) Launch Academy programme, it said March 6. The nine-month programme (March-December) is sponsored by industrial heavyweights BP, ScottishPower and RWE.

Crondall Energy is developing an online mooring integrity management platform called Safemoor, which estimates fatigue in mooring lines. The course modules cover topics such as marketing, export, accountancy, intellectual property and investor readiness.

Crondall Energy said: “We are delighted to be part of ORE Catapult’s Launch Academy as we bring the Safemoor platform to market.... We believe this will be a real game-changer for offshore wind developers. With the support of Launch Academy, Crondall Energy will soon be able to introduce this innovation to the offshore wind industry through a prototype programme.”

CONSUB divides into three pillars

Subsea engineering and project management consultancy CONSUB has created three distinct pillars to negotiate the energy transition, it said May 13. These are Oil & Gas; Decommissioning; and Renewables.

Headed by company founder Paul Melnikov, Oil & Gas supports CONSUB’s legacy of excellence providing engineering and project management services to UK and international deepwater development projects.

Business manager Jon Taylor will head Decommissioning which will handle ageing infrastructure, late life management and ultimately asset removal.

CONSUB director Malcolm Blackmore will head Renewables with marine geoscientist Douglas Hall running it on a day-to-day basis. He is also CONSUB’s group survey manager.

Leveraging its extensive experience in subsea oil & gas engineering and construction, along with the formation of new strategic partnerships, CONSUB will play a growing role in the transition towards renewable energy sources, including offshore and onshore wind, floating solar and green hydrogen, it said.

Well-Safe appoints COO

Well-Safe Solutions has promoted Chris Hay (below) to chief commercial officer, effective from April 1. The move recognises his “exceptional leadership, strategic thinking and deep understanding of the Well-Safe Solutions offering,” the company said.

He joined the company in November 2021 as director of strategy and business development, since which time he has developed the company’s commercial, corporate sustainability and marketing teams based at the company’s global headquarters in Aberdeen.



Well-Safe Solutions promotes Chris Hay

An invitation to submit your member news

Members may submit news items to: editorial@OEUK.org.uk

Selected items will be edited and published in this magazine and/or the Member News section of our website:

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No guarantees of publication are given.

Health & safety investigations: keep it professional at all costs

Clare Bone & Malcolm Gunnyeon, partners and health and safety experts at Brodies LLP, explain how to manage an official investigation

Anyone involved in the management of health and safety in the energy sector knows how important it is to have clear policies and robust procedures. This applies to operational safety management and – in the event of an incident – critical response and reputation management.

No matter how robust they are, safety management systems can never completely eliminate the possibility of a health and safety incident occurring. And similarly, one cannot rule out the possibility of someone within the organisation inadvertently prejudicing himself, a colleague, or the organisation itself by word or deed in the subsequent investigation. We are, after all, only human.

Managing human factors is, therefore, not just relevant in the prevention of accidents but is also of critical importance in any investigation into it. This may be an internal investigation or one conducted by the relevant regulator, such as the Police, the Health & Safety Executive or the Offshore Petroleum Regulator for Environment & Decommissioning. Regulatory investigations are by their very nature reactive. They are instigated at very short notice and inevitably occur at the worst possible time as the organisation and its employees seek to come to terms with what has happened. They are inherently stressful for all concerned, from the employees who had the misfortune to witness it, all the way up to the company board. In other words, they are the perfect environment for bringing out human failings.

It is important to manage human factors as best you can, to protect colleagues during the stress and strain of a regulatory investigation, particularly when being interviewed by officers, investigators or inspectors. This article examines some of the key steps we advise clients to take in order to look after their people and how to minimise the risk of human errors causing problems during an investigation.



Malcolm Gunnyeon

Understand the nature of the interview.

As part of its investigation, the regulator will seek to interview employees. It is essential therefore that the person being interviewed understands the purpose and nature of that interview. Is he or she being spoken to as a witness purely to a fact, or as someone potentially responsible for the failures that occurred and so as someone suspected of a criminal offence? Is the interviewee being spoken to as an individual or as a representative of the organisation? If it is in the capacity of a witness, is the statement being given voluntarily or on a compelled basis? Should the witness be seeking the protections offered by giving a compelled statement?

Witnesses can decline to answer questions when giving a voluntary statement but what they do or say could be used as evidence against them in due course if they are charged with any health and safety offence, or other criminal activity. A compelled statement, on the other hand, affords them a degree of personal protection, as the



Clare Bone

contents cannot be used against them in any subsequent proceedings.

Ensuring that your employees understand their options and the nature of the interview well in advance avoids the wrong option being chosen on the day. This averts issues for the employee, the organisation or both. It also allows consideration to be given to the question of legal representation at the interview.

Put forward the right person.

More often than not investigators will have a specific person that they want to interview, but there are times when you will be asked to suggest “the right person to explain your process for...” If given the opportunity to nominate someone, take the time to make sure you choose the right person. Inevitably you will be inclined to put forward the most senior person, but are they the most knowledgeable about how things work in practice? Think about the personality of the individual you propose. Do they stay calm under pressure or do they tend to become argumentative? Is there a risk that the way they approach the interview will negatively impact the overall tone of the whole investigation?

Do your homework: don’t get caught out.

There is nothing worse for a witness than being presented with a document they have never seen before and being asked to comment on it. In that situation it is human nature to try to assist, but that inevitably involves speculation and opinion rather than fact. To minimise the risk of that, think about the issues that are likely to be put to each witness in advance and provide them with a briefing pack of the key documents. Remember that the investigators will have been able to recover information and documentation

from a number of sources, so always factor in documentation that could have been obtained from your customers, contractors, or joint-venture partners. This is particularly so, in the latter phase of the investigation.

Give interviewees time to prepare.

It follows from the above that time spent on detailed preparation will minimise the chances of human error during an investigatory interview. Don’t expect your employees to be able to prepare properly for an interview and do their day job at the same time. Allow them to spend time away from their day-to-day duties and make sure they have advice and support from your human resources and legal teams if they want it. Don’t expect your employees to prepare “out of hours”. The last thing you want is someone attending a potentially long and draining interview when already mentally exhausted.

Avoid over-sharing.

In a formal interview, it is human nature to want to help the investigators and to offer explanations for why things went wrong. There is absolutely nothing wrong with pro-active co-operation with an investigation. But there is a world of a difference between co-operation and oversharing. You will no doubt be carrying out your own internal investigation alongside the formal regulatory investigation. If employees

"There is absolutely nothing wrong with pro-active co-operation with an investigation. But there is a world of a difference between co-operation and over-sharing."

who are involved in your internal investigation are also being interviewed by the regulator, make sure they know that the internal investigation documents are confidential and very likely to be covered by legal privilege. The last thing you want is for a well-intentioned employee to offer a copy of the draft internal investigation report to the regulator thinking that it will help them with their investigation. Again, it may well be that sharing the report is the right thing to do in the fullness of time. But only when it is in its final form and legal advice has been sought on the benefit of its release.

You would be correct to think that none of these measures is particularly complicated. They are not – indeed most of them are common sense. However, uncomplicated, common-sense steps become incredibly challenging in the face of demands for documentation and intense scrutiny during an investigation. Every business should

take the time to think about these measures now and put a plan in place. If the worst should ever happen, the last thing you want to be is unprepared.

One of the most effective ways to prepare for the pressure of a regulatory interview is to act out a real-life scenario, giving your teams an idea of what to expect in such a case. We are often asked by clients to provide interactive, industry-specific training, conducting role-plays and providing coaching and feedback, so that in the event that the worst happens, and you find yourself subject to an investigation, your team can manage the situation better.

To contact the authors about training options visit [brodies.com](https://www.brodies.com) where you can also listen to Brodies' recent health & safety podcast series.

Photo: [istockphoto.com/ArtistGNDphotography](https://www.istockphoto.com/ArtistGNDphotography)





OEUK Industry Manifesto

The UK offshore energy sector is essential for the economic and environmental prosperity of our country. Our brilliant, skilled people work tirelessly to produce the energy from off the coast of Britain that powers not just our homes, transport and industry, but the everyday products we need to live well.

We are proud to make a huge contribution. Oil and gas production alone added over £20 billion to the UK economy in 2022/2023. The offshore energy industry provides over 200,000 good, skilled jobs across the length and breadth of the UK. We provide secure and reliable energy to millions.

By choosing a homegrown energy transition, we can protect skills, secure investment and maximise sustainability.

The UK's offshore energy sector has the potential to:

- 1** Contribute to an energy transition which leaves no individual, community, or sector behind.
- 2** Secure over 200,000 high value jobs in the UK whilst growing the skilled and diverse workforce of the future.
- 3** Deliver £200 billion of private investment over the next decade, spurring economic growth and fostering UK technology and innovation across the energy mix and meeting around half of the UK energy needs by 2030.
- 4** Meet the UK's net-zero commitment by 2050 or sooner, decarbonising offshore energy production to power homes and businesses across the breadth of the country.

Collaboration is at the heart of success. To realise this potential, we need all parties to work with us and our people to deliver the following steps:

We are Offshore Energies UK
Read our 2024 industry manifesto



OEUK Events Calendar 2024



18 Jun	Aberdeen Breakfast Briefing – <i>Economy and People Report</i>
20-26 Jun	Economy and People Report Roadshows: <i>Hull, Lowestoft and London</i>
2 Jul	Offshore Safety Awards
3 Jul	Young Professionals Webinar
3 Sep	Aberdeen Breakfast Briefing
5 Sep	Exploration and Subsurface Conference
17 Sep	OEUK Conference
26 Sep	Legal Conference
1 Oct	Wells Conference
Oct	Data and Digital Conference
3 Oct	Young Professionals – <i>London</i>
Nov	Aberdeen Breakfast Briefing
18-20 Nov	Offshore Decommissioning Conference
28 Nov	OEUK Awards
12 Dec	Young Professionals – <i>Aberdeen</i>

Book online at oeuk.org.uk/events

RigDeluge:

Combating fire and third-party risk

In an interview with OEUK, CEO Ian Garden explains the importance of intellectual property law in matters of offshore safety

OEUK: Is the testing of deluge systems on the UKCS adequate, given the seriousness of the risks?

IG: No: standard compliance testing allows administrative controls to take precedence over an engineered solution in the hierarchy of controls. The deluge nozzles used in these systems are over 100 years old in design and not meant for this harsh environment.

These deluge nozzles failings led to the present “fail and fix” process becoming a standard process. It is hard for most people to believe that the original nozzle design was wrong. In 2015 the world’s largest fire products company signed an exclusive agreement with us for our technology. They said it would pave the way for a new marine compliance standard. If you stop and think about this just for one second you will see an acknowledgement of this industry failing.

Reliance on administrative controls has become the go-to solution. But this has led to failures being re-introduced, benefiting the companies that provide this service.

OEUK: Should the UK regulators place more importance than they do on fire hazard?

IG: It is ironic that the problems we have documented over the past 12 years in fire safety systems are environmental ones requiring specific classification. Fire safety is at the bottom of the list of priorities because the paperwork shows nothing is wrong. You can’t blame the decision makers if they are advised by their own experts and the independent certifying person (ICP) that everything is okay.

This problem is a bit like high blood pressure: you may never know that you suffered from it.

OEUK: How would you stop the “fail and fix”

approach? Is this an example of industry inertia because it is ‘fine for now’?

IG: As the world’s largest fire products company publicly noted in 2015, an environmental compliance standard for all deluge nozzles would solve the ‘fail and fix’ process, replacing administrative controls with an engineered solution. This is the frustrating part: all the processes are in place to make this change by simply following the hierarchy of controls. But this proven to fail process persists in systems designed to perform as the last line of defence.

The notes in the Cullen Report about the *Piper Alpha’s* fire safety system show that there has been no progress in fire safety at all and the same mistakes are being repeated.

Last October, for instance, I saw an operator and ICP mark a system as 95% compliant. In fact, it was less than 50% operational. The report would recommend (pp205-9) that the asset manager be advised to shut down the asset immediately.

The platform remained open until January, even after I refused to put people in my charge back to it in December.

I also advised the operator to check its other assets in the UK and told the ICP to watch out for other cases of this false positive compliance globally. We have been in a crisis for at least 50 years as operators prioritise administrative controls and resist engineered solutions as that is easier.

OEUK: Your system is sold worldwide. Do other basins take risk more seriously?

IG: Unfortunately, this is a global issue. The biggest supplier of deluge nozzles in the world supplies four in five of the world’s marine systems and it has sold products that are guaranteed to fail when



Ian Garden receiving the 2018 Offshore Safety award

hit with all forms of marine contamination. The 'fail and fix' process has a lot to answer for. The whole service and maintenance industry was born by re-introducing failure back into the systems. If you never fix the problem, you will have all the by-products of the failures to manage. That will make you more money than the single sale of a product. In fact, it's a money-making scheme for life.

This is why I have never wanted to supply this service: our technology would solve the problem, and service and maintenance revenue would plummet – a clear conflict of interests.

There is a flat line across the world in relation to a general state as the guidance from the National Fire Protection Association and testing from United Listing (UL) and Factory Mutual (FM) which allows these failings. However, in their defence, they both have to work and guide around

the failings of the 100-year-old deluge nozzles and screens extant when they produced their codes, standards and testing regimes.

Maybe an annual review that references new technologies would allow a clear path for improvements to be implemented.

OEUK: You have well over 100 patents to your name. Could you talk about any hazards of patent law and licensing agreements that work against the patentee? Should the regulator/government take a closer interest in intellectual property if there is a clear health & safety benefit, such as buying the inventor out, for the public good?

IG: The importance and unique application of my products is why the patents were granted: every asset in the world has deluge nozzles and screens



Photo: RigDeluge

with design failings from over 100 years ago. If UL and FM who certify most deluge nozzles applied a blockage test as we do, every such nozzle would lose its certification.

The big win for our patents was when the world's biggest fire products company did a technology licensing agreement in 2015 after testing our products and reviewing the patents for over 12 months. This was before the patents were granted – the first time they had ever done this.

But it went on to share control with its services provider: clients were told they could not buy the products without the additional services. Worse, the service provider itself continued to pass systems with the fail and fix process, which competed directly with the licensed technology.

So, an innovator with limited experience in licensing technology can find itself in deep water. I was not able to convince the corporation to sell my products in a way that avoided the conflict of interests they had enabled, so I cancelled the agreement in 2017 and started to re-introduce the

products without a service agreement. The aim was to bypass the fail and fix process.

If I could give two pieces of advice, the first would be to do due diligence before signing any licensing agreement. The second would be to ensure the purchaser agrees to very specific legal terms.

“Best endeavours” in Scottish Law should be used, as “reasonable endeavours” can be debated. Second, ensure there is a specific line item whereby they agree to foot legal fees arising from disagreements, to normalise the battle between David and Goliath. And back this up with an undertaking that their due diligence was thorough they will not challenge the validity of the agreement. Not securing these agreements is a deal-breaker.

In relation to my own technology and the global impact, a government purchase would have helped avoid the issues I have experienced; the government could then legislate for the implementation and take control of national energy security in relation to fire safety. This will



protect the loss of valuable product, infrastructure and the overall environment.

OEUK: Does the patenting system work from your point of view? How would you improve it?

IG: Yes, it works, I have seen off several attempts to copy our technologies and have even won action in the European Courts. The point of a technology company is the intellectual property and that is why we were able to secure a deal with the world's largest fire extinguishing products company in 2015.

The first job is to engage a patent attorney with a traceable level of competency. He will guide you through the minefield of debates with examiners whose approach might intimidate. Fortunately, we have over 60 years of recorded failings to show the novel approach our technology has taken. This also helps.

The hardest part of innovation is the commercialisation. Whether that is directly

taking it to market or licensing, the sale is easy. The potential purchaser can make an offer based on the value they see they have. As the seller, you must stand your ground or walk away.

Another major bonus of holding a patent in the UK is the Patent Box Tax allowances. We pay only 10% corporation tax on sales of our patented technologies. This is a bonus for any prospective purchaser. As our products are key to certain goals, owning the technology will benefit over and above the technology advances. This fact is often missed by a lot of large companies.

One last word: never believe what's on your prospective partner's website: dig deep before signing. I have seen a billion-dollar corporation do very unexpected things; but I have also seen a small to medium company in Australia fail because of its lack of competence.

Ultimately it is your job, as the inventor, to do all you can to protect your invention so that it becomes a part of the industry, doing what it was designed for.

UK oil and gas can enable the energy transition

But RSM UK's heads of sustainability and oil & gas say time is short for the sector – and for industry

Carbon capture and storage (CCS) is expected to play a major role in helping the UK meet its climate targets, notably the government's Build Back Greener strategy. It will decarbonise and revolutionise existing heavy industry and so protect and create well-paid and highly skilled jobs. But the outlook for this key new sector is not great, warns the audit and tax consultancy RSM.

The UK has already lost jobs in the steel industry. If we have further job losses in heavy industry and energy, with them will go new jobs in CCUS, as other nations compete. This means the UK will import even more carbon and that comes with an opportunity cost. UK consumers will pay for this in the form of carbon tariffs once it has introduced its carbon border adjustment mechanism – as the European Union has just done.

Legal and regulatory requirements for CCS as a condition for the award of new oil and gas licences would have helped stimulate this important industry become mainstream by forcing investments in research and development.

The UK's stated ambition was 6mn tonnes CO₂/yr of industrial CCUS by 2030 and 9mn tonnes CO₂/yr by 2035. But too often the UK has scrapped or delayed its decisions on CCS, notably those regarding track 2 cluster sequencing. The government has also back-tracked on several net zero policy commitments. This means others could follow, and the Climate Change Committee's evaluations regarding confidence in meeting our targets echo this. The Labour Party's reversal of its spending pledges merely makes it likelier that the CCS opportunity will be wasted.

If we don't invest, the UK will force the problem into other areas of the world. This goes against the fair and equitable principles of environmental and social governance.

There is now a real opportunity to build our UK capability in CCUS, which will benefit the entire UK energy industry and indeed the wider economy.

RSM's head of oil and gas Grant Morrison (left), comments: "Decarbonising the oil and gas



Grant Morrison

sector is key to a measured, effective energy transition in the UK. There are many ways to achieve this: tackling methane emissions, eliminating non-emergency flaring, electrifying upstream facilities and equipping oil and gas processes with CCUS.

"The Acorn Project in Aberdeenshire will be given the go-ahead. This would be Scotland's first CCS facility, piping greenhouse gas emissions under the North Sea.

"This would bring significant benefits to the local economy. If we can engage supply chains and labour, we can create the next generation of skills. But a change of government in the UK will put the future of the oil and gas sector under even closer scrutiny.

Rich Hall (right), RSM UK's head of sustainability, says the UK must develop a strong net zero industrial strategy to promote its international competitiveness.

The transition to a low carbon economy is a major opportunity for the UK, and not just in terms of leadership. It is also about pioneering the technologies of the future and providing the

infrastructure to decarbonise or revolutionise industry, protecting and creating jobs that would be the bed-rock of the economy, generating wealth for years to come. It was, in short, about the UK's international competitiveness.

The UK's Net Zero Strategy: Build Back Greener, reflected this. "Our strategy for net zero is to lead the world in ending our contribution to climate change, while turning this mission into the greatest opportunity for jobs and prosperity for our country since the industrial revolution," said the then prime minister Boris Johnson.

But for all the rhetoric the government's net zero plans have long drawn criticism for the lack of detail. Bowing to legal pressure, in July 2022 the government explained how its targets will be met. Dissatisfied, the CCC lost confidence that the UK would meet its goals from 2030 onwards. Despite acknowledging progress, it said some areas were risky while others lacked the preparatory research and planning. In December's 2023 Global Climate Change Performance Index, the UK dropped from 11 to 20 owing to weakened climate policies. In addition, Rishi Sunak, the prime minister, has attacked the CCC for finding shortcomings in his government's policies to meet the targets.

Understandably, the strategy always needed to be complex, covering as many key sectors as it does. Should any one sector slip, then the whole project could be jeopardised. Wider macroeconomic events certainly haven't helped and have led directly to a change in policy regarding permitting new oil and gas licensing for instance. But other nations have not taken their foot off the gas to quite the same extent as the UK is now doing.

"Our imported CO₂ emissions per capita were higher than those of any industrialised country, with the US and EU some way behind."



Rich Hall

Also, it's not just that we are slipping, it's that we are slipping across so many key sectors. The CCC calls out surface transport, energy supply, buildings, industry and agriculture and land. Each faces serious risks that the necessary decarbonisation will fail. Only 28% of the carbon reduction required across all sectors is deemed covered by credible plans. 17% is deemed to have insufficient plans in place, and the rest – just over half – is associated with some or significant risks.

The truth is the strategy was always light on detail. It took the aforementioned high court ruling for the government to provide the further details which, as already stated, have raised rather than satisfied the fears. Beyond the strategy, we needed a bona fide industrial strategy outlining the long-term policy framework and providing the incentives to attract private capital. This remains sadly lacking, perhaps because the government lacks the courage necessary for longer-term policy commitments that require public support.

We have had several years to rectify things. By COP 27, we had already acknowledged that an overshoot of climate targets was likely. The oft-repeated narrative that the UK's current carbon emissions are significantly lower than both emerging and established nations - 'others need to do their bit, why should we disadvantage ourselves?' - is ultimately flawed.

The issue lies in a focus on production-based emissions as opposed to consumption-based emissions, the fallacy behind carbon leakage. In 2021, the UK's production-based emissions were 347.47mn tonnes, while its consumption-based emissions were 513.50mn tonnes. Our imported CO₂ emissions per capita were higher than those of any industrialised country, with the US and EU some way behind.



Photo: istockphoto.com/morkeman

This is where the economic argument comes into play. Recent events in the steel industry in Scunthorpe and Port Talbot highlight that a just energy transition needs consideration. The move to arc furnaces will reduce carbon emissions, but it will hurt jobs and it means the UK will be the only G20 nation not able to handle virgin steel.

Had our CCS industry been beyond the theoretical stage or if the grid connections been in place – or at least in sight – both plants could have had a fighting chance.

Conversely, while the hundreds of new oil and gas licences in the North Sea will secure highly paid and skilled jobs, no investments into carbon capture, carbon reduction or removal technologies have been mandated, even though they would be consistent with net zero.

Further, the renewable energy industry, which for some time had been a real success story for the UK, suffered a blow. Auction Round 5 failed to attract bids for offshore wind projects because the strike price was too low. As things stand, we risk sleepwalking into being neither a low-carbon economy nor a high-skilled manufacturing one.

Although the UK seems to be struck by short-term paralysis, there is an international competition for the industries of the future. In the

US, the Inflation Reduction Act pledges \$370bn over the next decade and is already attracting major brands.

The EU has its Net Zero Industry Act and is seeking to be the first circular economy. It will ultimately charge tariffs on any imported embedded carbon. Meanwhile China – so often under the microscope for its coal-fired power plants – is investing significantly in technologies of the future, with BYD overtaking Tesla as the world's largest producer of electric vehicles.

At a more granular level, back in May 2023, France, our nearest neighbour, detailed its €7bn investment in new battery factories. The UK has failed to take comparable steps.

What we require is a joined-up approach. A true net zero industrial strategy would link our energy and our industrial decarbonisation. UK manufacturing would thrive on both the supply and the development of new technologies. This is not compatible with imported embedded carbon emissions. Nor will it help the UK to secure long-term policy and incentives frameworks to attract finance and investment. We still have a chance to end our contribution to climate change, while maintaining and creating jobs and prosperity.

Oil and gas to remain key in the UK energy mix up to 2050 and beyond

While there will be a fundamental shift in the energy landscape in the coming decades, DNV's landmark UK Energy Transition Outlook (ETO) 2024 report forecasts that fossil fuels will still account for a third of the UK's primary energy supply by 2050.

For 160 years, DNV has built trust and confidence between parties, driven by our purpose to safeguard life, property, and the environment. This latest edition of the UK ETO provides a single forecast for how the energy transition will likely pan out, not a scenario as not all futures are equally likely. It accounts for expected developments in policies, technologies, and associated costs, as well as some behavioural changes.



Download the report to find out more

dnv.com/etouk



WHEN TRUST MATTERS

UK carbon border adjustment mechanism: what it will mean for consumers and importers

Neil Rimmer, Principal Consultant
(Energy Transition & Sustainability) at Vysus Group

January saw the first cut-off date for submission for the EU's Carbon Border Adjustment Mechanism (CBAM) scheme. This marks the start of a two-year transition to a fully-fledged process that will incentivise exporters and domestic producers within the bloc to make their goods more sustainably.

That is when importers will have to surrender CBAM certificates corresponding to the volume of carbon embedded in their goods, bought at the equivalent EU ETS price, in the previous year. The price of the certificates will be calculated depending on the weekly average.

The goods covered in the EU first phase are:

- Cement
- Fertilisers
- Iron/Steel
- Aluminium
- Hydrogen
- Electricity

The aim is that all products covered by the EU ETS scheme are incorporated in the CBAM by the end of the decade, however the UK version due to be introduced in 2027, is less specific on full ETS inclusion. CBAM is generally intended to ensure that the carbon footprint of imported goods will be charged as if they were made by producers within the EU, and the UK when its own CBAM comes into effect. The ETS schemes initiated in 2005 provided initial safe guards against the heavy industry moving outside the EU by providing free allowances which covered approximately 94% of industrial emissions. Central to the introduction of the CBAM schemes is the phase out of the free allowances, in the case of the EU, between 2026 and 2034.

The planned UK CBAM, scheduled for introduction in 2027 varies slightly from the EU list, with the additional inclusion of ceramics and glass, and the exclusion of electricity. Whilst the UK ETS scheme is still in consultation phase, the introduction date of 2027 with a first payment date in 2028 puts the UK 2 years behind the EU

which in turn adds to the complexity for exporters to Europe as a whole.

The absence of refined oil & gas products on the current list exposes domestic refiners and oil and gas producers to lower priced imports of competing products, Neil Rimmer, principal consultant at Vysus Group, told OEUK. Excluding them means that producers and refiners in the UK and EU will not be competitive, which would cost jobs and also hit national GDP. There is nothing to replace these refineries and petrochemicals plants – a lesson we need to learn when deindustrialisation has taken place in the UK. The EU and UK need to include crude and refined products into the CBAM as soon as possible, he said, describing the CBAM as “an opportunity to preserve heavy or carbon-intensive industry and take responsibility for its decarbonisation, rather than offshoring the problem via uncontrolled imports”.

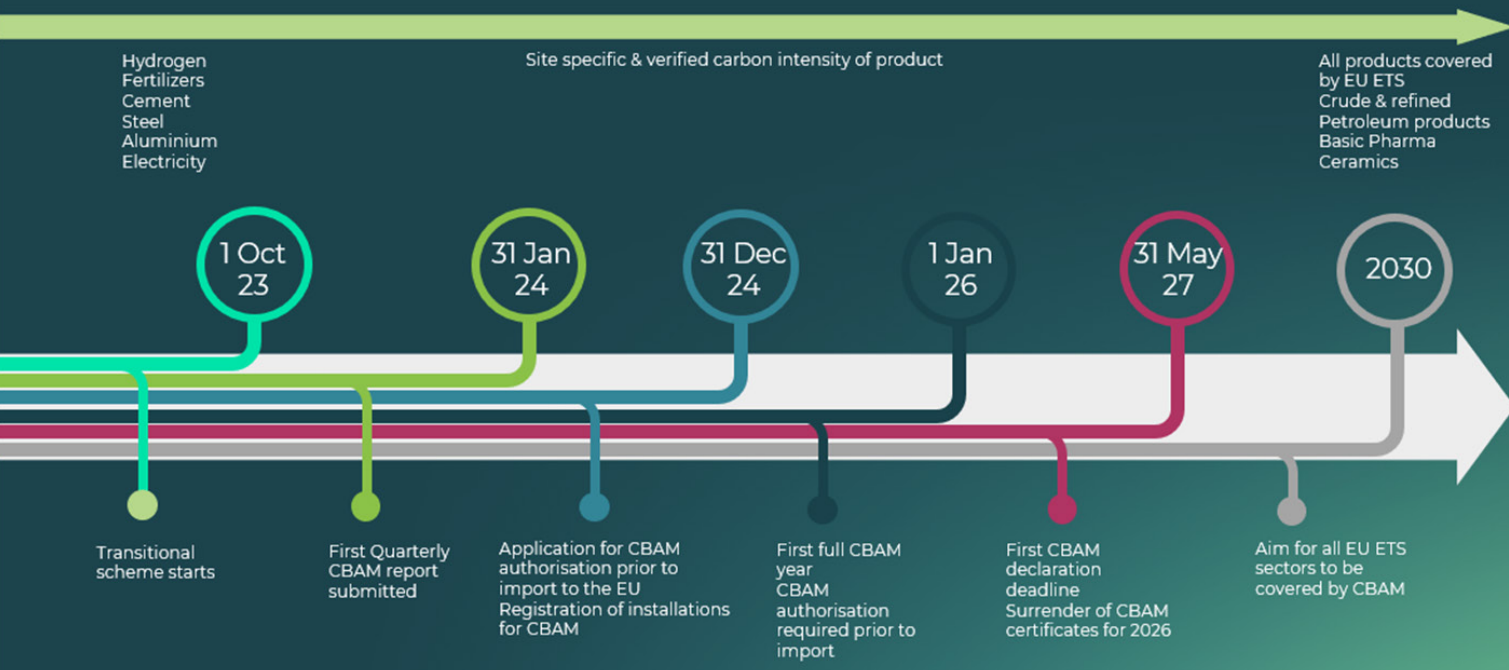
This in turn can support a controlled transition for industry in Aberdeen, Teesside, Humberside and elsewhere busy, Mr Rimmer explains, as long as the oil and gas sectors are included in the ETS.

Ceramics, glass, building materials and tiles, of which a big percentage is imported from outside the EU, will all benefit – as well as smelters that can use hydropower, which has no carbon emissions, and can either transition away from fossil fuels or are developing alternative solutions such as the application of hydrogen in the glass industry.

The application of a levy on embodied carbon, linked to EU & UK ETS, is the only practical way to ensure imports and domestic production are competing fairly with each other, thus avoiding breaching World Trade Organization rules on protectionism. The available market for purchasable carbon allowances from the EU & UK can then be used to restrict the availability for industrial emitters to pay for pollution and pass that onto consumers as they are then incentivised to decarbonise their processes.

Claims from within Europe about its success with emissions reductions are misleading: the bloc's carbon consumption has if anything risen,

Emissions reporting – CBAM



"Should the CBAM be introduced on raw and refined petroleum products, the result will affect the exporting nations."

while the imported substitutes, such as steel and petrochemicals, come from regions with lower health and safety regulations and energy costs too, compounding the environmental damage.

Should the CBAM be introduced on raw and refined petroleum products, the result will affect the exporting nations. LNG imports of gas from the US is likely to be more expensive than Middle Eastern LNG owing to the upstream US shale gas production being more carbon intensive than production from certain Middle East countries. Qatar and the UAE have been preparing for the EU carbon market price for some time, modelling the impacts and making adjustments such as carbon

capture and storage to its downstream processes. The state producer ADNOC is establishing the carbon intensity of all its products over the next three to five years to prepare itself for the inclusion embodied carbon on imports to the Europe.

The EU CBAM timeline Determining the embodied carbon of a product

The following table provides an overview of the specific emissions and greenhouse gases covered and how direct and indirect emissions are determined for each sector falling under the EU CBAM scope.

Until the end of 2024, companies will have the choice of reporting in three ways: (a) full reporting according to the new methodology (EU method); (b) reporting based on an equivalent method (three options); and (c) reporting based on default reference values (only until July 2024). From next January, only the EU method will be accepted. Estimates (including default values) can only be used for complex goods if these estimates cover less than a fifth of the total embedded emissions.

From 2026, the calculation of the embodied carbon must not only follow the EU's defined methodology and boundaries but it must also have been externally verified at a specific plant level. In the case of countries and regions that have their own ETS scheme, the effective carbon prices paid outside the EU will be deducted from

Issue	CBAM good					
	Cement	Fertilisers	Iron/Steel	Aluminium	Hydrogen	Electricity
Reporting metrics	(per) Tonne of good					(per) MWh
Greenhouse gases covered	Only CO ₂	CO ₂ (plus nitrous oxide for some fertiliser goods)	Only CO ₂	CO ₂ (plus perfluorocarbons for some aluminium goods)	Only CO ₂	Only CO ₂
Emission coverage during transitional period	Direct and indirect					Only direct
Emission coverage during definitive period	Direct and indirect		Only direct, subject to review			Only direct
Determination of direct embedded emissions	Based on actual emissions, but estimations (including default values) can be used for up to 100% of the specific direct embedded emissions for imports until 30 June 2024 and for up to 20% of the total specific embedded emissions for imports until 31 December 2025.					Based on default values, unless several cumulative conditions are met
Determination of indirect embedded emissions	Based on actual electricity consumption and default emission factors for electricity, unless conditions are met (i.e. direct technical connection or power purchase agreement). Estimations (including default values) can be used for up to 100% of the specific indirect embedded emissions for imports until 30 June 2024.					Not applicable

Source: Vysus

the adjustment, to avoid paying twice.

Since UK and EU ETS prices have diverged, with UK prices now much lower (see OEUK Magazine #58, p7), importers of UK goods into the EU would have to pay the difference.

The UK government is currently examining the definitions for the emission boundaries that its own CBAM should cover. However, any significant divergence from the EU boundary definition has the potential to lead to differing embodied carbon figures requiring to be declared for goods imported into the UK versus the EU.

Penalties for non-disclosure of these carbon volumes applied from January this year, to goods imported in the fourth quarter of last year. Fines ranged between €10/tonne and €50/tonne of unreported emissions, in cases where either the declarer has not taken the necessary steps to comply with the obligation to submit a CBAM report or where the declarer did not take the necessary steps to correct the CBAM report once a competent authority had started the correction procedure.

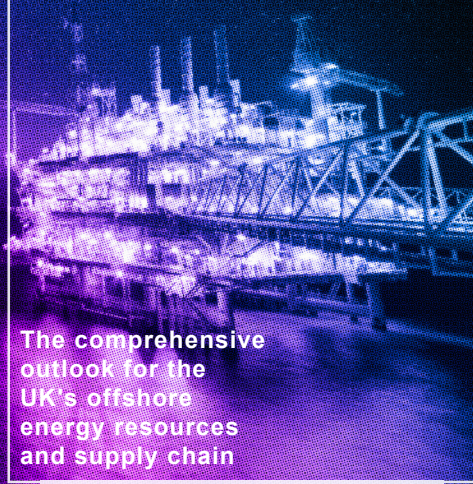
Next steps & impacts for the EU CBAM

Customs authorities will inform declarers of what they must report during the transitional period for the EU CBAM, and it is expected the UK will align with this. This puts the onus on the importer, or the buyer to complete the declarations. However, the tariff associated with this import has a direct effect on the competitiveness of the manufacturer.

For manufacturers, staying and competitive will require:

- Calculation of embodied carbon per tonne of goods
- Certification of the embodied carbon figures from 2026
- Carbon reduction planning to stay competitive (the EU aim is incentivise carbon reduction)
- Understanding lifecycle emissions as product and emission boundaries widen and are included in the CBAM scope

As always with trade, there are at least two parties involved, and the international trade of goods now has an added complexity into the EU. For importers, they could potentially see import tariffs applied on goods they have already contracted to import in areas such as offshore wind turbine foundations and ship building pushing up their costs. Whilst that may have an impact on existing contracts, future contracts will need to ensure the carbon intensity of goods is part of the tender appraisal process. For manufacturers globally (including the UK), competitiveness can be achieved by reducing their carbon footprint as the CBAM is designed to do, but this starts with understanding the true carbon footprint of their goods.



The comprehensive outlook for the UK's offshore energy resources and supply chain

Summary

This year's Business Outlook

Energy bills have gone up and windfall tax have gone

- Higher energy bills are to the lowest in two years
- Rates of return on oil and gas investments have fallen and are well below other major economic sectors

Good commercial practices will help sustain a strong supply chain

- OEUK's Supply Chain Principles promote strong business relationships
- Contractual risk and reward, payment performance and innovation are all important

...But project uncertainty is holding it back. The supply chain needs investment to scale up capacity for the future

Companies need confidence on the timing of projects, or the UK will be at the back of the international supply chain's queue when it comes to energy transition projects

There is a huge offshore energy investment opportunity for UK

- £160bn remaining this decade, growing to £450bn by 2040 - with annual spend being 30% higher than now.
- This will help our energy supplies and the economy to grow, bring jobs and cut emissions

UK energy production is at a record low. We need to encourage investment into all our energy resources

- The UK remains heavily reliant on energy imports. Energy production - of all kinds - is only 60% of demand.
- Oil and gas comprise three quarters of our energy use
- We need to draw investment into our supplies
- Fiscal stability is at the heart of this
- Regular licensing rounds are needed
- The sector must keep meeting its emissions commitments. Emissions are already 24% lower than they were in 2018.

- The growth of offshore wind, hydrogen and CCS will underpin the UK's net zero emissions future
- They are key to decarbonising power, industry and transport
- Oil and gas provide the bridge

- Renewables are making big strides in the power system, led by offshore wind
- But challenges hold new wind projects back
- Government support needs to match the requirements of the sector and what is needed to meet ambitious targets
- Grid connections must happen faster

- UK: Europe's largest CO₂ storage potential
- The first projects are moving closer - they could be approved this year
- Spend will ramp up quickly - to £2bn/yr by 2030 and £3bn/yr by 2040
- CO₂ imports are important to help wider European decarbonisation

- By 2050 the scale of hydrogen use will need to be similar to electricity today
- Progress is being made on the business, commercial and regulatory models needed
- But production, transport and storage must all be developed as one, to meet the targets
- Hydrogen could grow quickly into a £1.5bn/yr+ market

The UK has a highly capable integrated offshore energy supply chain...

- It has most of the capability needed for:
 - Floating offshore wind
 - CCS
 - Hydrogen
- Our oil and gas experience covers 60-80% of these needs
- It is vital that oil and gas capabilities are not eroded before new demand ramps up.

Getting things right, at home, will help unlock a £1.1 trillion global market

£450bn of energy spend to 2040

OEUK's Business & Supply Chain Outlook 2024, continuing our tradition of delivering the most comprehensive review of the UK's offshore energy sector's performance and its future trajectory.

For over five decades, the UK's offshore energy sector has been a cornerstone of national energy security. The 2024 Outlook highlights an unprecedented scale of opportunity, positioning the industry as central to the UK's ambitions for net zero.

With a projected investment of £450 billion by 2040 across oil, gas, wind, hydrogen, and carbon capture, utilization and storage (CCUS) projects, this year's report underscores the critical investments shaping a sustainable energy landscape and affirming our unwavering dedication to net zero.

Changing the way the energy industry works

Cegee data scientist Thomas Grant describes some of the impressive benefits that AI and large language models have brought to the energy sector

Artificial intelligence (AI) aims to replicate human language abilities in communication, vision, and reasoning. Generative AI is a type of artificial intelligence that can create new and original content, such as images, music, or text using these abilities. As innovation in Generative AI quickens, services such as ChatGPT and Midjourney have emerged as disruptive tools that go beyond mere content creation.

This poses many questions, such as: how will the new capabilities of AI powered tools change the energy industry and how can we make the best use of this technology?

AI offers a lot of opportunities and challenges for the energy industry in particular because hydrocarbons and petrochemicals are central to all that we do. The amount of data is increasing, there are tightening constraints around safety and energy security, and now there is the push to diversify and use renewable energy instead. Making the most of data and discovering better ways of using it cost-effectively requires greater efforts in spheres such as data exploration, validation and improvement.

Designing systems that are flexible and can adapt to the user's needs and work with different data types has been a daunting task for developers. New AI powered systems that use large language models (LLMs) and AI assistants may have the potential to solve many of these problems.

Large language models

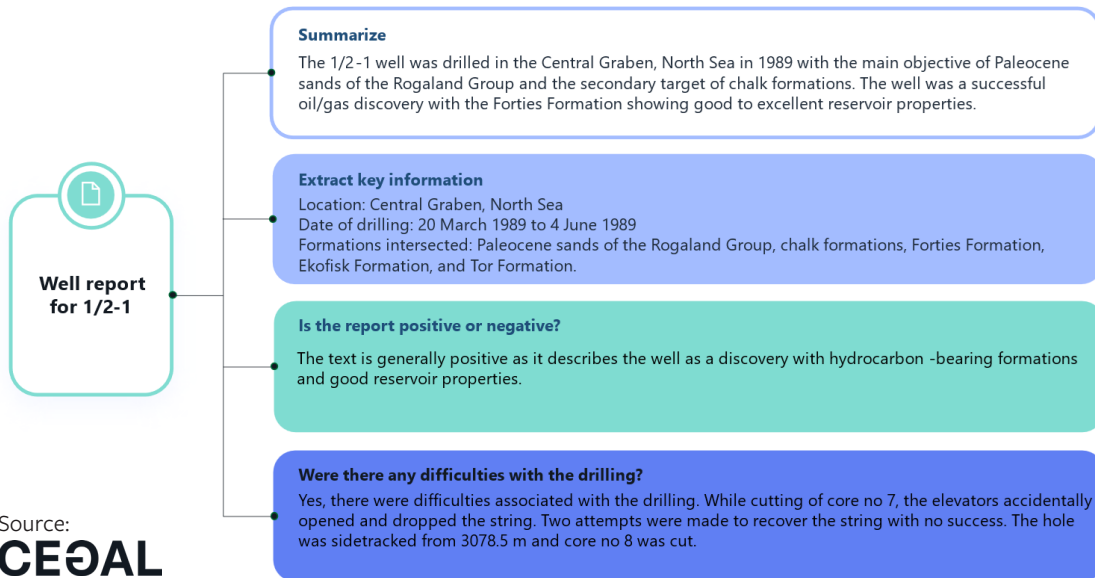
In their simplest forms, language models aim to predict the next word or missing word within a sequence of other words or "tokens". We can view language models, at a basic level, as 'language calculators' that solve linguistic problems. Over the last year, significant breakthroughs have been made in the field of natural language processing, where models have become

bigger, faster, and more powerful. These LLMs have astonishing capabilities in writing human level text and solving complex logical reasoning tasks.

LLMs are built using transformers, a neural network architecture that allows the model to consider large passages of text and understand more complex linguistic patterns such as the importance and relationships between words in a sentence. Transformers can differentiate and correctly weigh different parts of the input sequence of words, allowing them to adapt to different tasks. For example, we can use one single model to summarise text, extract key information, answer questions about the text, or even solve novel tasks (Figure 1). Gone are the days when we always need specialised models for each use case. A producer could interact with drill report data in many ways and extract the information needed even if the type of task changes. Transformers are also effective at finding very specific information even in hundreds of pages of text, so a subsurface professional could extract key information about a well or field from a very long report or even from many reports at the same time.

Working with company data

Most companies struggle to make use of their unstructured text data, which can be found for example in drill reports, financial reports, employee handbooks, or legal documentation. Currently, the dominant framework for working with corporate text data is retrieval augmented generation (RAG). In a RAG system, chunks of text are retrieved using a search algorithm to match the user query and the LLM uses this information to generate a source informed response. This avoids common pitfalls such as the model making up information (hallucinations) or not being able to answer the query (i.e., the data is outside the model's training data). RAG architectures are relatively simple to implement and they allow the user to trace answers



Capabilities of LLMs, using just one model (GPT-3.5) it is possible to do multiple different tasks including summarising, extracting key information, sentiment analysis, and question and answering. Sample text used was from well 1/2-1 from the Norwegian Petroleum Directorate's fact pages and supplied directly into the prompt.

back to the original source information. Additionally, administrators can control levels of security over the returned data should the content contain private or sensitive information. Building a RAG system around a repository of drill reports, for example, would enable users to find relevant historical information quickly, helping them to plan drilling operations.

Copilots and agents

One way in which AI is already making an impact is through copilots. Copilots are interfaces that use LLMs or other AI models to support users in various tasks or decision-making processes. Embedding copilots inside existing applications is a low threshold for AI to transform daily tasks. It is likely that many domain specific applications will soon be copilot-enabled. Subsurface professionals will have AI assistants that will help them analyse and interpret their data, or navigate help and documentation to make better use of the application's features.

Agents act as a self-governing mechanism for a LLM to plan and decide on a sequence of actions to solve a multistep user defined task. The agents can "think" using the LLM's abilities to write detailed plans with step-by-step sequence of actions from user input. They can also "do" by having access to tools, such as search engines, external APIs, databases, or other AI models. For example, an agent would be able to answer a question about a topic that occurred after the date the model was trained and therefore absent from the training data, by using a web search API. The difference is that a chat model would tell you how to open a LAS file and interpret the header information, whereas an agent would be able to complete that task on your behalf.

"Autonomous AI should play an advisory role and be used in low-risk scenarios, whereas actions that have real-world consequences need to be checked by energy professionals who know the environmental and financial risks of their industry."

For example, a petrophysicist with an AI agent that can write and run code (eg Python) would be able to ask analytical questions about the log data. The user would be able to find which log sections have the best porosity or permeability, calculate statistics, generate plots and charts, or run petrophysical calculations on that data. Agents can also be instructed to follow business processes written in natural language so that they follow rules and actions such as: making sure LAS headers contain certain information; checking units; and finding or supplying missing information using company data stores or application metadata.

Is our data ready for AI?

In many situations, the weakest link in the performance of AI models is the underlying data quality, with the common adage that garbage in equals garbage out. This is still much the case, especially if we consider the AI tools as the interface for which users interact with their data.

However, AI can play a central role in cleaning and processing the data before it is presented to the user. Consider a set of unstructured text data, such as well reports. An LLM can be used to categorise the text,

find anomalies or inconsistencies, extract named entities (e.g. well names), or summarise the data. We should therefore be asking questions about how data is organised; where and how it can be accessed; and what are the privacy and security concerns. In other words, how can we supply AI with data of the right kind and best quality with the most benefit to the user?

Ethical, safe, and effective use

Tools that are powered by AI should be viewed as assistants rather than decision makers. While copilots and agents are extremely powerful, they are still prone to errors. Autonomous AI should have advisory roles and be used in low-risk scenarios, whereas actions that lead to real-world consequences would be monitored by energy professionals familiar with the environmental and financial risks associated with their industry. Through more efficient or improved information retrieval, AI could save decision-makers enough time to make the best decisions. It could also enhance data discovery to give them better data on which their interpretations are based.

Open-source frameworks facilitate rapid cycling of new research directly into the hands of developers

Photo: [istockphoto.com/littlehenrabi](https://www.istockphoto.com/littlehenrabi)



and offer building blocks for bespoke workflow driven tools. Cloud providers have also been quick to provide similar services. However, balancing the demand to deploy and make use of AI tools while the technology is evolving can easily lead to technical debt.

Being agile with projects to quickly provide measurable value and working with trusted vendors will be keys to success. It is also vital at an early stage to focus on fulfilling the user's needs so that AI tools meet his expectations. There are many tasks that AI can solve quickly while revealing surprising weaknesses elsewhere.

Authorities are already working to regulate AI. Being aware of norms, rules, and regulations surrounding AI will help make sure that the commercial use of AI systems is ethical, safe, and effective.

How AI will change the energy industry

First, AI will change how we interact with our data. How we search, transform, and consume data from different data sources will become easier and more efficient. The results will also be of better quality. Second, our interactions with data will be enabled through powerful model-based agents, which will act as highly useful

assistants for performing a wide range of tasks. This will enable subsurface professionals to invest more quality time in decision-making and data analysis.

The coming years will bring advances in agents' planning capabilities as they learn from users, and agents will be able to simulate challenging tasks with complex decision spaces.

Optimising small language models, groups of models, and novel deployment architectures will soon start to compete with larger proprietary models. Domain-specific models in vision and language have already been developed for fields such as finance and medicine. Similar subsurface domain models are now starting to appear.

The fragmented nature of the software market in the energy industry makes it easy to see how we could be flooded with different copilots for each application or service. There are therefore clear arguments for AI systems that can traverse data sources and applications that can streamline workflows that use multiple sources of data or application functionality. Meanwhile researchers are investigating ways in which AI-based operating systems may be used to enrich the user's experiences.



*Our industry is changing.
Join us.*



A white rounded rectangle containing a laptop displaying the text 'THE NORTH SEA TRANSITION DEAL' and a QR code. Below the laptop, the text reads: 'Learn more about the North Sea Transition deal and the work of your member body'. The background is a light blue gradient.



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