

Offshore®

SPECIAL REPORT

2023 EXECUTIVE PERSPECTIVES

What's the state of the
offshore oil and gas industry,
and what's on the horizon?



Serica Energy CEO reflects on state of the UK offshore oil and gas industry

CEO Mitch Flegg shares how his company has achieved profitability by boosting production and replacing reserves, despite the challenging environment for the sector

MITCH FLEGG, Serica Energy

The UKCS is a mature hydrocarbon basin with production having declined by 70% since 2000. Yet it remains a very sizeable sector producing about 1.5 MMboe/d, contributing about 1.5% of total UK gross added value and supporting more than 200,000 UK jobs. As with any maturing offshore basin, however, operators have the challenge of fixed costs being borne by a falling level of production.

Given the importance of the UK offshore sector, therefore, it is regrettable that policymakers keep scoring own goals, with the imposition of the Energy Profits Levy (EPL)—a tax on all profits rather than a windfall tax—followed by an increase in the EPL rate and a failed attempt at mitigating the damage with the Energy Security Investment Mechanism. Most recently, the NSTA's "OGA Plan" consultation document points to a risk in placing too much emphasis on electrification as a means of reducing emissions, potentially causing both economic harm to the country and squeezing out more realistic routes to the main objective.

Given this, it would be naïve to argue against the UK offshore oil and gas industry being in a difficult place. Nonetheless, I believe that there is space for oil and gas companies to be profitable in the UK, albeit in ways that mean the country is not benefiting fully from the sector's potential.

Clearly, the current fiscal regime and regulatory uncertainty encourages a short-term investment strategy. Serica by design has an asset portfolio that includes multiple investment opportunities across its two independent production hubs: Bruce and Triton. During this year and through 2024, we are prioritizing well work, mainly on the Bruce Field, and infill drilling in the Triton area, with all activities aimed at resulting in incremental production in the short term with project payback achieved in months rather than years. The economics of these projects are largely shielded from regulatory and fiscal uncertainties, require relatively low levels of risk capital—especially on a post-tax basis—and can be profitable despite punitive tax rates.

Serica and Tailwind, with which we combined this year, have already had success with this approach in recent years with, for example, a new Rhum production well, a well intervention campaign on Bruce, a fourth infill well on Gannet E and the development of the Columbus and Evelyn fields. Importantly, these



projects have boosted production and added reserves without significant increases in CO₂ emissions because they utilize existing infrastructure.

We have a sanctioned program of similar short-cycle investments in the near term and a hopper of further potential investments in the longer term. We are, however, cautious about committing to projects with very high levels of upfront capital expenditure given the significant uncertainties around the future tax regime, licencing and emissions regulation. So, although the sorts of projects Serica is undertaking during the next 18 months, and considering undertaking in the years that follow, can deliver healthy returns, we are an exemplar of an industry reluctant to invest in major new "anchor" developments. The UKCS basin needs larger projects alongside the incremental ones. Both can fit within the parameters of the North Sea Transition Deal.

Politicians of all persuasions looking to govern constructively, regulators and the industry each have a part to play in identifying sensible approaches to making the most of an industry that remains a key part of the UK energy mix and, it is worth noting, a huge contributor to the Exchequer, responsible for some 15% of the total UK corporation tax payments in the last tax year. This is, of course, not easy and trade-offs are inevitable. I am, however, optimistic that through listening as much as talking, we will avoid unnecessary "own goals." ●

Mitch Flegg is CEO of Serica Energy and an Offshore Energies UK board member.

Harbour Energy exec details company's business strategies

EVP says adaptability and innovation are now a necessity for the future of the oil and gas industry

PHILIP WHITTAKER, Harbour Energy

With the global energy landscape evolving at an unprecedented pace, the challenge for sectors like ours is how to change and innovate in a way that ensures we can be successful over the long term. What that means for an ever-maturing sector is constantly looking to do things better or more effectively.

While we have a clear strategy to establish a material base of production in at least one region outside the UK, Harbour Energy is currently best known as the largest oil and gas producer in the UK. That means most of our current operations are focused on the North Sea—one of the most mature basins in the world. So, as an organization, we're increasingly focused on effectiveness, efficiencies, simplicity but also scalability, and we can take on new challenges safely in the knowledge that we have the right support structures or processes already in place while maintaining our strict safety culture.



One way we're doing that is through an increasingly strategic approach to our partnership and supply chain contracts. For instance, Harbour recently entered into a new five-year strategic North Sea operations partnership with Wood for a new master services agreement and associated contracts valued at about \$330 million. That's the model we're increasingly looking to replicate—relationships entered into over the long term with a key sense of strategic direction and purpose. We already have five of these long-term partnerships, with an intent to more than double

that over the next 12 months. But longevity is a key element here too, and we're focusing more on partnership agreements in the five- to 10-year range rather than the short term.

Another focus is on embracing the opportunities of technology and innovation. Data-driven decision-making is becoming increasingly crucial, and we find the industry can optimize operations, improve safety and reduce costs by working smarter not harder. At Harbour, we had many legacy systems that required to be integrated following our mergers and acquisitions of our heritage companies, so one thing we're doing is a comprehensive and holistic digitalization work program in conjunction with Hexagon ALI to implement a fully integrated cloud solution across all our assets. This will support the whole life cycle of an asset. We have a very clear vision upfront, which is a "three clicks to anywhere" approach that makes every individual in the company more effective and efficient and enables a platform to continuously improve data quality.

Simplicity is another key opportunity. Finding the ways to make an organization as slick and streamlined as possible is something the company is increasingly focused on. But taking that even

further, one of the most unappreciated management challenges is working to eliminate unnecessary tasks, processes or bureaucracy. Personally, I would consider the move to simplicity and elimination as an innovation in and of itself, and creating an environment where staff can critically challenge the necessity of tasks is something really important to me. Once that ethos is instilled, we want to find ways to scale that across the wider company.

As the industry and technology it is using evolves, so do the skills required by its workforce, which is where workforce development comes in. We're investing in retraining and upskilling our employees to equip them with the knowledge and expertise needed to thrive in the changing energy landscape. This investment not only benefits the company but also the employees and the broader industry.

The future of the oil and gas industry is one that requires adaptability and a forward-thinking approach. Harbour Energy, like other industry leaders, must be at the forefront of this transformation. ●

Philip Whittaker is Harbour Energy's executive vice president of global services.

Offshore oil and gas – the comeback kid

Offshore remains a key segment to watch in the upstream landscape

SONYA BOODOO, Rystad Energy

Offshore oil and gas activity is on the rise this year following several lean years for the sector. Increased project sanctioning activity means offshore is the supply segment that has seen the strongest growth in investment in 2023, with Rystad Energy estimating the current high level of sanctioning will be sustained, keeping investment in the offshore sector robust. Increased activity will ultimately lead to strong growth in deepwater liquids supply, meaning deepwater will be a key source of new production globally. Here, Rystad Energy investigates global trends in offshore investment, the contribution of offshore production and the performance of offshore projects compared to other segments.

Investments

Offshore investments declined significantly from 2014 until 2021 amid the oil industry downturn in the middle of the last decade, falling almost 60% over the period to about \$138 billion. Last year we observed a change in trends, with offshore investments growing almost 20% from the previous year. This growth has continued this year, with an additional growth of more than 15% over last year. This level of activity, about \$200 billion per annum, is expected to be maintained until 2026 (Figure 1). In total, offshore oil and gas investments make up between 30% and 35% of total upstream investments.

Despite the declining trend from 2014 to 2021, there has been an increase in offshore sanctioning activity since the low of \$30 billion of project capital expenditure sanctioned in 2016. The expectation is that offshore oil and gas projects requiring \$108 billion of capex will be sanctioned this year, surpassing 2019

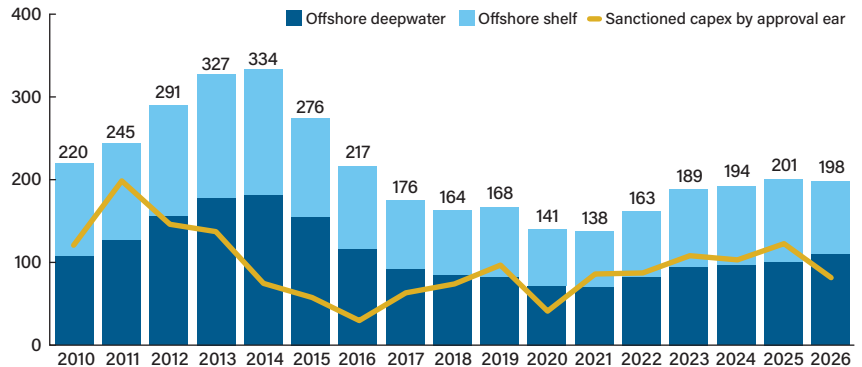


FIGURE 1. Global offshore investments and sanctioned capex (USD billion) ALL CHARTS COURTESY OF RYSTAD ENERGY

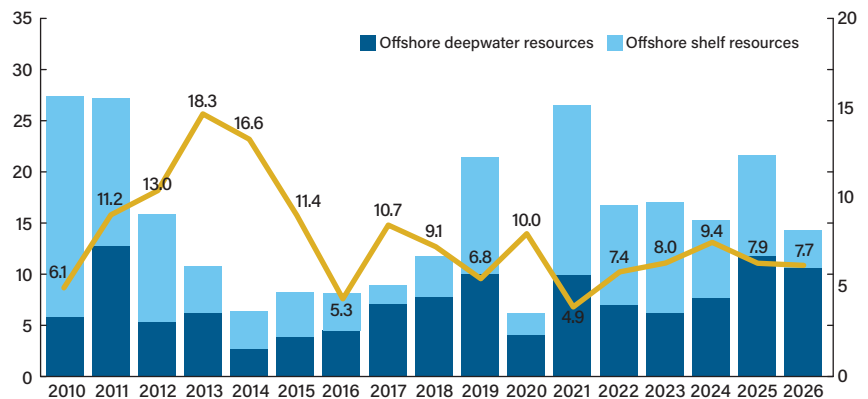


FIGURE 2. Offshore sanctioned resources by approval year (LHS) and development capex per boe (RHS)

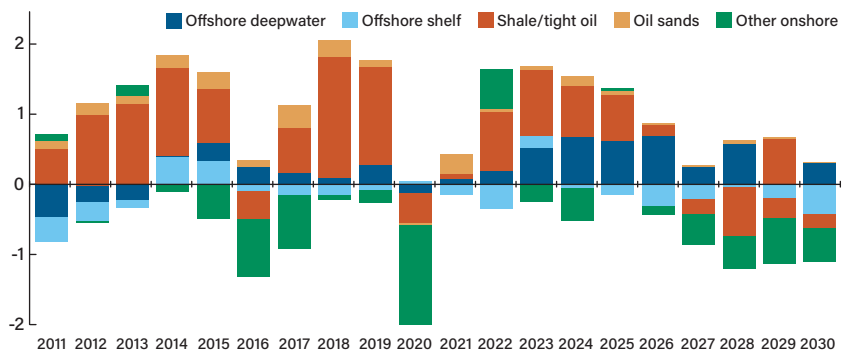


FIGURE 3. Year-over-year growth in non-OPEC liquids supply

levels. By 2025, Rystad expects committed capex to continue increasing to \$122 billion. It is notable that committed capex is not expected to return to the highs seen in the early 2010s.

This is not a result of reduced sanctioning activity but is driven by cost efficiency measures undertaken by operators. After 2014, the volume of sanctioned resources increased more than fourfold from 6 Bboe

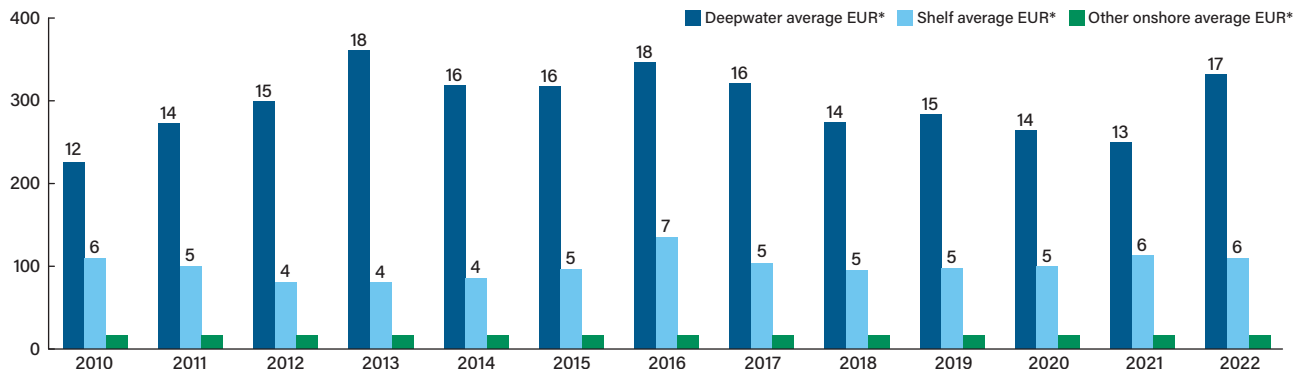


FIGURE 4. Development in average EUR* per well for oilfields (MMboe)

Supply segment	Undeveloped liquids resources*, billion barrels			Average Brent breakeven price, USD per barrel			Average payback time @70 USD per barrel, years			Average IRR** @70 USD per barrel, percentage			Average CO ₂ intensity***, kilograms per boe		
	0	100	200	0	50	100	0	10	20	0	20	40	0	50	100
Other onshore OPEC	138			39			12			17			19		
Offshore shelf	111			43			10			22			12		
Tight oilA	101			42			1			33			12		
Offshore deepwater	68			40			6			31			10		
Other onshore non-OPEC	59			58			10			18			23		
Oil sands	50			63			12			14			70		

FIGURE 5. Offshore versus other key supply segment groups

to 27 Bboe in 2021. Despite more volumes being sanctioned, however, costs remained depressed as the development cost per barrel dropped significantly from the 2013 high of \$18 per boe to an average of \$8 per boe between 2013 and 2022 (Figure 2).

Production

Growth in offshore supply is another emerging trend in the upstream sector. Assessing year-over-year growth in non-OPEC liquids supply, it is evident that shale has historically been the key growth driver. After 2020, however, offshore deepwater has in particular shown signs of becoming a key growth segment. In 2023, the growth rate for non-OPEC deepwater is expected to be about 500,000 bbl/d, or 7%, over last year. By 2026, Rystad sees a shift from shale being the biggest growth segment, with offshore deepwater taking its place and remaining the key growth driver at least toward the end of the decade (Figure 3).

Performance

The performance of offshore fields has consistently surpassed that of onshore. On average, deepwater oil wells have estimated ultimate recovery (EUR) of 15 MMboe, shelf wells come in on average at about 5 MMboe and onshore wells at less than 1 MMboe. It is also evident that offshore well performance has been increasing slightly in recent years, with higher EURs toward 2022 (Figure 4). Figure 5 compares offshore with other key supply segment groups on various metrics.

The combined undeveloped liquid resource for offshore deepwater and shelf is larger than for any other segment, at about 180 Bboe. The breakeven price for offshore projects in the low \$40s per barrel is among the most competitive, out-competed only by onshore OPEC. With regard to payback time, tight oil is the only segment that offers lower average payback time than the six years for deepwater

and 10 years for offshore shelf. The internal rate of return for offshore deepwater at 31% is second only to tight oil. In terms of CO₂ intensity, offshore is best in class, coming in at 10 to 12 kg of CO₂ per boe, well below most other segments.

The sector's performance on key metrics suggests that offshore is one of the safer segments in which to invest, providing low breakevens, high returns and a relatively low-carbon footprint. As such, offshore remains a key segment to watch in the upstream landscape. ●



Sonya Boodoo is vice president in the Upstream Research team at Rystad Energy, responsible for covering E&P activity on the UKCS and development of the UKCS Business Development Solution. Prior to joining the Rystad Energy, she worked as a geologist and economist for both E&P companies and consulting firms. She holds a BSc in petroleum geoscience from the University of the West Indies and an MSc in energy economics from the University of Dundee.

Energy transition expectations from O&G companies

The majority of executives and investors express confidence in the industry's capacity to balance its economics stewardship and environmental responsibility

AMY CHRONIS, Deloitte

The oil and gas industry has outperformed the broader S&P 500 by more than 45% since 2021. Recently, Wall Street has set forth a threefold mandate for the oil and gas (O&G) industry: Uphold financial stability, sustain high dividends and augment investments in low-carbon ventures. These heightened investor expectations may seem paradoxical, but they may act as a catalyst, helping to propel the management of O&G companies to improve in both emissions reduction and economic performance. O&G companies continue to explore growth opportunities in both their core business and in lower carbon technologies.

What are the different expectations surrounding the energy transition that could potentially influence industry capital allocation strategy or deployment of free cash flow? Deloitte recently surveyed 150 industry executives and 75 institutional investors globally to find out if there might be capital deployed either back into the core business, back to shareholders or into new low-carbon fuels and technologies.

Areas of divergence

The challenge in increasing clean energy investments lies not in capital availability, but in the returns and the ever-evolving demand landscape of low-carbon fuels. Approximately 60% of surveyed O&G executives state that they would invest in low-carbon projects if returns from these projects exceed 12% to 15%. This required return is about 1.5 to 2 times higher than that of renewable power projects (primarily solar and wind), which averaged 6% to 8% over last three years.

Similarly, it is acknowledged that the O&G industry offers a high and stable dividend yield, which averaged 3.75% in 2022. But when investors were asked about their willingness to reduce dividends in favor of allocating more resources toward low-carbon technologies, investor respondents seemed more receptive than surveyed executives expected. But investors were clear that any reduction in dividends would still be contingent on a minimum yield. About 80% of the surveyed investors were willing to reduce dividends in favor of increased low-carbon investments, provided that the dividend yield remained above 3%.

The divergence is also evident in the allocation of capital and the metrics employed to measure emissions reduction success.

Which low-carbon fuel/technology is your organization most bullish or positive about?

	EXECUTIVES	INVESTORS
Natural gas	44%	27%
Hydrogen/ammonia	37%	32%
Carbon capture, storage, and utilization	37%	31%
Biofuels, biomass, Synthetic fuels (including e-fuels)	27%	20%
Solar	37%	27%
Offshore wind	18%	25%
Battery storage or battery energy storage systems (BESS)	17%	43%
Electric charging stations, advanced mobility	15%	15%
Critical minerals mining	13%	31%
Low-carbon materials	8%	17%
Onshore wind	7%	7%
Nature-based solutions	5%	9%

SOURCE: DELOITTE REPORT, "FROM DIVERGENCE TO CONVERGENCE: EXAMINING THE ENERGY TRANSITION EXPECTATIONS OF OIL AND GAS EXECUTIVES AND INVESTORS"

Concerning capital allocation, surveyed O&G executives were more bullish on natural gas and adjacent fuels such as biofuels and hydrogen/ammonia. In contrast, surveyed institutional investors display more enthusiasm for transformative energy sources, such as battery storage and mobility solutions (see table). In terms of metrics, surveyed O&G executives assess their progress through outcome-based criteria such as operational efficiency enhancements and reduction in Scope 1 and 2 emissions. Conversely, surveyed investors emphasize outputs when assessing their firm's progress, focusing on the proportion of investments in wind, solar and carbon capture projects.

From divergence to convergence

Given the swift, complex and uncertain nature of this energy transition, it is natural for expectations to vary. However, both groups surveyed firmly concur on key points: the imperative of swift decision-making to maintain momentum; the critical role of policy support in fostering innovation and mitigating investment risks; and the vital necessity of effectively scaling low-carbon operations through measures like carbon pricing, robust offtake agreements and the seamless integration of diverse low-carbon sources.

The majority (75%) of both surveyed executives and investors express confidence in the industry's capacity to balance its economics stewardship and environmental responsibility. This unified high level of confidence underscores the notion that continuing a shareholder-centric approach and aligning on energy transition goals can help O&G companies assume a leading role in the transition toward a low-carbon world. ●

Amy Chronis is vice chair, US Energy & Chemicals leader, with Deloitte LLP.

Top risks for O&G companies in an evolving and decarbonizing world

Most of these risks can be allocated within energy security, economic and diversification risks

BARBARA MONTEERRUBIO, GlobalData

Calls to tackle climate change are in continuous rise, and oil and gas companies must prepare to shift away from conventional operations to keep aligned with an evolving and decarbonizing world. There is a growing consensus within international organizations that the way in which energy is produced, distributed and consumed needs to be radically altered to avoid catastrophic climate change. However, this change needs to take place while ensuring energy security, which might be at risk if

movers in biofuels production, production and use of low-carbon hydrogen, and the installation of carbon capture technologies across their assets. Other additional areas of interest also include expanding the offering of electric vehicle charging points and batteries development, as well as circular economy initiatives.

Even when oil and gas companies have demonstrated to be resilient in a decarbonizing world, their transformation is still underway. Partly because making business outside their core operations will involve facing multiple industry challenges creating risks for transitioning at a faster pace. Most of these risks can be allocated within energy security, economic and diversification risks.

gas companies don't have a smooth transition and bring all attention and investments into cleaner energy sources, then the energy market will collapse.

Economic risks

In addition to government pressure, investor pressure has prompted oil and gas companies to undertake decarbonization in their operations. Funding institutions have turned to supporting low-carbon fuels and green technologies, phasing out coal and fossil fuel subsidies, and making any upcoming investment in oil and gas assets even more difficult to get. As well as undertaking the implied costs of shifting away from conventional operations, while maintaining and upgrading their traditional processes, the increasing carbon pricing and carbon emissions taxes have now to be as well considered into a company's financials.

Diversification risks

As companies are now playing across multiple technologies, this will imply being more susceptible to value chain disruptions. There is a macroeconomic impact from major economies as China, India and the US will have a greater effect on supplies across different technologies. In this sense, companies would need to set clear objectives on which clean technologies to add as part of a diversified portfolio. Another related risk is that the required knowledge needed for new technologies would be different and will require training of their company staff across different activities in the new sectors. Also, there exists some uncertainty across the future market of nascent technologies such as hydrogen and sustainable fuels, hence cautiousness on investing and moving fast is essential. ●

Barbara Monterrubio is a managing analyst with GlobalData.

Major risks for oil and gas companies

Energy Security Risks

- Energy supply balance
- Meet decarbonization targets
- Meet energy demand

Economic Risks

- Investors pressure
- Phasing out fossil fuel subsidies
- Carbon pricing
- Carbon emissions taxing
- Keep maintaining conventional operations

Diversification Risks

- Technology readiness
- Multiple value chain disruptions
- Multiple macroeconomic impact
- Professionalisation across new technologies
- Market uncertainty

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the transformation goes too fast. Therefore, a decisive pivot toward a diverse suite of renewable energy sources will be critical.

Additionally, as energy transition efforts ramp up globally, the pressure on the oil and gas industry to decarbonize and meet global targets increases as well. Currently, leading oil and gas companies have set emissions reduction targets and strategies, relying on both existing and emerging technologies. As part of the existing technologies, they are heavily investing in renewables power generation, with wind and solar power being particular interest areas. New emerging technologies strategies rely more on being early

Energy security risks

Energy security is now on top of the agenda for policymakers and governments across the world. Not even the richest nations are in a position to eliminate oil and gas demand without risking an energy market and economic fallout. This is supposed to be one of the main risks of any oil and gas company, as they must ensure an energy supply to cover the market while they shift to cleaner technologies. Keeping this balance would imply a risk, in a sense that if they don't move away fast enough from fossil fuels, they won't meet decarbonization targets and might be penalized. On the other hand, if oil and

Importance of data in decarbonization

How O&G companies can capture data to improve operations

RYAN BOGNER and **ELENA ANDERSON**, Ernst & Young LLP

Decarbonization is essential for the viability, resilience and competitiveness of oil and gas companies in a rapidly evolving energy landscape. In this new reality, there are three inconvenient truths: decarbonization is challenging; decarbonization must happen faster; and decarbonization must balance access to energy production, energy affordability and climate targets.

Market dynamics surrounding decarbonization are leading to further differentiation of oil and gas products, not just on a cost basis but on a modified cost basis that accounts for embedded carbon. Some counterparties are already willing to pay a premium above the cost of carbon for differentiated products. This trend will only increase in value as pressure builds to meet ambitious climate targets. Currently, depth of market for these types of differentiated products makes it difficult to scale, but as additional regulations and carbon taxes come online, an additional depth of market is expected to emerge.

To create value from emissions, companies need to be able to go beyond annual sustainability reporting and traditional life-cycle assessments (which have historically been scientific studies based on snapshots of a moment in time or mean case) or even carbon reporting with external scopes 1 and 2 assurance. Instead, companies will need to be able to quantify, attribute and contextualize emissions on an asset, project or rig basis. This data will enable real-time identification of areas of improvement and operational intervention.

Offshore oil and gas production has innate advantages and disadvantages from a carbon emissions and climate change perspective. Offshore production is more vulnerable to extreme weather events that can damage or destroy infrastructure, leading to either spills or gas releases. Due to the distance from the shoreline, these can take longer to mitigate and result in overall higher carbon impacts as compared to emission events onshore. However, offshore production assets can help companies meet their ambitious climate targets as they offer:

1. **High-quality product:** Offshore plays produce high-quality oil that is lighter and sweeter and, therefore, is easier to process and refine. The easier the product is to process and refine, the lower the carbon emissions are through the product life cycle.
2. **Fewer leaks:** Offshore oil production is much more centralized and does not require multiple facilities for extraction, production, separation and compression that are separated by hundreds of miles for onshore production. The centralized nature of offshore production requires leaks to be addressed more quickly and therefore reduces carbon emissions from leaks.



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3. **Carbon capture and storage (CCS) potential:** Offshore platforms can facilitate the implementation of CCS technology. CCS can support the decarbonization of an asset by capturing and storing CO₂ underground. Offshore facilities can provide suitable geological storage sites for captured CO₂, helping mitigate climate change impacts.
4. **Oil price stability:** Offshore oil production can contribute to price stability in the market. Increasing global supply helps prevent supply shortages and extreme price fluctuations that can occur when there is heavy reliance on limited onshore reserves. By bringing more advantaged capacity online, it allows for a more efficient oil supply mix from a carbon-intensity perspective.

To capitalize on the advantages, companies must take the following steps to obtain sufficiently granular data to support operational decision-making around decarbonization:

1. Implement a modern data capture infrastructure providing near-real-time access to data across many functions.
2. Store information in a carbon ledger (a digitally enabled tool that facilitates emissions aggregation, analysis, attribution and reporting) along the carbon value chain. When combined with data capture infrastructure and cross-functional processes, the carbon ledger enables companies to calculate, with confidence, the actual emissions of a specific drilling rig or FPSO.
3. Keep people at the center of all emissions efforts—corporate, commercial or otherwise. Field operations teams are central to driving down year-over-year emissions. Their focus on emissions reduction and decarbonization will also help drive cost reduction and operational efficiency.

By capturing the appropriate carbon, operational and production data, oil and gas companies can ultimately identify areas to improve environmental performance, safety, efficiency, scale and operational effectiveness, all of which will drive profitability. ●

Ryan Bogner is a principal in EY's Climate Change and Sustainability Services (CCaSS) practice and serves as the EY Americas Digital Sustainability Leader. **Elena Anderson** is a senior manager in the CCaSS practice.

Offshore O&G is roaring back

Demand for assets and services continues to rise

JAMES WEST, Evercore ISI

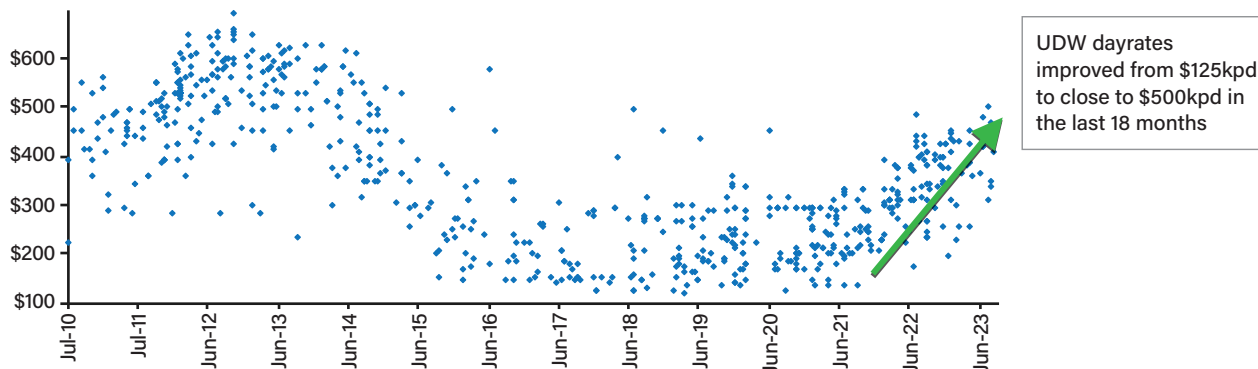
The global offshore oil and gas markets are heating up and will be the largest drivers of E&P spending growth in 2024 as the industry quickly runs out of available modern offshore rigs, vessels and aviation assets to support the surge in activity.

Major oil companies, national oil companies, international independent operators and some US independents are getting in on the action. The majors and NOCs recognize the need to replenish baseload, low-decline rate oil production while international independents are attacking prospects divested by the majors in prior years. There is also a shift toward increasingly targeting natural gas—in the Middle East to replace oil in electricity generation and in many other regions to supply the major LNG facilities currently under construction. Energy security concerns are a driver of this trend as well as the desire for lower carbon fuels.

The industry has matured. We believe the sins of the past are unlikely to be repeated.

As a result of the surge in activity, there is a scramble for assets underway, which is playing into asset-owners' hands. In the deep-water rig market, day rates that bottomed in the low-\$100,000s are now closing in on the \$500,000 level. Standard modern jack-ups that experienced day rate declines to \$60,000-\$70,000 are achieving day rates near \$150,000. Utilization of floating rigs that fell into the low 60% range are now close to 80% utilized, with marketed utilization closing in on 90%. The jackup market, where utilization fell below 60%, is now in the low 80% range. Marketed jackup utilization is above 90%.

In addition, there is limited rig supply coming to the market. To order a new drillship today one would have to wait a year or two for construction to commence and another three years for the rig to be completed. The capital cost is likely in the \$900 million to \$1 billion range. Current drillship day rates do not justify newbuilds, especially if those rigs were to be built on speculation. Evercore ISI does not anticipate an offshore rig building



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The industry that is back in focus is one that recently finished a very tough decade. The push into US oil shale from 2010 to today kept offshore spending at bay, which led to a painful downturn. Following the go-go early 2000s and the massive expansion of offshore assets, especially in deep water, the industry found itself extremely over-leveraged, deconsolidated and in need of a serious restructuring. While some restructuring occurred in 2018-2019, it was the COVID-19 downturn that pushed the majority of the offshore industry into insolvency. Almost every publicly traded offshore asset-heavy company went through a bankruptcy and debt restructuring.

What emerged in late 2020 and 2021 was an industry with fewer assets that quickly consolidated. No longer are rig and vessel companies fighting for utilization to drive cash flow to service debt. The new industry is leaner, meaner and focused on returns on invested capital and returning capital to shareholders.

cycle anytime soon. Evercore ISI expects the rig owners to maintain capital discipline, and its unlikely there will be new entrants into the market.

In the supply vessel market, where total annual capacity to construct vessels once approached 1,000 vessels, this is estimated to have fallen to about 350. Industry leader Tidewater's vessel margins are quickly approaching prior cycle highs.

Like a phoenix from the ashes, the offshore oil and gas industry is back. Demand for assets and services continues to rise. Management teams are focused on generating returns, returning capital to shareholders and providing the safest, most efficient operations to customers. The world needs more oil and gas, and the offshore arena is one of the best arenas to source these resources. ●

James West is senior managing director with Evercore ISI.

Tackling the Great Crew Change through AI solutions

Employers are looking to get ahead of the competition to secure the future best talent in an aging oil and gas workforce

PETER DENHAM, Airswift

The offshore oil and gas industry is facing a critical need to recruit and retain the next generation of talent as older workers reach retirement and the priorities of the up-and-coming generation changes. In the face of this challenge, it is essential to adapt recruitment and communication strategies to align with the evolving preferences and priorities of younger professionals.

Generative AI, with appropriate human oversight to protect against bias, can be a powerful tool in this transformation, helping employers tailor their messaging and streamline the recruitment process to ensure that the industry remains attractive to the emerging workforce. By embracing AI-driven solutions, the offshore oil and gas sector can navigate the oncoming wave of retirement more successfully, securing the talent it needs for the future.

A moving target

The renewables sector is a key target for the offshore oil and gas sector to attract candidates with transferrable skills. However, to be successful in persuading renewable professionals to switch industries, oil and gas companies have work to do when it comes to making job roles attractive. Unlike generations that have come before, the latest iteration of the workforce places more value on factors like work-life balance, ESG and opportunities for innovation, rather than remuneration, which has been an historic mainstay of the oil and gas industry.

In fact, 54% of renewable workers under 34 see contributing to society as most

important for job satisfaction (in comparison to over 35s at 44%) and above remuneration (36%). This indicates that this generation increasingly values the ability to make a difference over pay.

New solutions to chronic challenges

In light of these challenges, generative AI emerges as a valuable tool for offshore oil and gas employers to adapt their

search process by scouring online databases, making recommendations of past applicants and even reaching out to potential recruits. This approach not only saves time but also ensures a more precise matching of candidates with open positions, in what is already an increasingly difficult pool to recruit from.

Furthermore, AI-based assessments can evaluate candidates' technical competencies and soft skills through online



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recruitment and communication strategies to better resonate with the younger workforce.

Employers can use generative AI to create job descriptions and advertisements specifically aimed at candidates under 35. This approach ensures that the language and messaging bring the preferences of this demographic to the fore, including the aforementioned work-life balance, ESG and career advancement opportunities. By leveraging generative AI to adapt their communication strategies, offshore oil and gas companies can make their job opportunities more appealing to the next generation of workers.

AI can also play a significant role in identifying potential candidates. AI-powered tools can automate the candidate

exams. The data collected can then be analyzed by AI, providing a clearer picture of the candidate's competencies. This approach allows recruiters to make more informed hiring decisions, aligning candidates' potential transferable skills and attributes with the specific needs of the offshore oil and gas industry.

With the support of AI solutions, balanced with human oversight, offshore oil and gas employers can be empowered to tackle the chronic challenge of the Great Crew Change with a refreshed approach. ●



Peter Denham is Airswift's senior vice president, Europe & Africa.

To recruit the offshore workforce, flip the script

In hiring and recruiting, companies shouldn't start with what they're looking for but for what the talent pool offers

KATIE MEHNERT, ALLY Energy

The challenges of recruiting an offshore oil and gas workforce are about to grow exponentially. Not only are oil and gas demands continuing to grow, but new investments into offshore wind are transformative as well. The US administration has set a goal of deploying 30 GW of offshore wind electricity generation by 2030, creating thousands of new jobs. This will mean new competition within the offshore sector. More than ever, offshore oil and gas companies will need to come up with ways to attract and retain talent.

Creating the energy workforce of the future requires a whole new strategy. The next generation of workers have different expectations, and they seek different things from work. And they have a lot of opportunities in a tight job market.

This is why in our work with energy companies, I tell clients that it's time to "flip the script." In hiring and recruiting, don't start with what you're looking for. Instead, start with what the great, talented people out there are looking for. In short, ask: What do people want? Here are some of the answers.

More balanced lives

Offshore work is notoriously grueling. It also often requires being far away from family and friends for weeks at a time. Traditionally, this has understandably been seen as necessary. But now workers are increasingly prioritizing life outside of work. It is important to experiment with new possibilities, like shorter shifts, different schedules and more opportunities to connect with family and friends.



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Don't assume that providing these things is "impossible." The same ingenuity and creativity that we use to power the world can also be used to empower the workforce with new possibilities.

Tackle the DEI challenge

Oil rig roughneck jobs remain 95% male, according to Zippia. This is not only a problem for its lack of gender diversity, it is also simply unsustainable. Attracting the future workforce means making everyone feel welcome, in all kinds of jobs. Offering new, flexible options is part of what it will take to fix this.

As the Nobel Prize-winning labor economist Claudia Goldin explains, business leaders also need to build organizational cultures that support everyone who has caregiving and domestic responsibilities outside of work. They need to reach out to people of all backgrounds, make them feel welcome and ensure they have equal opportunities. It's time to make "representation matters" not just a slogan but an irrefutable reality.

Skills training

Traditionally, the boom and bust cycle has left workers being laid off all too often. It's time to change that paradigm. When fewer

workers are needed for offshore operations, don't let them go. Instead, keep them on the payroll and have them do skills training. Upskilling and reskilling the energy workforce is essential. It's also one of the most important things that today's top talent seeks.

Take the long view

One thing unlikely to change is that a lot of offshore work is more suitable for younger people who don't have children to take care of. So business leaders need to assess what they are doing to attract the workers of tomorrow who may want to take on offshore jobs in their late teens or 20s.

Investing in STEAM (science, technology, engineering, arts and math) education in schools is part of the answer to develop a talent pipeline, and so is making sure that children learn about the exciting, rewarding opportunities of working in offshore jobs. Engage with schools, including at the elementary level. Plant the seeds of excitement for offshore work early on. ●



Katie Mehnert is the CEO of ALLY Energy, representative to the National Petroleum Council and Ambassador to the US Department of Energy on workforce.

Rethinking training for the future of the oil and gas industry

Training becomes not just an operational requirement but a cornerstone of employee retention strategies in a sector that increasingly faces labor shortages and challenges in recruiting highly skilled workers

KEVIN SHORT, Mintra

The questions faced in this ever-shifting energy sector extend beyond regulatory requirements and profit margins. Pivotal challenges loom large: maintaining cost competitiveness, talent acquisition to bolster aging workforces, developing innovative solutions to boost productivity and making critical improvements to environmental footprints. Tackling these multidimensional challenges necessitates a significant investment in the workforce to prepare people, who are indispensable in finding viable solutions.

Across safety-critical industries, there are an estimated 374 million work-related injuries and illnesses annually, costing \$3 billion. While compliance with regulations has been a traditional safeguard, the approaches industries are taking still fall short of what is needed to reduce these figures. The issue, at its core, calls for an intrinsic transformation in how we train the workforce and embrace a continuous learning culture.

Training—especially in safety-critical industries like oil and gas—has implications beyond safety statistics. It influences employee engagement, job satisfaction and, ultimately, retention. Training becomes not just an operational requirement but a cornerstone of employee retention strategies in a sector that increasingly faces labor shortages and challenges in recruiting skilled workers.

Given that the energy sector is an interconnected web of disciplines, the adaptability of training frameworks is no longer an option but a necessity. Skills and competencies are not stagnant; they are fluid, continuously transitioning across different sectors and geographies. Agile training methods that can be tailored to various operational needs are integral in maintaining not just compliance but also operational excellence. On the job and on demand is the world we operate in with training provision expected instantly, anywhere and anytime.

In conclusion, the industry stands at a critical juncture, poised to either embrace or resist a future punctuated by artificial intelligence, automation and robotics. These aren't just technological marvels but transformative agents that demand new skillsets from the workforce. Getting it right the first time becomes not just a goal but an imperative, especially in the face of increasingly stringent regulatory and environmental challenges. Within this complex tapestry of volatile markets, evolving technologies and regulatory frameworks, it is imperative to remem-



Mintra offers more than 2,000 eLearning courses for companies operating in safety-critical industries. COURTESY MINTRA

ber that the industry's most irreplaceable asset remains its people. Therefore, training must transcend its traditional role as an operational checkbox to become an integral component in securing the industry's future. ●

High wages and compensation packages were historically the draw for top-tier talent, but these now are merely a given in today's competitive recruitment market. The real differentiator lies in how much a company invests in the growth and well-being of all its employees. The issue of a lack of diversity, especially in senior roles, further highlights the need to think of training as a means to create more equitable, inclusive and, thereby, resilient and sustainable workplaces.

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Kevin Short is CEO of Mintra, a developer and service provider of digital learning and management systems for the energy and maritime industries.

Adaptive learning for the energy transition

As the energy sector adapts, the industry must evolve how it trains its workforces

MARCO VANIN, RelyOn Nutec UK

As the industry moves toward a greener energy mix, news of increasingly wide skills gaps are filling the headlines. With the UK government even stepping in to support, there's no denying the issue at hand. But companies don't need to follow the same pattern. As the energy sector adapts, the industry must evolve how it trains its workforces.

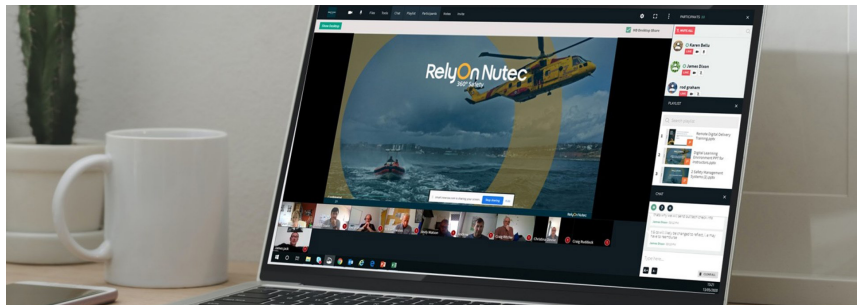
An adaptive approach brings the advantages of consistent training standards, while combining different types of training methods, such as classroom instruction, on-the-job training and eLearning, to tailor the perfect fit for each individual member of the workforce, ensuring the highest levels of safety and competence, while also getting more out of corporate training budgets.

By incorporating numerous training methods into their programs, tailored to delegates' individual needs and experience, all areas of the energy industry can create a more holistic and effective way of training their employees—quickly filling the growing skills gap.

Alterations to eLearning

For years, and even more so in a post-pandemic world, eLearning has been a popular tool in a company's arsenal for ensuring the competency of its workforce for its basic safety training. However, traditional eLearning has not kept up with the technological advances of today's world. Its inflexible approach means that it can leave gaps and doesn't best complement classroom and practical training.

To maximize the true potential of learning via a computer-based training (CBT) platform, companies must look for a more data-led and individualized approach, infusing eLearning platforms with computing power and modern tech algorithms to



RelyOn Nutec serves more than 10,000 companies every year, from the sole employee contractor to some of the biggest companies in safety critical industries, from its 30-plus worldwide sites. COURTESY RELYON NUTEC

build on the foundations of eLearning, but with even more power and purpose.

Not only this, but a revised attitude to eLearning allows users to future-proof themselves for new demographics in an evolving industry. With a generational shift on the horizon, businesses must understand the differences in how a new, younger workforce will best digest information.

Lining up the parts

By taking an adaptive approach, learning is tailored to individual needs and, when bolstered with its "real-world" counterpart, this leads to higher engagement and enhanced retention of knowledge.

The data and analytics from adaptive learning also means that trainees receive real-time feedback. No need to wait around while a teacher gets their red pen out; learners can immediately identify areas where they may need more practice or clarification from an instructor.

By taking an adaptive approach, businesses and self-funded learners can reduce the cost of training, which has often been a barrier to entry. By eliminating the need for face-to-face training and reducing the amount of time spent on training, cost-effective training can be delivered, without scrimping on quality.

A success story

Since its adoption at Massachusetts Maritime Academy in June 2021, RelyOn Nutec UK's adaptive approach has been proven

to reduce time to mastery by up to 50%. An adaptive learning platform not only allows businesses to cut the time spent on theoretical training, but it also highlights knowledge gaps and eliminates memory decay by collecting in-depth data on each delegate's actual knowledge compared to their perceived knowledge. These insights are fed back to the learner, their instructor and the training provider to offer a transparent view of the delegate's level of awareness and competence for any given topic.

A data-led approach means training providers can continually assess and update the content of their courses, basing material and teaching styles on evidence of past student performance.

Bespoke training

Overall, adaptive learning can be an effective training method for hazardous industries by providing personalized training to enhance safety and improve job performance. The historic approach to eLearning isn't fit to serve a diverse and blossoming workforce, but with a revitalized, data-led proposal to consider, the energy industry can transform how it trains now and in the future. ●



Marco Vanin is senior vice president with RelyOn Nutec UK, a provider of safety and competence services.

Leveraging the human influence to drive digital advantage

Case studies illustrate contrasting extremes of the adoption spectrum

JON BELL, MODS; and **ALEX ROBERTSON**, Petrofac

Despite digitalization's promise to bring greater productivity and profitability to the oil and gas industry, cumbersome paper-based processes continue to dominate day-to-day activities. According to Offshore Energies UK, it is chiefly human apathy that is hindering a digital evolution and leaving the sector lagging.

To overcome challenges associated with the uptake of new digital solutions, Petrofac and MODS deployed the ADKAR (Awareness, Desire, Knowledge, Ability, Reinforcement) change management tool. The model, which is based on the fundamental idea that organizational change is dependent on individual transformation, was applied when introducing Advanced Work Packaging (AWP) technology across 28 EPC brownfield project sites in the UK Continental Shelf. Each had successfully achieved varying levels of digitalization over a three-year period.

The ADKAR model is a five-step, continuous improvement process that encourages a human's predilection for change in tandem with the introduction of any technology. For ADKAR to advance fully over five stages, all impacted parties must be active and willing participants.

Forging a desire to digitize

From the introduction through the implementation of the cloud-based software, the ADKAR model enabled the digital partners to understand the enthusiasm levels of users across the business hierarchy to embrace the digital makeover. The study began by introducing digital solutions to four key brownfield project execution workflows: work packages, materials management, completions and reporting.

Two case studies illustrated the contrasting extremes of the adoption spectrum to clearly demonstrate that human resolve is at least as influential to the successful uptake and scalability as the merits of the technology itself.

While it was clear that AWP software could significantly improve brownfield construction efficiency, the senior team and middle management involved in the first case study held opposing attitudes toward digitalizing workflows on their assets. Though senior decision-makers understood and had a desire to realize the benefits, several project delivery personnel were reluctant to embrace an upheaval in their existing ways of working. This aversion reverberated across the business, which led to more inefficiencies being created and deeper disapproval toward the digital tool. Therefore, manual/paper processing continued.

Unlike the first case study, the second investigation brought personnel from both groups together to deliberate and cultivate a unified desire for the transition from manual to digital processes. Reinforcement, the final stage of the ADKAR process was achieved. The client was then fully onboard to invest in the totality of the solution to optimize ROI. Overall, 10 modifications were made to the AWP software to maximize the user interface and experience. These user-initiated changes enabled a continual learning loop that endorsed technology adoption and ROI across the 28 brownfield sites.

Accelerating digitalization

Approximately 25% of digital transformation efforts achieve success due to hurdles related to managerial backing, well-defined attainable goals and transparent communication. These difficulties are exacerbated by the inherent characteristics of brownfield assets, which can

restrict onsite techniques, systems and procedures. In the absence of predictable project execution, current AWP solutions encounter challenges in successful adoption and implementation in brownfield contexts. When integrating historical installation and construction data with technologies, the absence of motivated and upskilled users can make a robust and powerful solution appear fragmented.

Although the second case study was deemed successful, it is crucial to recognize that effectively steering change is an ongoing process. In fact, the reinforcement stage will cyclically return to awareness, establishing a positive feedback loop centered on continuous enhancement of new digital systems and procedures. This iterative approach is how digital transformation can be expanded from a single asset or project to the de facto approach to a broader portfolio.

Closing the digital void

Nurturing and strengthening human want and will is the cornerstone of converting traditional practices to digital advances; it should not be underestimated or taken for granted. Without the appropriate incentives, motivation and support, garnering employee commitment becomes a formidable challenge. Consequently, adoption rates will remain low, and the ROI suffers.

Given the pivotal role of users in driving the adoption and scalability of technological advancements, it follows that a proven organizational change management model is indispensable for identifying and rectifying obstacles that hinder the seamless alignment of technology, people and processes. ●

Jon Bell is CEO of MODS, and **Alex Robertson** is project director, systems, digital and technology, with Petrofac.

Editor's note: This article is an abridged version of SPE-216131-MS presented at ADIPEC 2023. References available upon request.

How today's challenges in offshore are shaping tomorrow's opportunities

Improving the public's perception of the oil and gas industry

JOHN DAY, Wood

While the offshore oil and gas industry is facing challenging regulatory and resourcing environments, operators are investing in the next generation of technology and talent to improve profitability and future-proof assets.

In the Gulf of Mexico in particular, there is a delay in FIDs reflecting operators' general lack of confidence in long-term prospects because it has become increasingly difficult to obtain the necessary permits to drill new wells and build new facilities. As a result, we are seeing more subsea developments tying back to existing host platforms rather than newbuild FPSUs.

Looking to the future of offshore in this region, Wood anticipates operators will drill new wells and enhance their existing facilities to accommodate the subsea tiebacks. There will still be the occasional new development, but the primary focus will be on optimizing existing facilities.

Integrating digital tools into offshore operations

With the focus on capital efficient solutions to improve project economics and hedge against risk, there has been an increased emphasis placed on digitalization. Operators have become more interested in reducing offshore personnel requirements through automation and new technologies, like digital twin, decision tools and predictive maintenance. These

innovations also result in lower emissions and increased safety.

A few major UK operators have already seen the positive results from integrating digital solutions into their offshore assets—one removing 67,000 hours of maintenance backlog and another saving £270 million (US\$330.6 million) in inventory across the client's assets.

Optimizing operations with decarbonization solutions

It's also important the industry help clients decarbonize their offshore assets through the application of digital solutions. Operators are taking a deliberate and measured approach to planning their paths toward net zero. Since many energy companies have a net-zero target by 2050, new facilities coming online in the next decade will be incorporating both proven field technology and anticipated technology in the development pipeline.

Investing in the next generation

When it comes to resourcing, there are a lot of retiring engineers that will take a breadth of experience with them, so the offshore oil and gas industry is investing in developing the future generations of engineers, designers and technical talent so it can continue engineering offshore facilities.

By showing the next generation of energy professionals that the industry is decarbonizing and digitalizing the oil and gas industry, it is attracting and developing more young talent. Future generations have an opportunity to make a difference working in this industry, because the innovative solutions being developed and implemented today will help drive energy security as we work toward the energy transition. ●

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