



**œUK** OFFSHORE  
ENERGIES UK

**OFFSHORE DECOMMISSIONING  
REPORT 2024**

**The decommissioning  
outlook for the UK's  
offshore energy  
industry**





An integrating offshore energy industry which safely provides cleaner fuel, power and products for everyone in the UK.

Working together, we are a driving force of the UK's energy security and net zero ambitions. Our innovative companies, people and communities add value to the UK economy.

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# OFFSHORE DECOMMISSIONING REPORT 2024

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# 1. Foreword

Mark Wilson  
HSE & Operations Director  
Offshore Energies UK



Welcome to this year's *Decommissioning Report* and the update on the coming decade's activities – and spending – on the UK continental shelf. The data will help the UK supply chain and operators with their planning.

Last year's report discussed the big challenges ahead, from the influx of renewable projects vying for the UK supply chain's resources to the uncertain political and fiscal landscape that chilled investment.

The predicted upsurge in decommissioning activity has landed, even if a damp squib: the spend has risen slightly in 2023 but activities across the decommissioning work breakdown structure (WBS) have tumbled. In short, the UK has spent more money doing less work in 2023. The macroeconomic factors at play cannot be ignored: cost inflation, political risk and competition for resources have all made it harder to do business.

But undeterred, the UK operator and supply chain community is delivering decommissioning excellence.

A significant challenge faces the UK decommissioning community but it is one that can be overcome. The energy transition has decommissioning at its heart and cross-sectoral sharing is imperative for a just transition. This can be achieved as is evident with the most recent cross-sector guidelines produced by OEUK:

- Design for decommissioning offshore wind
- Offshore wind decommissioning work breakdown structure

Last year showed that the UK is continuing to build decommissioning capacity and capability. But both sides of the market, the operators and the supply chain, need to collaborate more. And the present uncertainty arising from the reforecasting of projects' economics is chilling the decision-making process.

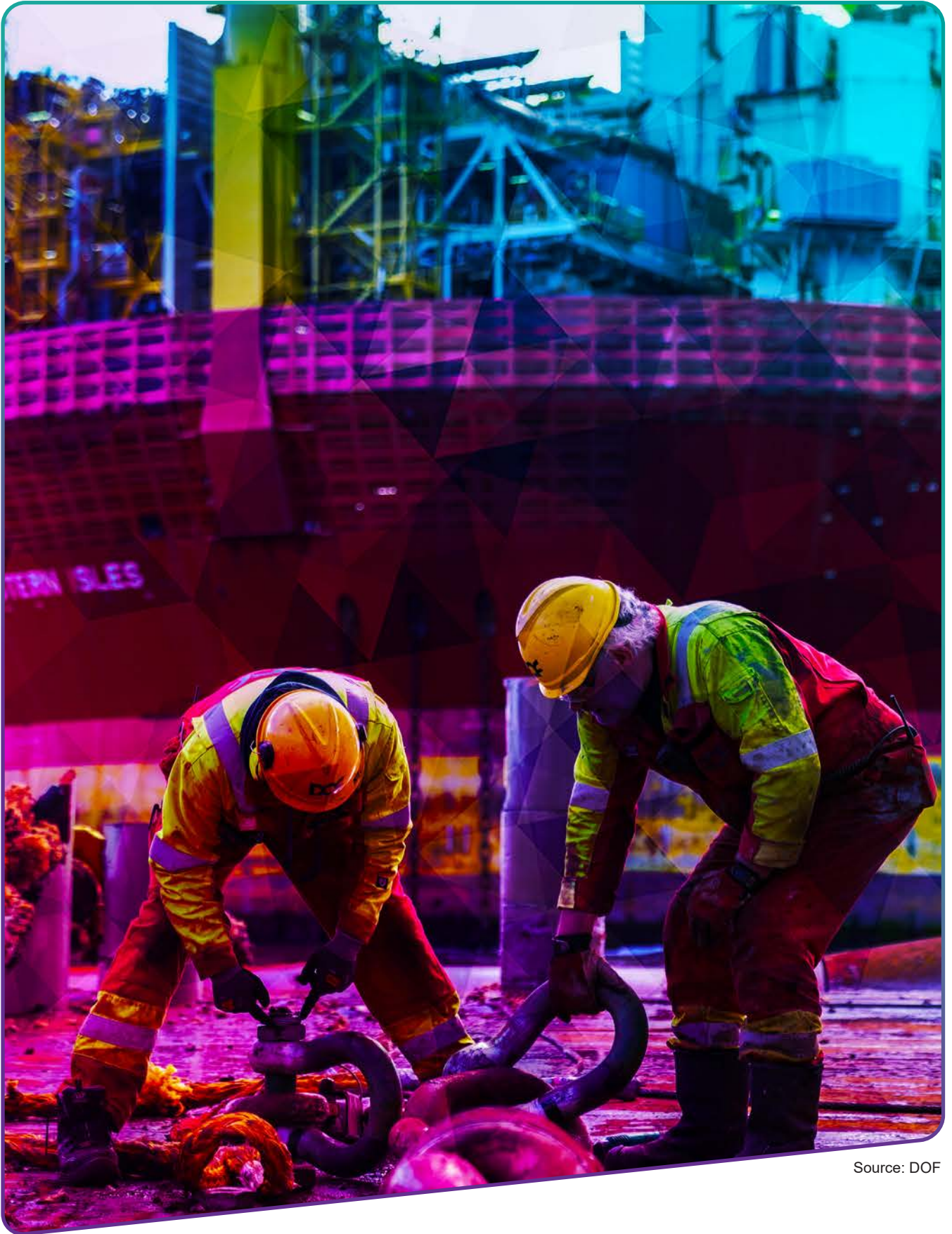
The right support from government is needed if the UK is to become an exemplar of decommissioning and for its sector of the North Sea to thrive. A transparent and pragmatic regulatory regime would oil the machinery and stimulate interest in finding long-term and innovative solutions.

There should be thousands of skilled employees working on a long pipeline of UK projects worth billions of pounds. The sector needs the UK government to provide the stability for the benefit of the UK.

Transparency and trust are key in uncertain times: the operators must continue to sanction projects and the supply chain must remain resilient and competitive.

A handwritten signature in black ink, appearing to read 'Mark Wilson', enclosed within a large, stylized oval shape.

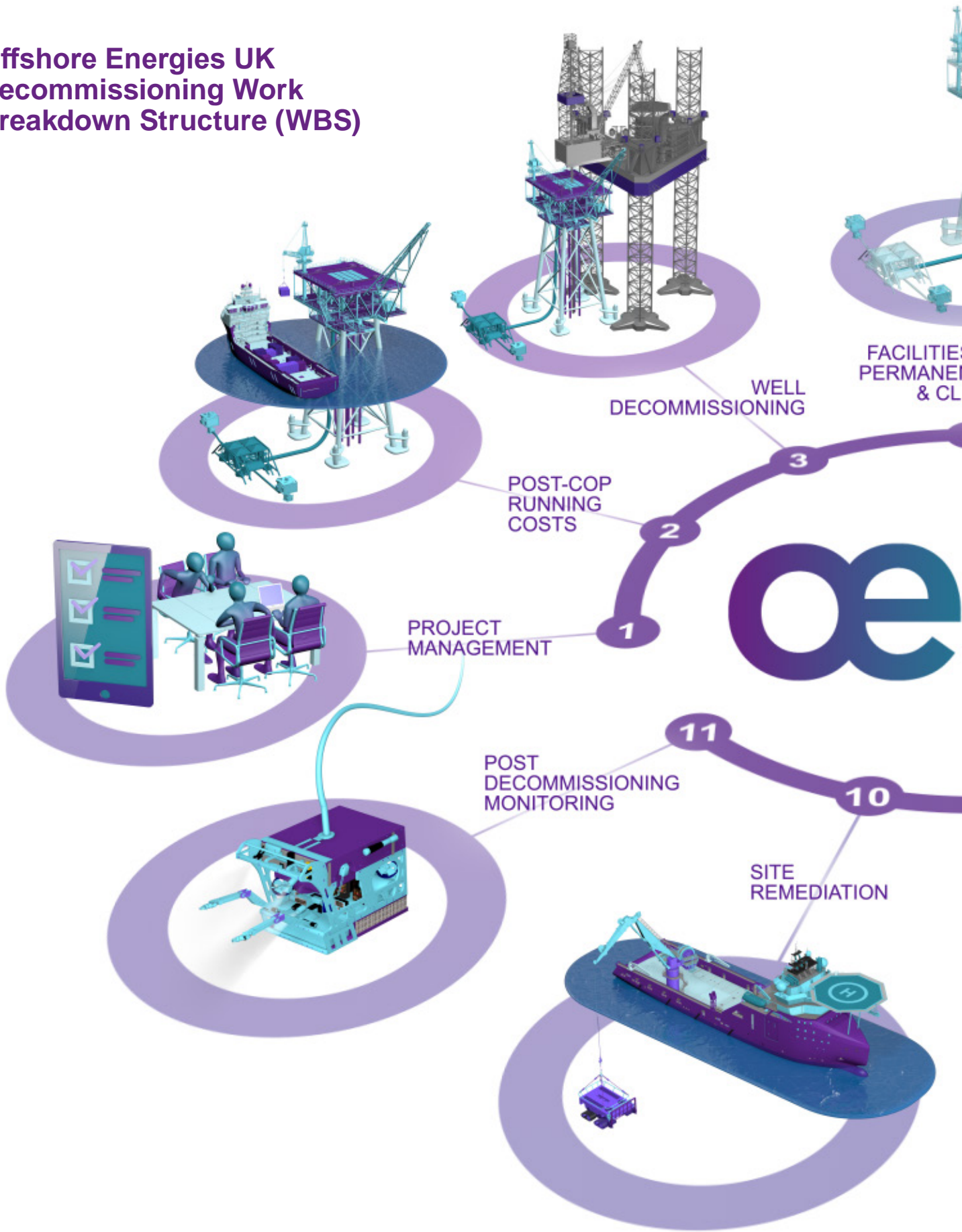




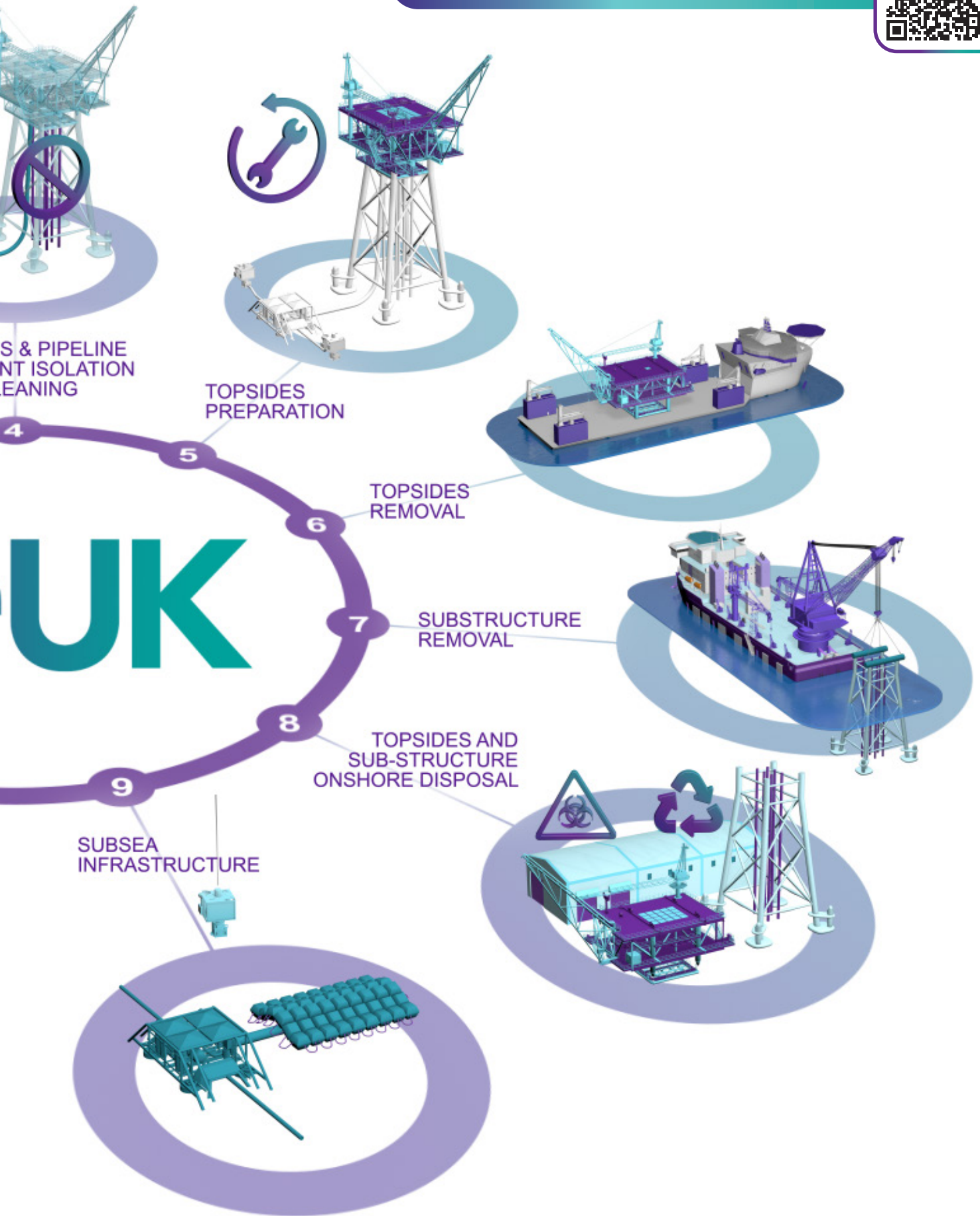
Source: DOF



# Offshore Energies UK Decommissioning Work Breakdown Structure (WBS)

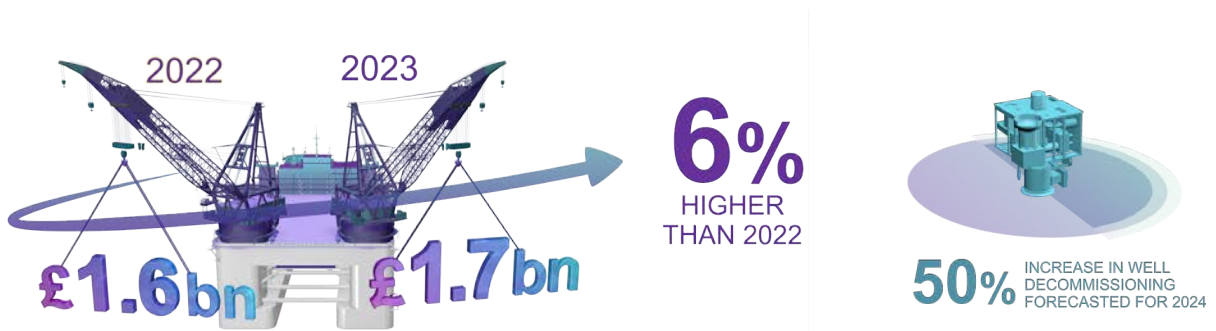








# key findings

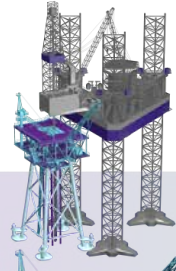
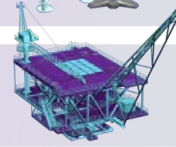
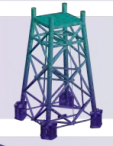
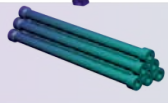

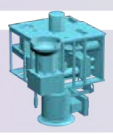
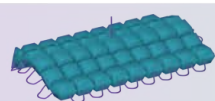


DECOMMISSIONING	ACTUAL 2023	FORECAST 2024	FORECAST 2024-2033
TOTAL EXPENDITURE (£BN)	£1.7bn	£2.3bn	£24.6bn

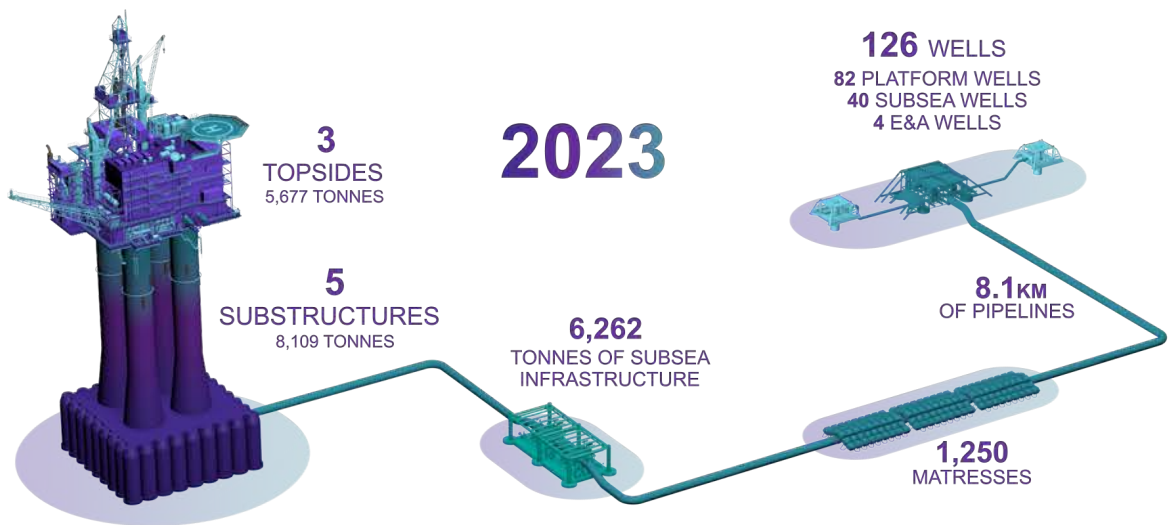
## 2023 SPEND vs 2024 FORECAST SPEND

**£1.7**  
BILLION

**£2.3**  
BILLION

126		WELLS	187
3		TOPSIDES	14
5		SUB-STRUCTURES	14
8.1KM		PIPELINES REMOVED	9.1KM
68.3KM		PIPELINES DECOMMISSIONED	326KM
6,262T		SUBSEA INFRASTRUCTURE	10,668T
1,250		MATTRESSES REMOVED	3,851

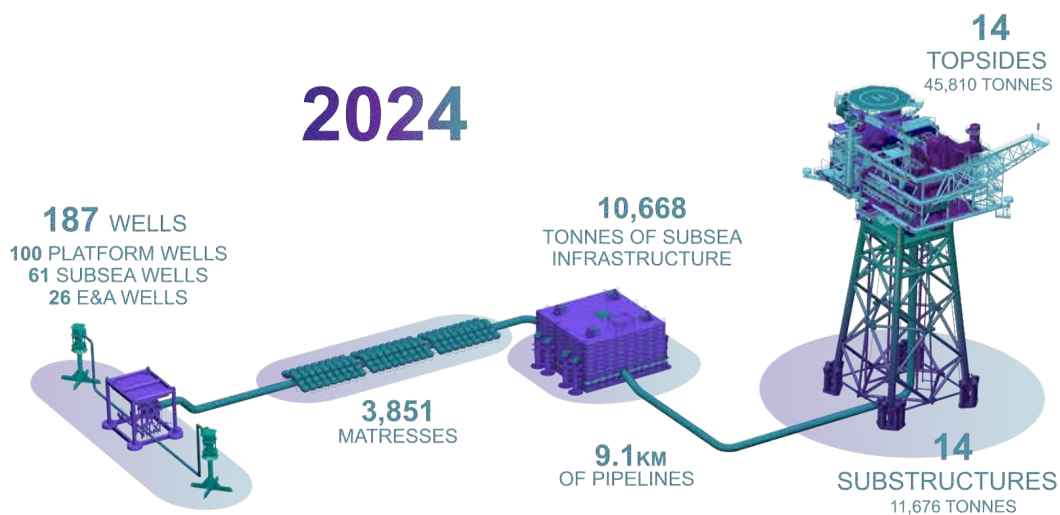




OVERALL TONNAGE OF STEEL REMOVED **20,048**

FLOATING PRODUCTION , STORAGE & OFFTAKE VESSELS TO BE REMOVED (TONNES) **33,042**

## DECOMMISSIONING ACTIVITY



OVERALL TONNAGE OF STEEL REMOVED **68,154**

FLOATING PRODUCTION , STORAGE & OFFTAKE VESSELS TO BE REMOVED (TONNES) **0**

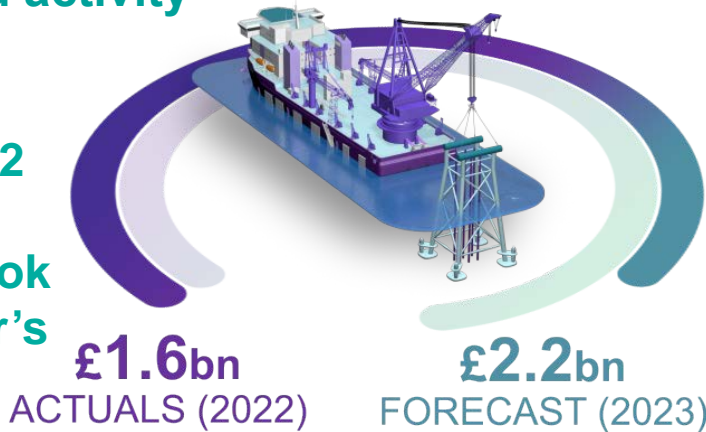


# Report Summary

## Decommissioning key facts

### Spend and activity

Actual 2022 spend and 2023 outlook in last year's report



1,250 mattresses removed

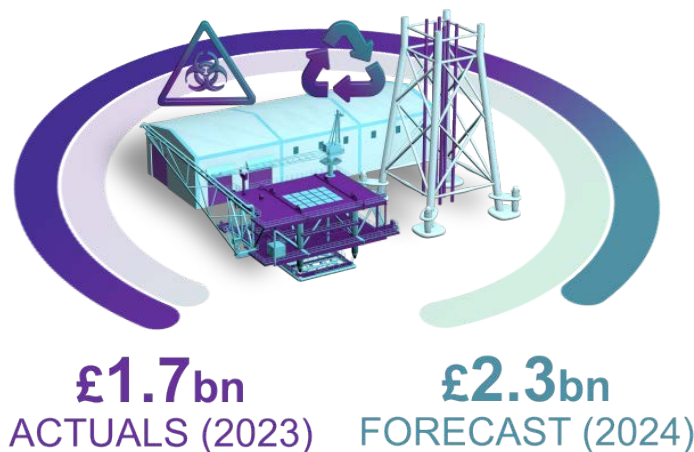
126 wells  
3 topsides  
5 jackets/  
substructures

8.1 km  
of pipelines removed

68.3 km  
of pipelines  
decommissioned

6,262 tonnes  
of subsea  
infrastructure

Actual 2023 spend and 2024 forecast



3,851 mattresses removed

187 wells  
14 topsides  
14 jackets/  
substructures

9.1 km  
of pipelines removed

326 km  
of pipelines  
decommissioned

10,668 tonnes  
of subsea  
infrastructure



## 154,000 jobs are directly or indirectly related to offshore energy

- 120,000 of these are in oil and gas. A further 80,000 jobs are induced in communities
- That means oil and gas supports more than 200,000 UK jobs. And their work supports £25bn in economic gross value add (GVA)

2026 is forecast to see over 100,000 tonnes of topsides and substructures removed and 200 large-scale wind turbines installed

By 2031 the central North Sea could account for more than two-thirds of spend

CNS

About 60% of the basin's topsides and subsea decommissioning will occur between 2026 and 2032. We need to prepare for this now

### Average well decommissioning costs

Cost/well (£mn)	2021	2022	2023	*2024
Platform	2.70	2.56	2.98	3.47
Subsea	7.81	7.89	7.92	8.57
Exploration & appraisal	4.36	4.42	5.33	7.04

\*Forecast

£1.6bn spent in 2022

£1.7bn spent in 2023

£2.3bn forecast spend in 2024



6% increase year on year in annual spend\*

- Average annual spend of £2.4bn expected in the next decade

2023 saw over 6,000 tonnes of subsea infrastructure removed

50% increase in well decommissioning forecast for 2024

50%

Growth and innovation in decommissioning offers a substantial opportunity for the UK economy and industry as a whole

### Decommissioning expenditure (actuals & 2024 forecast)

Decommissioning	Actual 2023	Forecast 2024	Forecast 2025-33
Total expenditure (£bn)	1.7	2.3	22.3



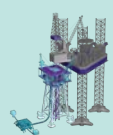



## 3. The UK’s next decade of decommissioning

### 3.1 Short-term outlook

OEUK’s 2023 *Decommissioning Report* showed that the industry was at the beginning of a spending upsurge. Although decommissioning spend has increased, this year’s data shows that considerably less work was completed compared with the forecast. Last year’s out-turn shows a slight increase in basin spend but this was considerably less than forecast. This year’s report shows that the basin will require a step change in activities to realise the forecast. OEUK forecasts that from now until 2030 annual spending will be above £2.4bn for most of the decade – more than ever before. Reaching this number will require an increase in spend of more than 30% compared

with 2023, followed by five years of maintaining this number.

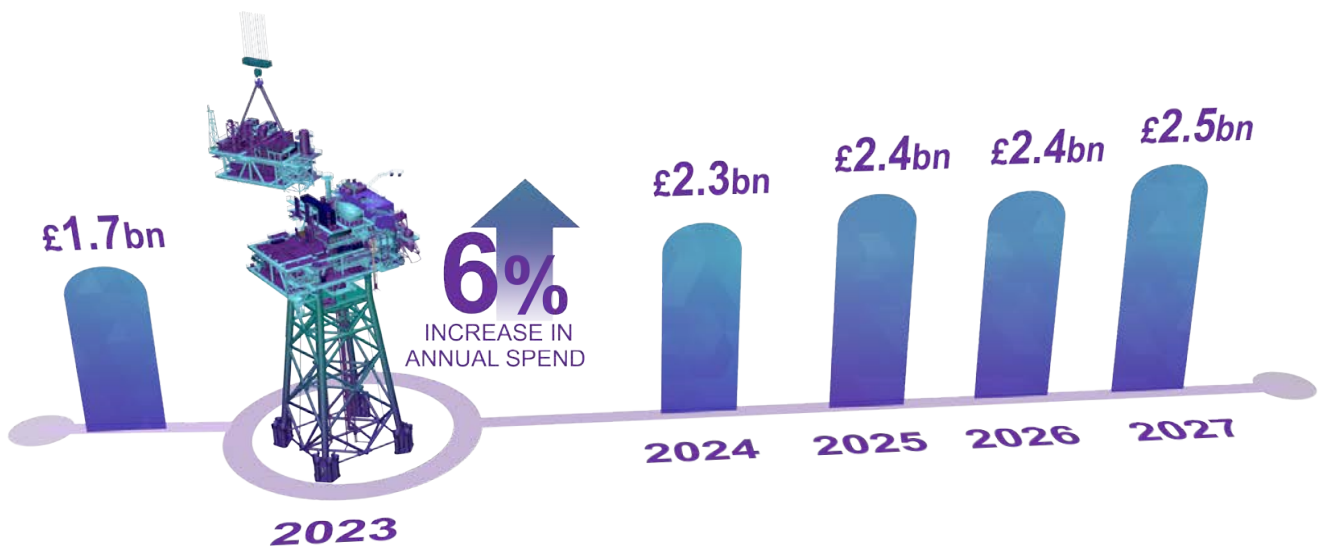
Decommissioning accounted for 12% of total oil and gas expenditure in the UKCS in 2023 but this could increase to 33% by 2030 – higher than capital investment. Over the next ten years it could account for 22% of the cumulative spend. The current outlook shows a very large spike in spend in 2030, linked to a high number of wells currently slated for decommissioning that year. This level of activity is unlikely to be deliverable in a single year so OEUK expect to see that activity flatten into the 2030s as companies advance their plans.

Decommissioning activity	2023 (actuals)	2024 (forecast)
Wells 	126 wells, of which:	187 wells, of which:
	82 platform wells	100 platform wells
	40 subsea wells	61 subsea wells
	4 exploration & appraisal	26 exploration & appraisal
Topsides 	3 topsides	14 topsides
	5,677 tonnes	45,810 tonnes
Substructures 	5 jackets	14 jackets
	8,109 tonnes	11,676 tonnes
Subsea infrastructure to be removed 	8.1 km of pipelines removed	9.1 km of pipelines to be removed
	6,262 tonnes	10,668 tonnes
	1,250 mattresses	3,851 mattresses
Overall tonnage of steel removed	20,048 tonnes	68,154 tonnes
Floating production, storage & offtake vessels to be removed (tonnes)	33,042	0



This year's actuals fell short of the forecast workload figures in every element of the WBS, hence the 20% reduction compared with the forecast. However, considerably more work was completed in 2022 compared with 2023 and the

cost has still risen. This points to macroeconomic factors, political and fiscal uncertainty and inflation as well as some programmes moving further into the future.



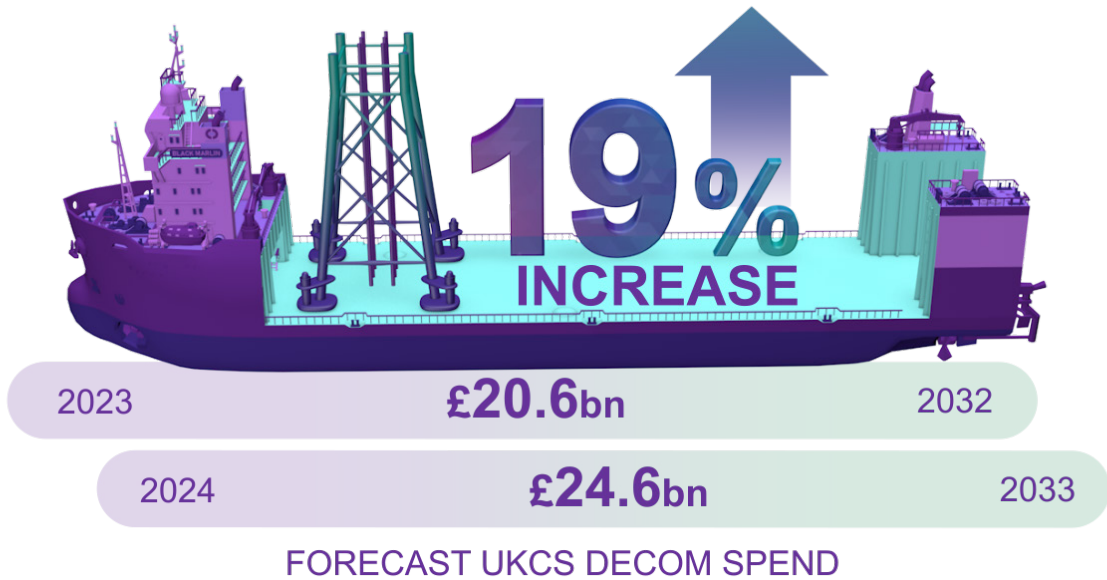
### Rising costs for wells

	COST/WELL (£M)	2021	2022	2023	2024
PLATFORM		2.70	2.56	2.98	3.47
SUBSEA		7.81	7.98	7.92	8.57
EXPLORATION & APPRAISAL		4.36	4.42	5.33	7.04



### 3.2 Forecast

## 10 YEAR DECOM SPEND COMPARISON



2023 – Small (6%) increase in spend

6% increase

2023 – Significant decrease in works completed



2024 – Forecast is £2.3bn: 32% increase

32% increase

2024 – 2028 forecast £2.4bn/year

£2.4 bn/year

Steep rise in spend in 2024 followed by a steady five years

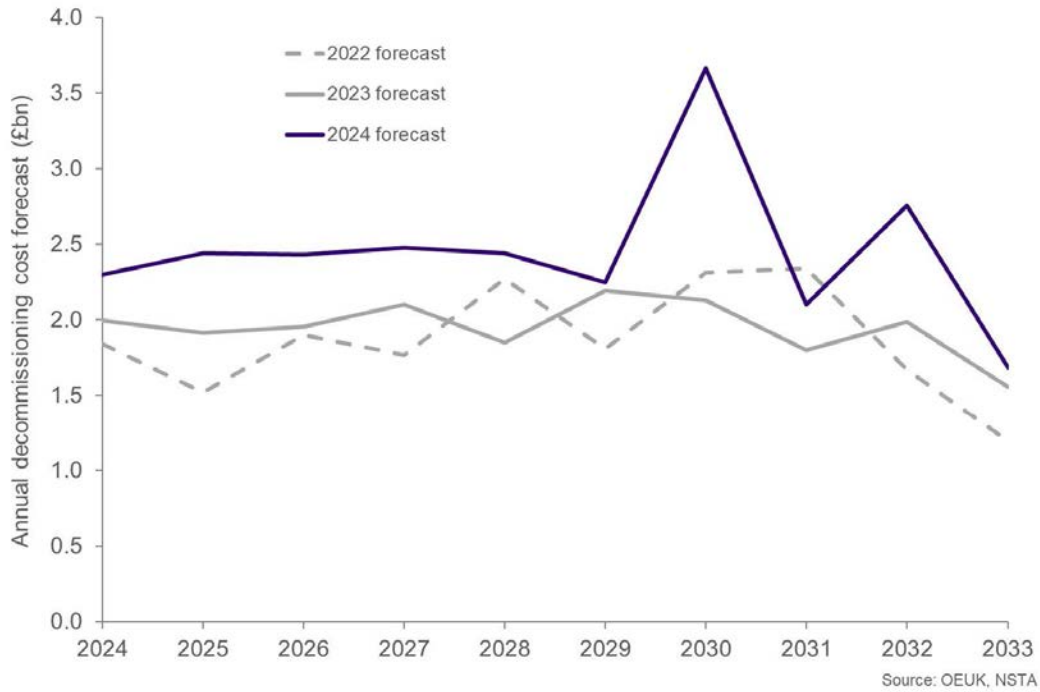


10-year spend forecast is 19% higher than forecast last year

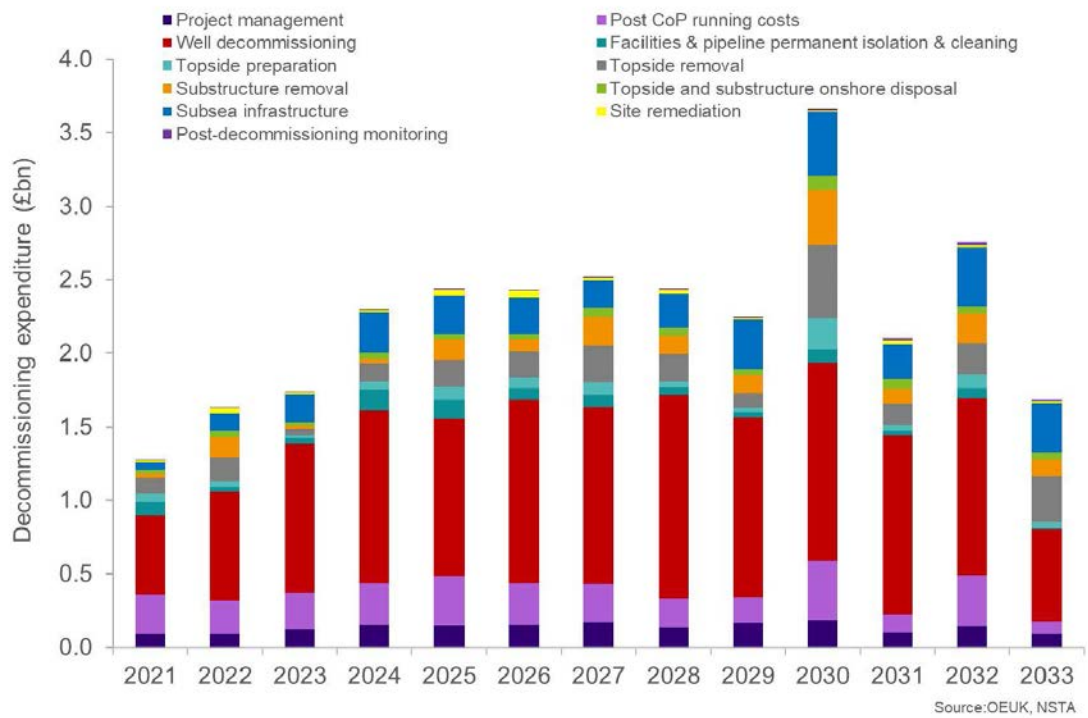
19% increase



**Figure 1**  
**10-year cost forecast 2024-2033**

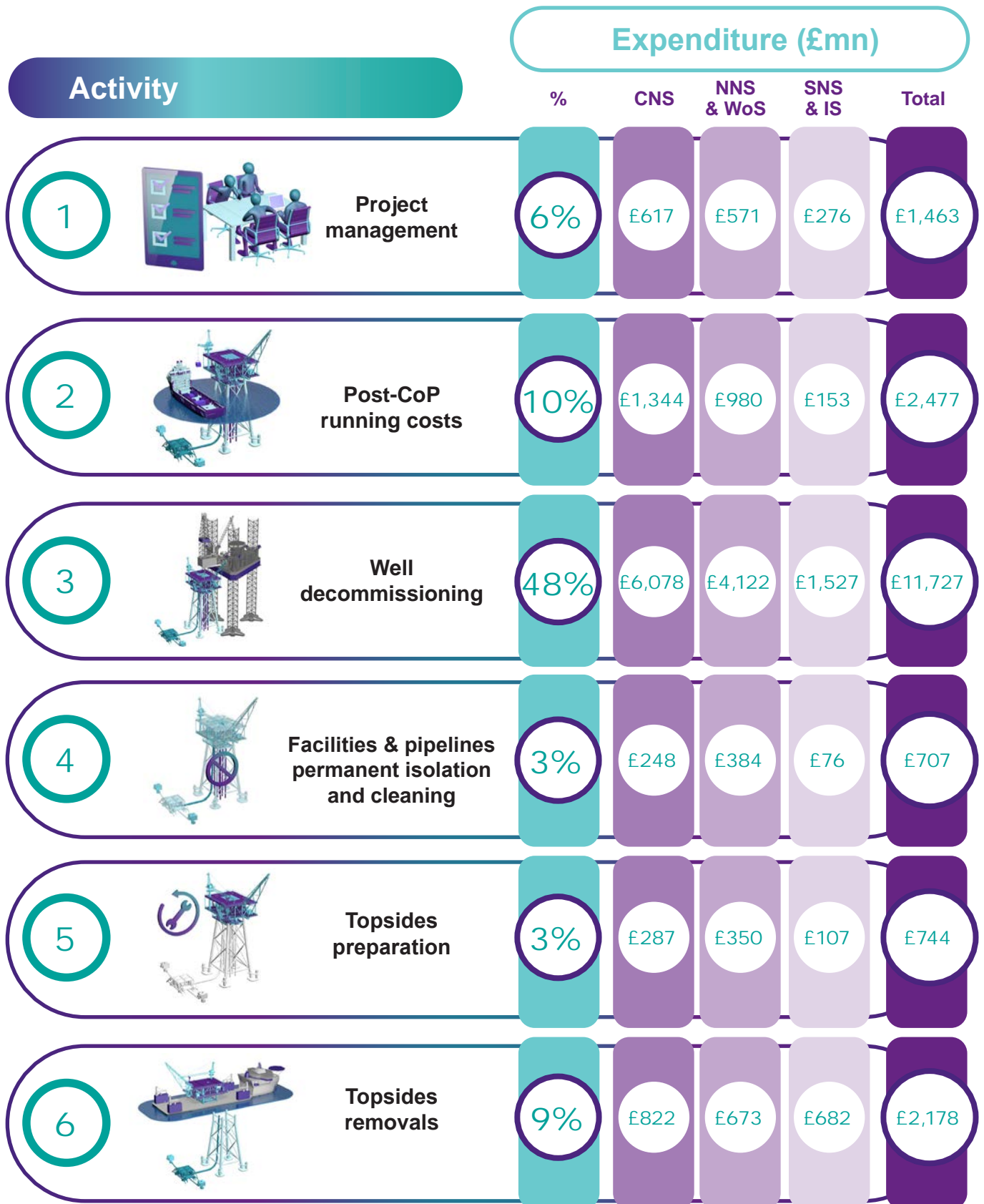


**Figure 2**  
**UKCS decommissioning expenditure by year**



# The UK's next decade of decommissioning

## 3.3 UKCS decommissioning expenditure, by work break-down structure 2024-2033





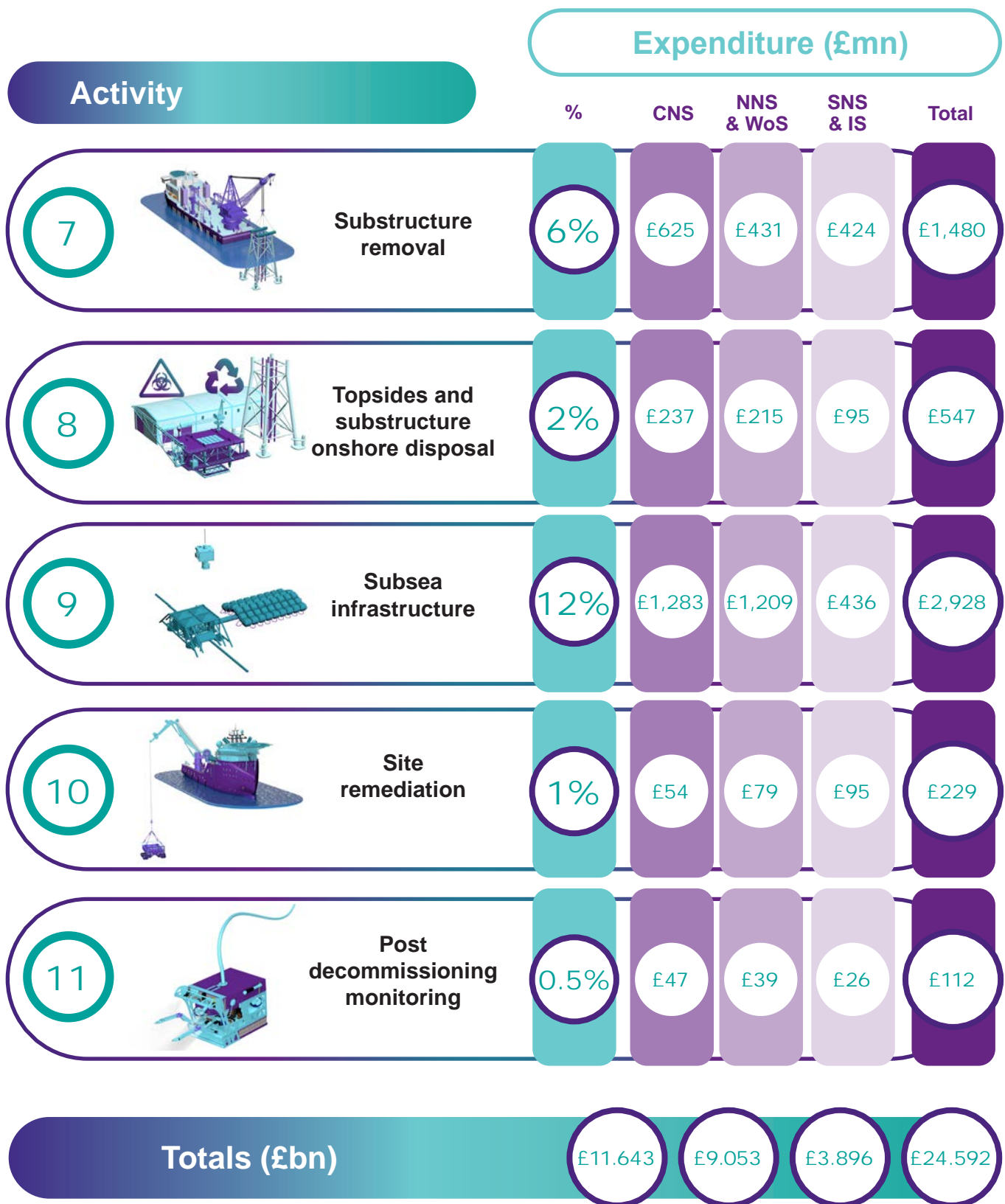


Figure 2 (page 15) shows spending by year, providing a clear picture of the decommissioning work within the UKCS. The regional split by WBS shows the spread of work forecast for each of the next ten years. Additionally, the OEUK online dashboard allows users to interrogate the data for their specific region or work scope. The 10-year outlook shows a dramatic 19% increase in basin spend over the next decade, compared with expectations last year. This increase can be attributed to several familiar factors:

- Cost inflation
- Political uncertainty
- Competition for resources
- Considerably less new production and uncertainty over future production
- Volatile commodity prices

The energy profit levy (EPL), in common with other taxes loaded on to the industry, affects the planning of decommissioning and other capital intensive activities. Wells provide a stark example of this. The next ten years show almost no change in decommissioning plans unless the amount of work yet to be delivered adds up to a dramatic increase in costs.

The industry and its regulators are collaborating to ensure that work scopes are delivered and that the UKCS maintains a healthy supply chain throughout the energy transition. However, the constant threat of macroeconomic pressures and specifically the UK's unstable fiscal regime greatly hamper the UK's efforts to decommission in a timely manner.

Change is needed across the basin if we are to reach the heights of £2.4bn/year from 2024-2028. This represents a fundamental change in all areas of the decommissioning market. A huge 30% increase in activity and spend is required now. With rigs at near capacity in 2023 and delivering considerably less work than forecast, more clarity about the work required is needed. Then the UK can attract more resources, such as rigs, to the region.

**Michael Tholen**  
Sustainability & Policy Manager,  
Offshore Energies UK

*"The increased tax burden through the Energy Profit Levy appears to be having an impact on the decommissioning market as companies see extra calls on their cash flow meaning they have to manage costly activity in a more cautious manner."*

*"There have also been fears that the decommissioning market could overheat and again this could lead companies to take some pressure off activity to see if that leads to prices dropping."*

**Decommissioning accounted for 12% of total oil and gas expenditure in the UKCS in 2023 but this could increase to 33% in 2030, averaging 22% across the ten-year period. It could overtake capital expenditure by the end of the decade.**

**12%**  
basin cost





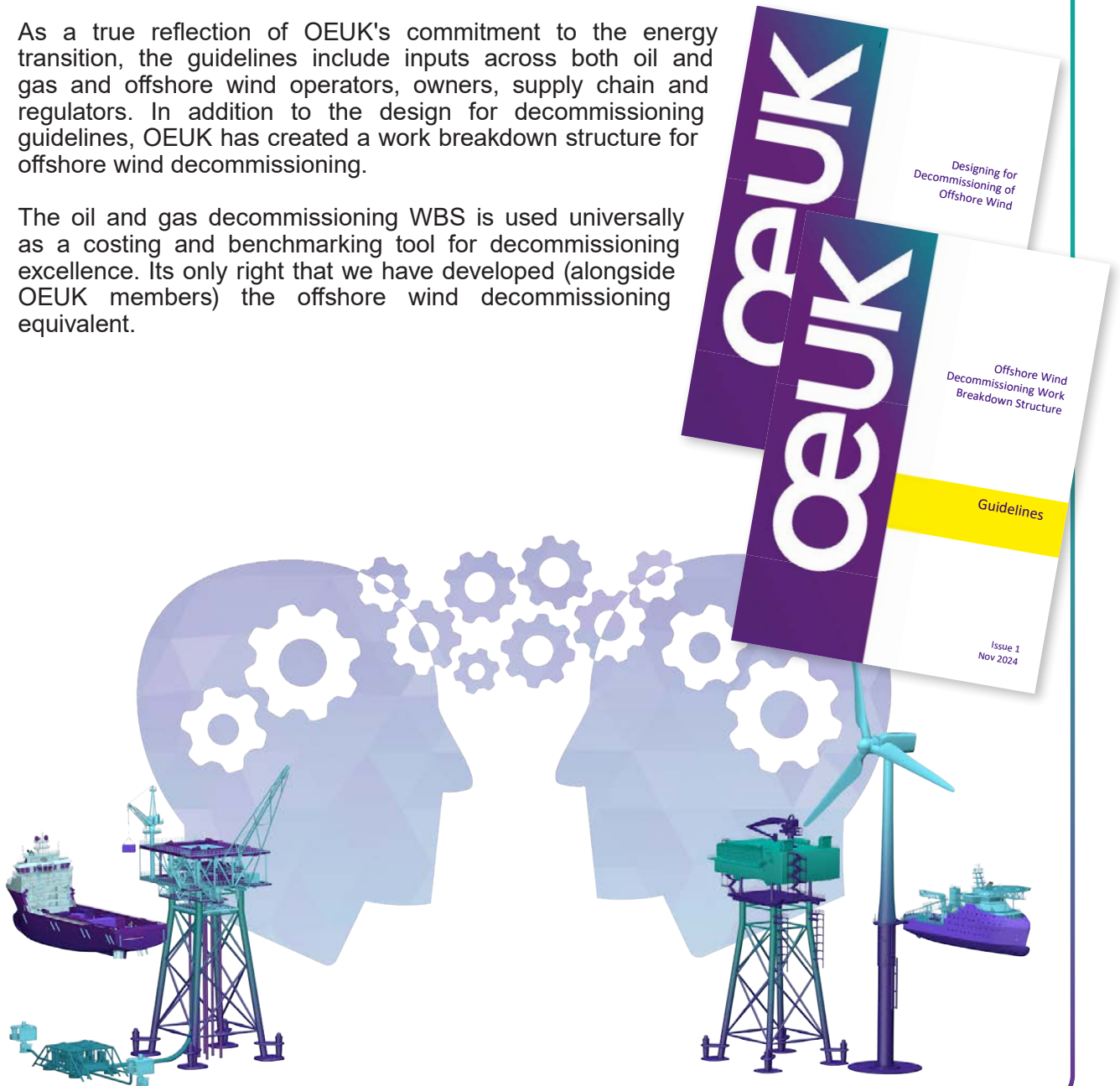
## Two new Decommissioning Guidelines from OEUK

**OEUK has developed a set of guidelines that provide inherent learning from the oil & gas decommissioning sector to the offshore wind sector.**

The guidelines provide an overview of the regulatory conditions as well as best practices for technical design allowing for safe and timely decommissioning. These world-first guidelines provide invaluable learnings which aim to ensure safe future decommissioning within the offshore wind sector.

As a true reflection of OEUK's commitment to the energy transition, the guidelines include inputs across both oil and gas and offshore wind operators, owners, supply chain and regulators. In addition to the design for decommissioning guidelines, OEUK has created a work breakdown structure for offshore wind decommissioning.

The oil and gas decommissioning WBS is used universally as a costing and benchmarking tool for decommissioning excellence. Its only right that we have developed (alongside OEUK members) the offshore wind decommissioning equivalent.

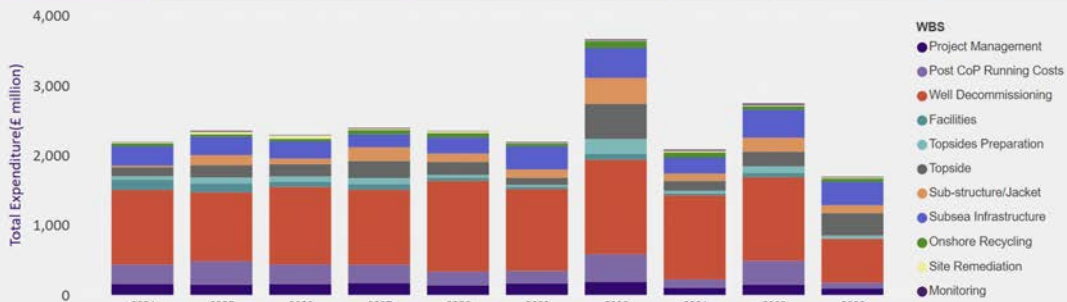


For further insights see our  
**OEUK Decommissioning  
 insight dashboard**



## Decommissioning Insight 2024 Dashboard

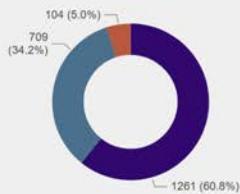
Work breakdown structure   Well decom & removals   Average well costs   Other



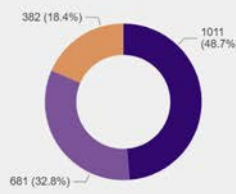
**Almost 2,100 wells are set to be decommissioned in the next 10 years.**

Almost 60% of wells to be decommissioned are forecasted to be Platform Wells over the next 10 years.

● Platform Wells   ● Subsea Wells   ● Suspended E&A W...



● CNS   ● NNS & WoS   ● SNS & IS



**Decommissioning spend on the UKCS set to top £23bn in the next 10 years**

The Central North Sea and Northern North Sea are expected to continue to dominate spend in over the next 10 years.

[oeuk.org.uk/decommissioning/](https://oeuk.org.uk/decommissioning/)



### 3.4 Regional trends

**Central & northern North Sea:** the CNS share of decommissioning work rises to the point where it accounts for a third of the total expenditure until 2028, and half thereafter. A sizeable peak in 2031 shows some CNS mega- projects entering the fray with the work not set to let up in the next 10 years.

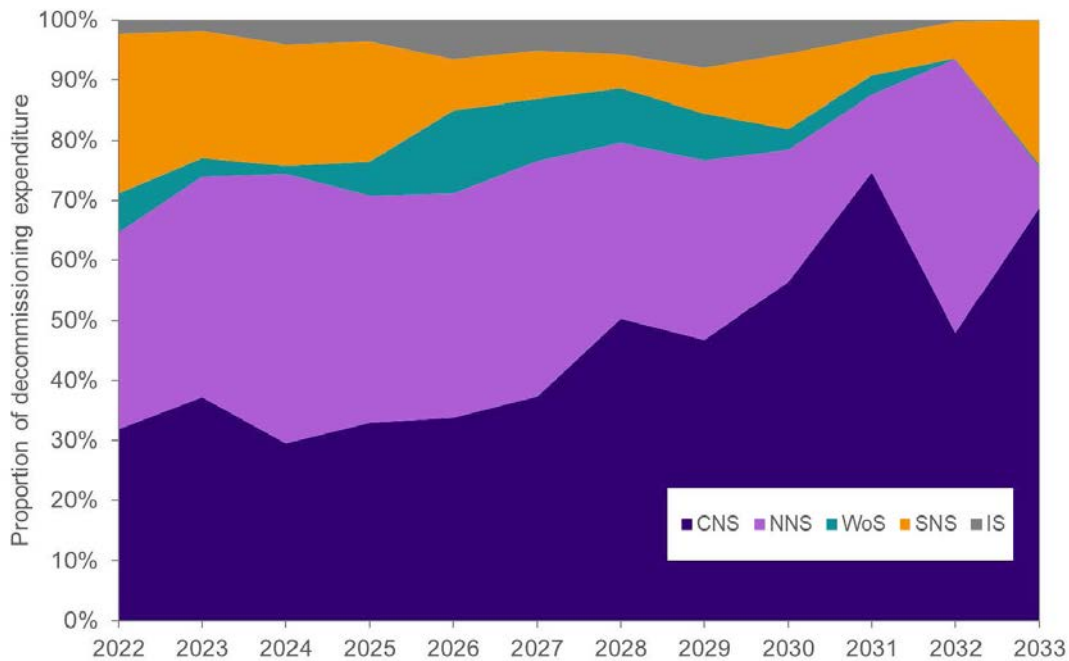
The NNS sees a steady flow of consistent work until the rise of the larger asset removals in the early 2030s. West of Shetland by contrast is consistent with its previous forecasts of a steady workflow throughout the decade.

Just under half (49%) of the basin's well activity will be performed in the CNS over the next decade and 29% will be in the NNS.

**Southern North Sea & Irish Sea:** the SNS is still seeing a surge of activity that will continue until at least 2025. Thereafter a steady decline in work is expected until the end of the decade, but with further peaks in activity in the early 2030s. Topsides and substructure removals in the SNS are on the increase from 2024-2027 where 91,000 tonnes of infrastructure are expected to be removed during this period. Wells have dominated this region in recent years and will continue to do so into 2025.

However a steep drop is expected from 2026 until the end of the decade. This should allow other UKCS regions to take advantage of rigs as they come off contract. Subsea infrastructure removal is expected to notch up an average 51,000 tonnes/year until the end of the decade.

**Figure 3**  
**UKCS regional expenditure**



Source: OEUK, NSTA

	Total subsea removals (tonnage)		
	CNS	NNS & WoS	SNS & IS
2023	6,013	60	189
2024	3,313	6,264	1,091
2025	401	3,427	35
2026	1,349	1,562	460
2027	3,511	1,318	470
Yearly average	2,917	2,526	2,245

**Supply chain opportunities for a homegrown energy transition:** each UKCS region will see a steady stream of work according to OEUK’s forecast, providing a footing for strategic contracting and collaboration opportunities for the UK supply chain.

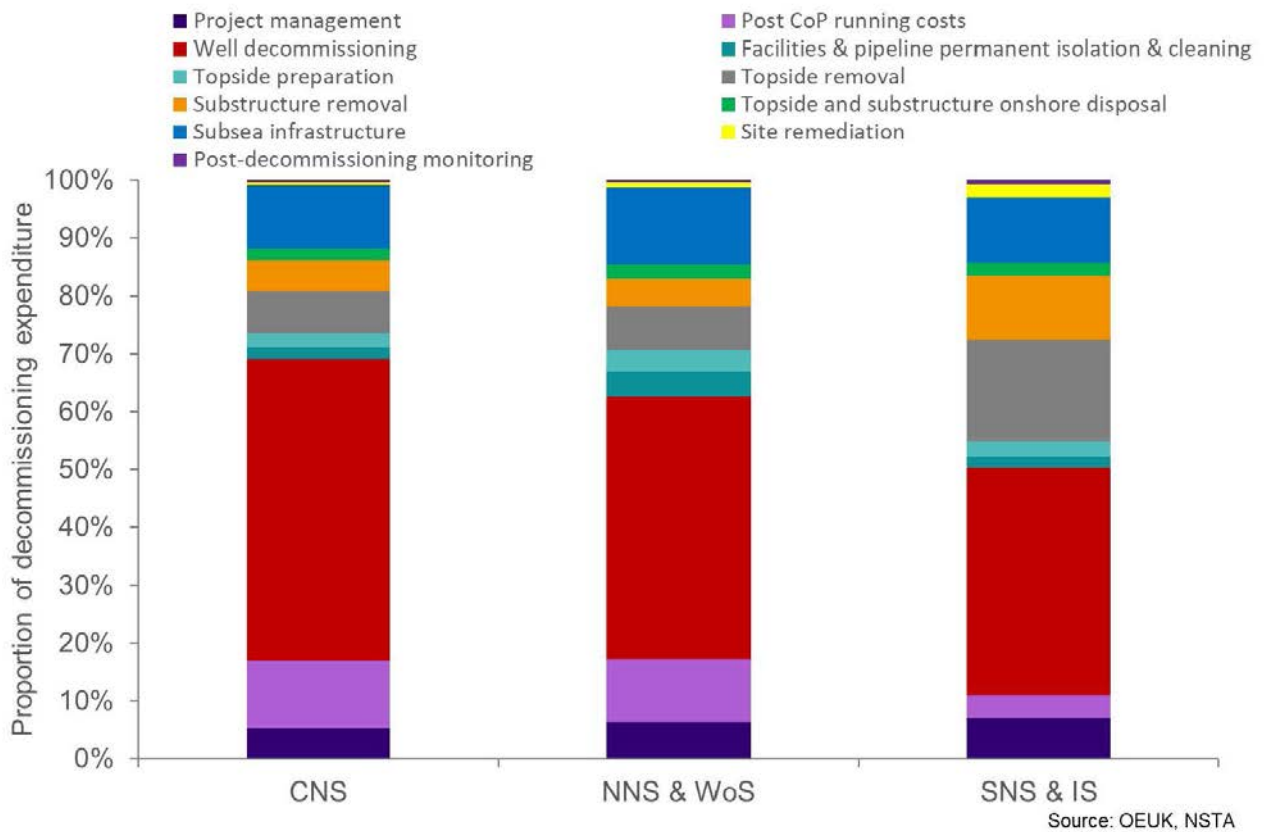
With the basin expenditure set to exceed £2bn in 2024 and remain above that for many years thereafter, there will be no let-up in the work to be completed. This is the time for the UK supply chain to deliver better than ever results and cement the UK as the world decommissioning centre of excellence.

The operator and supply chain community are working more closely than ever and delivering groundbreaking project execution in all aspects of decommissioning.

However, these results are overshadowed by the previously mentioned macroeconomic factors. Without a stable fiscal regime, investment will dry up and the workflow will stagnate.

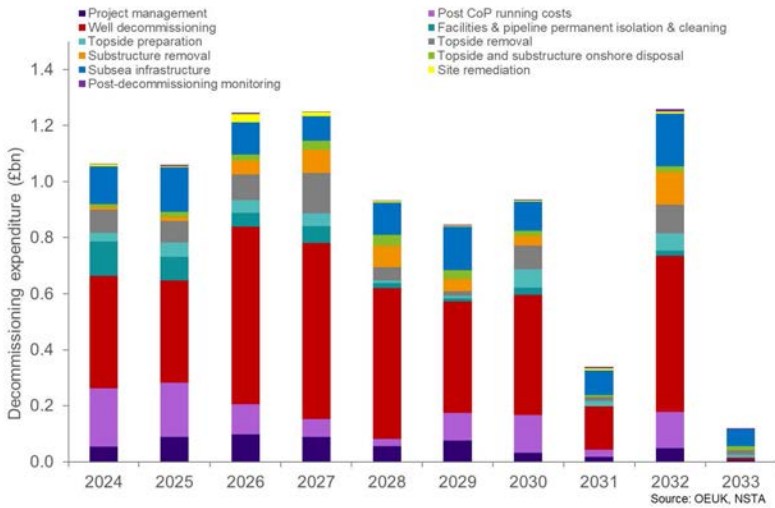
The workforce has been promised a just energy transition. There is no energy transition without a healthy UK supply chain and there is no UK supply chain without investment.

**Figure 4**  
**Work break-down structure by region**

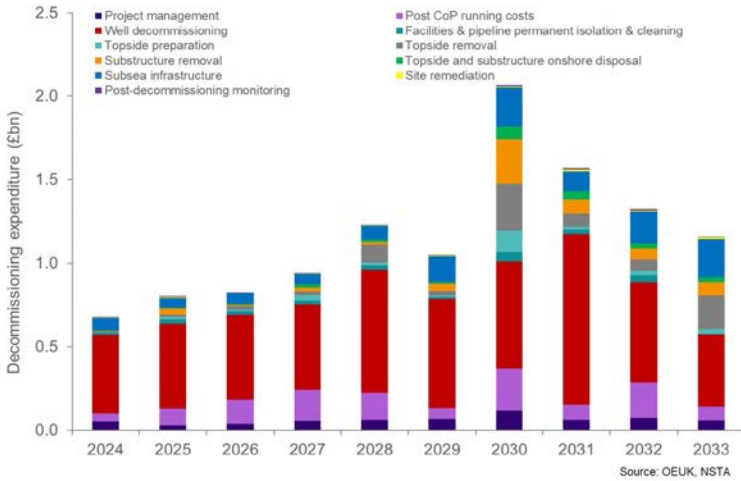




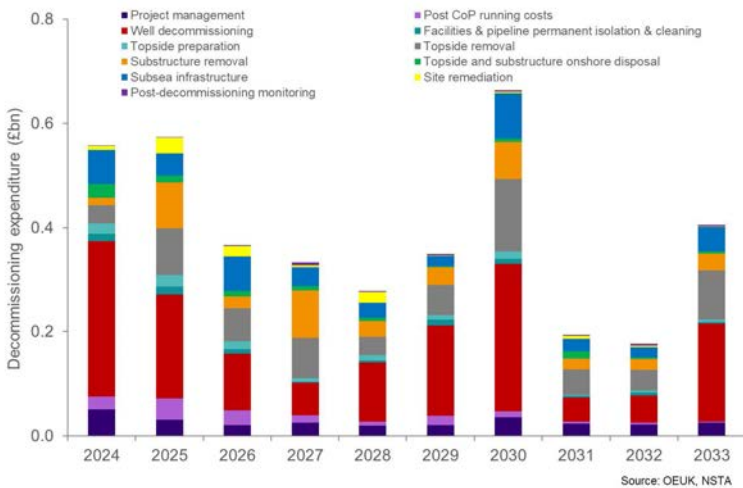
**Figure 5a**  
Northern North Sea & West of Shetland



**Figure 5b**  
Central North Sea



**Figure 5c**  
Southern North Sea & Irish Sea

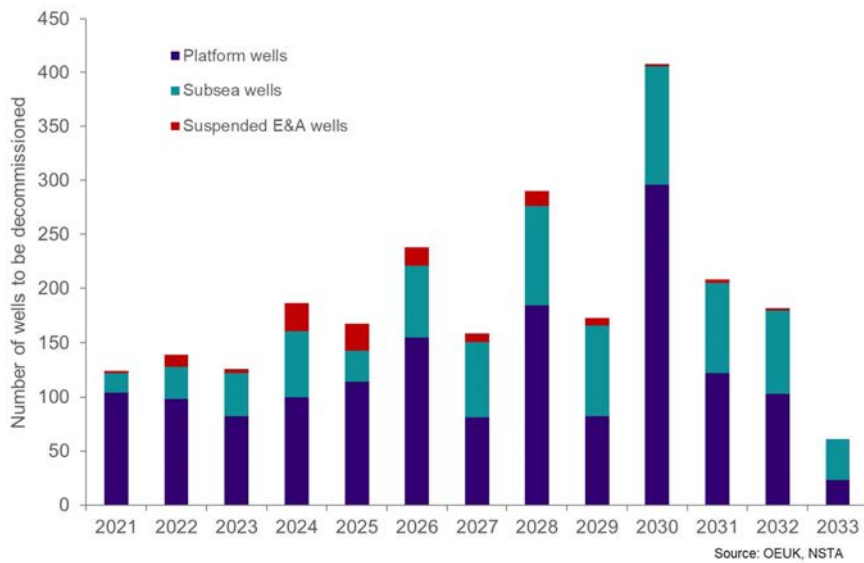


# 4. Wells

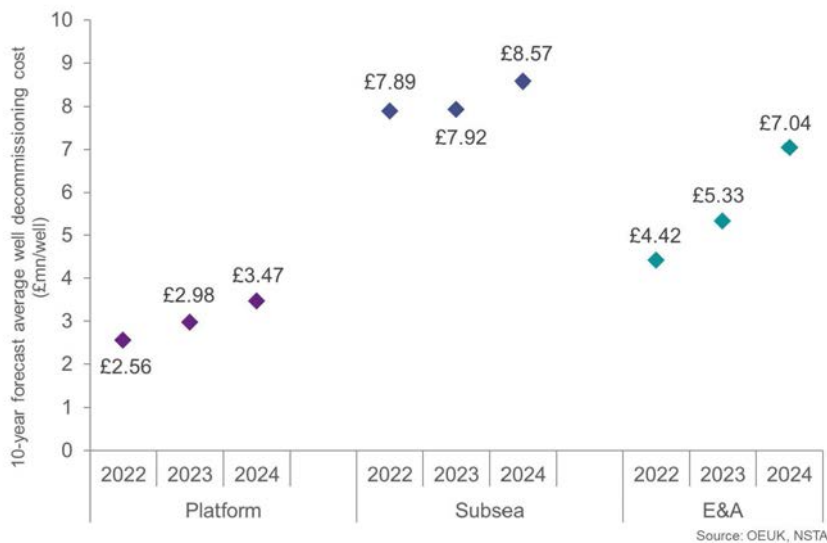
**Don't stop believing:** 40% fewer wells were abandoned in 2023 than forecast. This is a considerable drop in well decommissioning. UK rigs were near capacity during 2023 and the cost and time spent on each well have increased significantly. Technical issues as well as general downtime played a part in not reaching forecast targets, especially in the case of E&A wells.

Some works were moved into 2024 for various reasons ranging from fiscal uncertainty to planning and rig availability. 2023 saw a decrease in well decommissioning activity for the first time since the 2020 pandemic, with only 126 wells decommissioned compared with the forecast of 210. The basin average for the next decade is expected to exceed 200 wells/year to meet

**Figure 6**  
UKCS well decommissioning



**Figure 7**  
Estimated costs (mn)





expected targets so a step change in well activity is needed now.

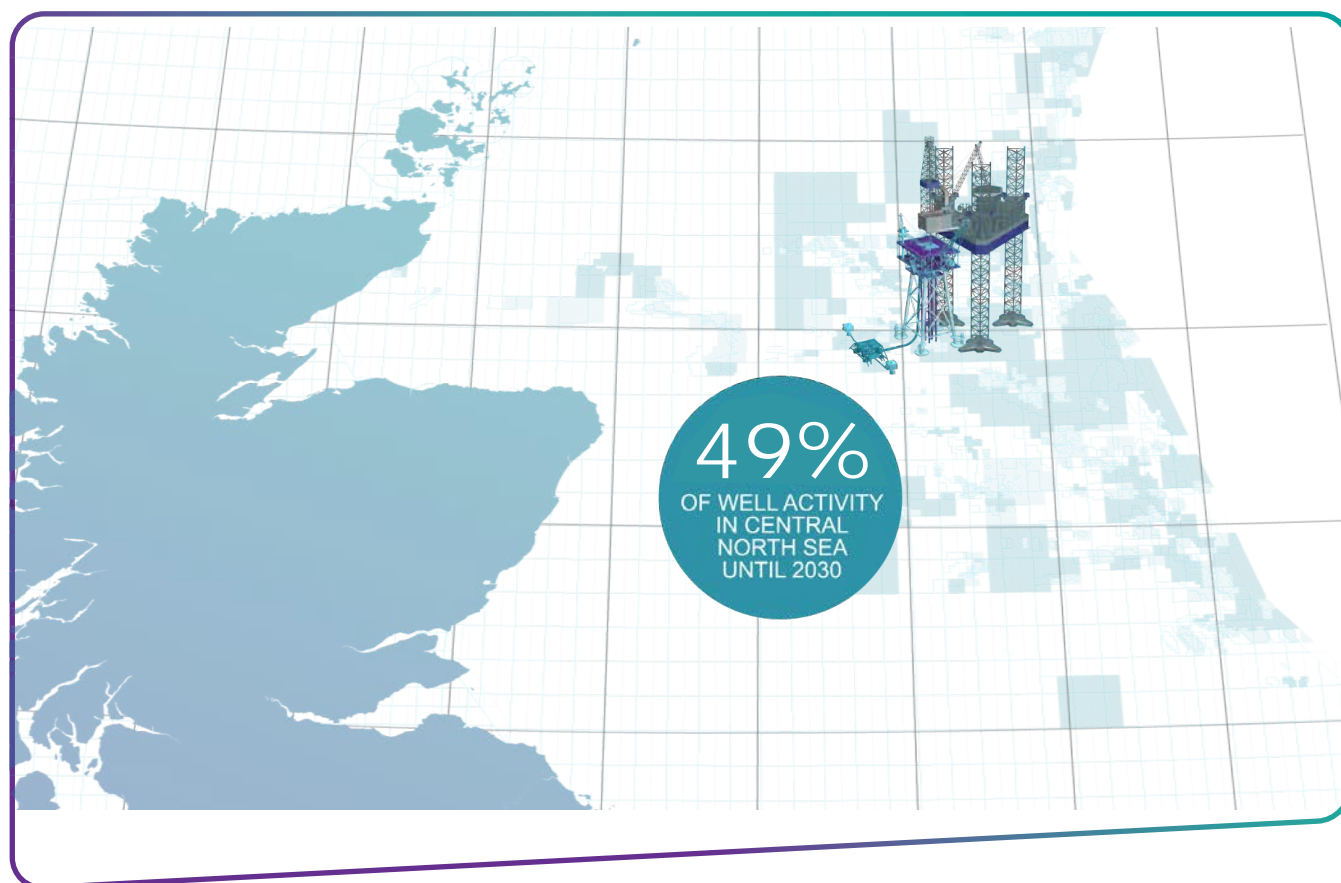
In 2023, 126 wells were decommissioned (82 platform wells, 40 subsea wells and 4 E&A wells), a 10% decrease on 2022. E&A wells saw the biggest dip in activity: 60% fewer were decommissioned in 2023 and 90% fewer than were forecast. 15% fewer platform wells were decommissioned year on year with 82 platform wells decommissioned this year compared with the 109 forecast. A marked increase is expected for 2024: close to 200 wells are expected to be plugged and abandoned. With most of the UK based rigs boasting fully contracted capacity for 2024, it will be interesting to see if the current fleet can handle the expected heavy workload in the coming years. Just over 2,050 wells are expected to be decommissioned in the next 10 years – over 80% of active well stock. Around half are in the CNS and 29% are in the NNS. Activity in the SNS is likely to be highly variable and will tail off to just a handful of wells each year in the early 2030s.

### Expensive business for the wells community:

the NSTA's 2024 cost report stated: "Well decommissioning has seen the largest cost increase in the current decade which is consistent with well decommissioning making up approximately half of the cost of decommissioning." Estimated well decommissioning costs for the basin for 2024-33 have risen from £10.4bn to £11.7bn. Given that activity is relatively stable, there has been a notable rise in the average cost per well. Most notably, the forecast cost of decommissioning the average E&A well has risen by 30% in the last year.

Platform well costs have continued the consistent rise of the past few years and have now reached £3.5mn, a rise of 16%. Subsea well costs have risen by around 8%.

The NSTA's cost report calls for operators and supply chain to work together on contractual models that will allow for future cost savings.



Multiple innovative solutions and new technologies have already been deployed and gains have been made within the project execution phase. However, the extent of the savings made is difficult to quantify given the sheer number of moving parts, as well as inflation and fiscal uncertainty.

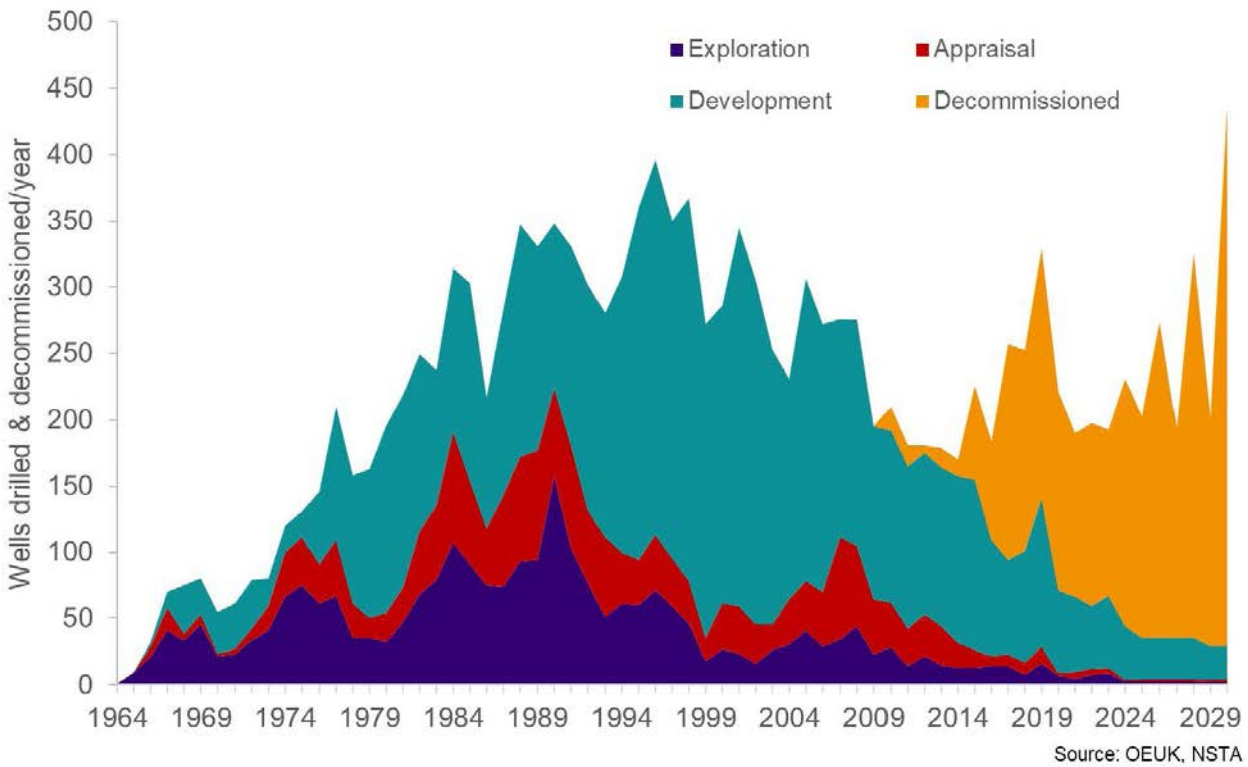
**P&A all the way:** in 2023 well decommissioning activity was almost double the rate of production well activity. The volume of activity related to boosting production rises and falls depending on a range of factors, such as licence rounds, commodity prices, tax rates and political

uncertainty. Conversely the EPL will lead to earlier than expected cessation of production, meaning an uptick in the number of wells that will be decommissioned earlier. OEUK believes there is a risk that the supply chain might have reached its peak capability to deliver wells with its current fleet. If that is so, then a step-change in activity will depend on significant new investment.

The UK needs fiscal and political stability for the supply chain to rise to the challenge. So either the UK fails in its efforts, or the curve is flattened and well decommissioning delivery targets are revised.

Cost per well (£mn)	2021	2022	2023	2024
Platform	2.70	2.56	2.98	3.47
Subsea	7.81	7.89	7.92	8.57
E&A	4.36	4.42	5.33	7.04

**Figure 8**  
Well drilling and decommissioning activity





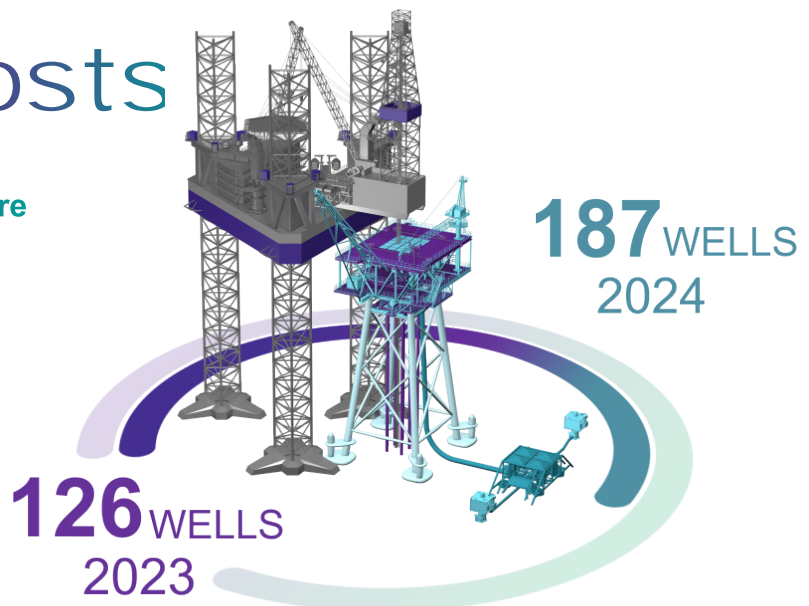
Source: Heerema



## Wells in numbers

# 48% of costs

Wells decommissioning accounts for 48% of expenditure over the next decade. The number of wells to be decommissioned in 2024 will be 50% greater than 2023. This step change will still not be enough to meet the forecast 200+ wells/year to meet the UKCS decommissioning objectives.



# Subsea Well Decommissioning growing

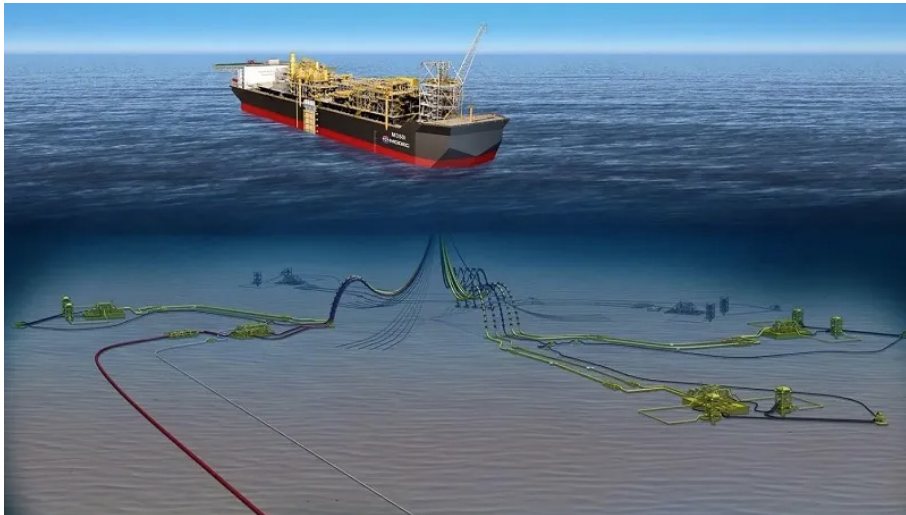
The decommissioning of subsea wells is anticipated to grow, though not as sharply as that of platform wells. Subsea well decommissioning is projected to increase from 40 wells in 2023 to an estimated 61 wells in 2024.

### Actual and forecast numbers of wells being decommissioned, by type

2022	2023	Activity from 2024-2033
139 wells, of which:	126 wells, of which:	2,074 wells, of which:
98 platform	82 platform	1,261 platform
30 subsea	40 subsea	709 subsea
11 E&A	4 E&A	104 E&A

## Case study: Elemental Energies

Elemental Energies was selected to perform preliminary engineering in one of the largest subsea decommissioning campaigns in the North Sea, where it was responsible for building a comprehensive understanding of the geology, well history, and integrity of each well. The aim was to optimise the plug and abandonment (P&A) campaign while minimising the overall cost of decommissioning.



### Elemental Energies' scope included:

- Delivering a detailed well history, status, and integrity overview of the wells.
- Collaborating with the operator's subsurface, subsea, and well Integrity teams to align strategies.

- Creating a cross-section model and plumbing diagram to assess barrier placement and cross-flow potential.
- Producing a 'Well Status Overview' for each well, providing both a consistent methodology for assessing and ranking the abandonment complexity. The bespoke report format provided a framework to initiate the conceptual well engineering and operational plans for the field decommissioning.

### Key highlights

- Elemental Energies delivered well status overviews and complexity assessments on time for a large number of production wells.
- Owing to the value of their work, the scope was extended to include additional exploration wells.
- The successful collaboration between Elemental Energies and the operator's multi-disciplinary teams ensured a smooth and timely workflow to help set the project on course for success.

This project showcases Elemental Energies' ability to provide expert-led, integrated solutions for wells and subsurface infrastructure on large scale and complex well decommissioning campaigns. It highlights the importance of responsible, cost-efficient approaches to asset decommissioning in the North Sea.

## Case study: EnQuest

The Heather field, located east of the Shetland Islands, was discovered in 1973 and developed with a 42-slot, fixed steel platform. Production began in 1978 and peaked at 36,000 barrels of oil equivalent/day in 1982. EnQuest became operator and 100% equity holder in 2010.

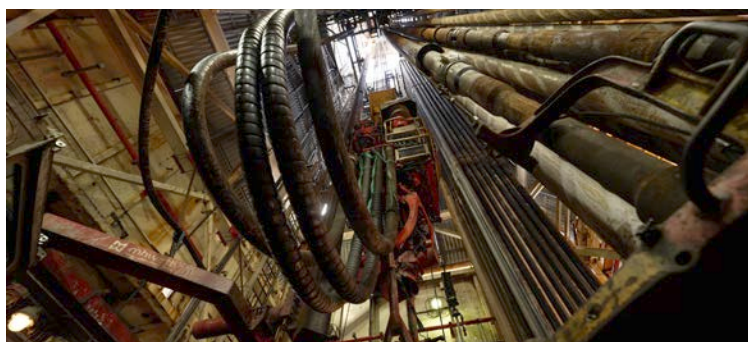
Given the prohibitive economics of restarting production following an extended shutdown period, the operator decided to cease production in early 2020. With the NSTA's approval, the asset entered the decommissioning phase, with EnQuest holding a 37.5% equity interest and responsibility for all decommissioning activities, supported by partners Shell and Ithaca.

This change of strategy needed accelerated decommissioning preparation and the start of activity offshore. These plans were further impacted by the start of Covid-19 restrictions in March 2020.

Challenges – including outdated technical data, cost inflation and integrity issues requiring unplanned structural inspections – were consistently surmounted by the EnQuest project team. From the outset, a clear, aligned decommissioning mindset has ensured that all scopes, conventional methods and solutions are continually challenged. Effective management of a project opportunity hopper has seen more than 20 scopes adopted to maintain control of costs, scheduling efficiency and safety.

### Focus on the environment

A key focus of the Heather decommissioning project has been minimising environmental impact and the team has adhered to stringent environmental regulations and best practices to ensure the protection of marine life and ecosystems at every stage. Measures such as thorough flushing and disconnection of pipelines, safe disposal of materials and the careful planning of plugging and abandoning wells have and will be implemented to mitigate any potential environmental risks.



To date, the project has plugged and abandoned 39 wells. Preparation for platform removal is 80% complete and both the Broom subsea tie back and the gas import line are flushed and disconnected. Final disembarkation of the Heather platform is scheduled for the first half of 2025, marking the culmination of a five-year journey.

Looking ahead, the lessons learned from Heather decommissioning will be invaluable for future projects. EnQuest remains dedicated to applying these insights to enhance decommissioning processes and further optimise delivery. As the final stages of this project are in sight, the team looks forward to the safe and successful removal of the Heather topsides by Allseas, using the heavy-lift vessel *Pioneering Spirit* in the summer of 2025.

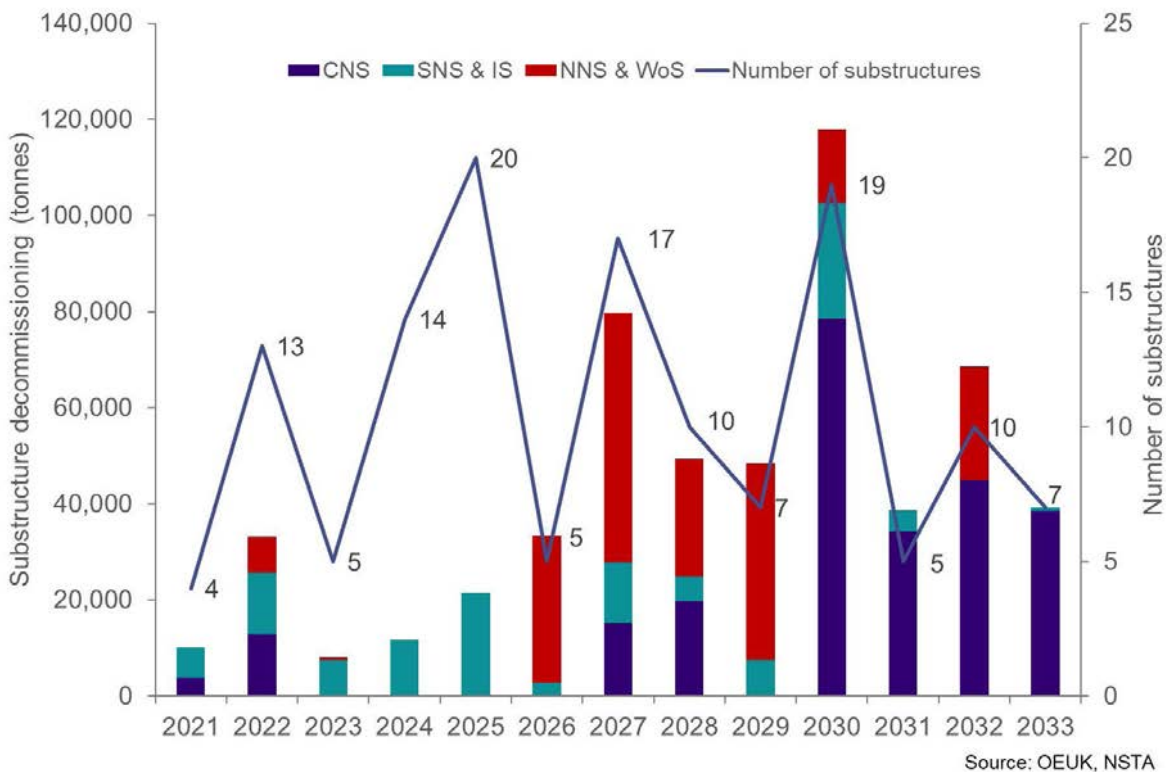


## 5. Removals

**Substructure removal tonnage goes up in all regions:** five substructures weighing a total 8,000 tonnes were removed in 2023, in what was a quiet year. These removals were predominantly within the southern North Sea. The SNS will see a significant increase in substructure removals in 2024, when 14 are set to go; a further 20 are set for removal in 2025 – so 34 substructures are to go from the SNS in just two years. Although the SNS and IS see the most growth, the combined weight will stay under 30,000 tonnes until 2027 when the large fields commence removals from the NNS & WoS.

**Heavy metal in the late 2020s:** topsides removals forecast an even share of works in the next two years between the NNS & WoS and SNS & IS. Then from 2027-33 the average annual weight of topsides removed will be around 100,000 tonnes. The CNS lead the way in this topsides removal upsurge as, from 2026 onwards, the mega structures start their homeward journey. The 2023 *OEUK Decommissioning report* called this ‘a window of opportunity for innovation in large topsides removal work’ and this sentiment has not changed. The work is here and has to be executed so the UK supply chain must act now to capture this mammoth workload.

**Figure 9**  
**Substructures to be decommissioned**



**Topsides removal technology yields rewards:** in 2023, the expected average cost of removing a tonne of topsides fell by 10% for the second year running. This drop may be attributed to the multiple significant technological improvements that the removals sector has introduced.

**Market pressures threaten removal cost hike:** owing to rising market pressure, such as higher day-rates and the need for more heavy-lift vessels, this year's forecast shows a higher value for removing a tonne of materials. It is more than 40% higher for topsides and over 35% more in the case of substructures.

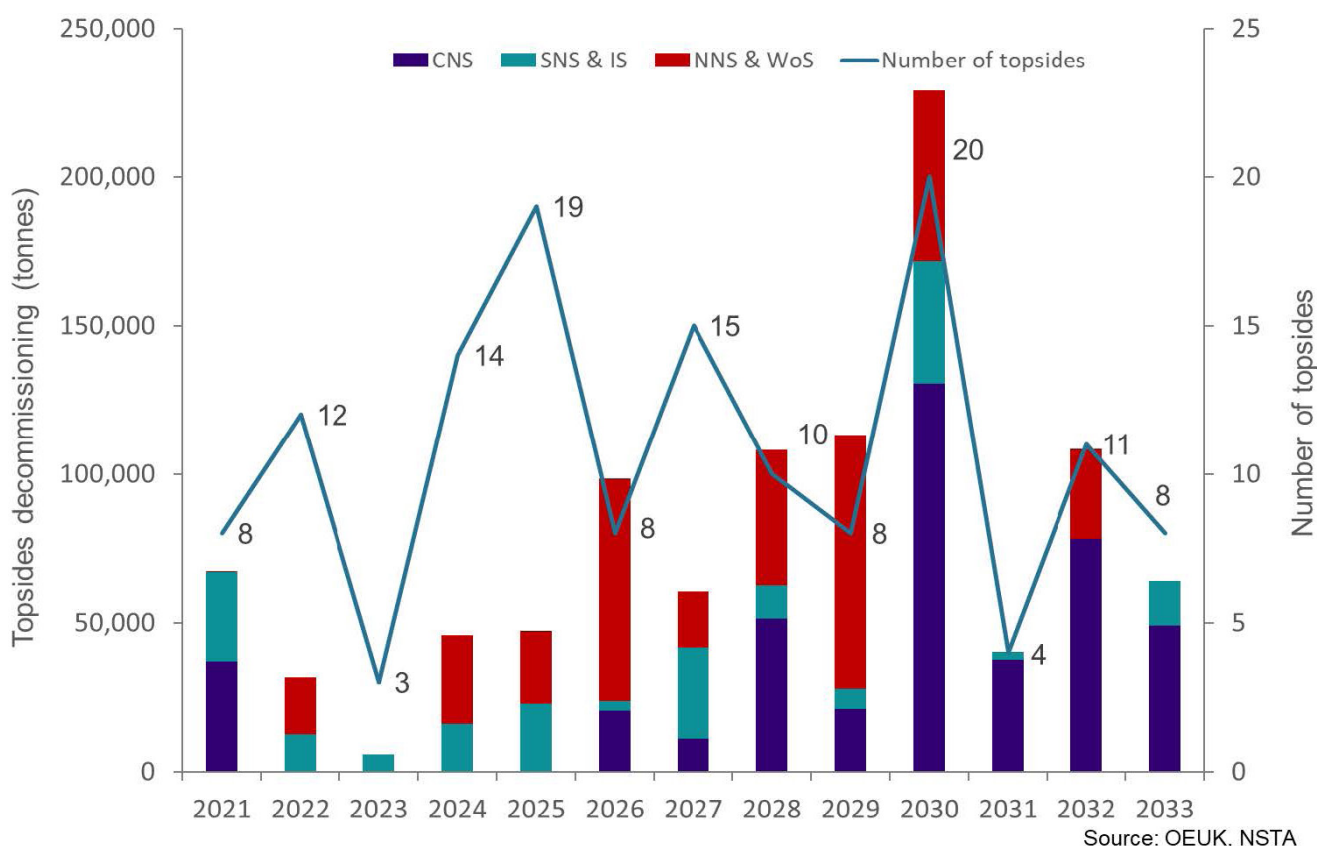
Installing more wind turbines means that the industry's demand for heavy-lift vessels is fiercer than ever. So even in a year where relatively few oil and gas assets were removed, the cost of doing so is considerably higher.

In 2023 the difficult market conditions were offset by advances in lift technology and project execution efficiencies. However, bridging a 35%-40% cost gap is a tall order even for the most energised supply chain and operator communities.

How successfully this challenge can be addressed will determine whether the upsurge in demand for heavy lift vessels can be managed after 2026. A fundamentally new approach now is needed to enable a step change rather than merely incremental gains.

OEUK's 2023 *Decommissioning Report* called for the UK supply chain to invest and rise to the challenge posed by market leaders in heavy-lift technology in continental Europe. This has become a necessity: UK industry cannot afford to watch other regions snatch up work that can and should be done by UK firms.

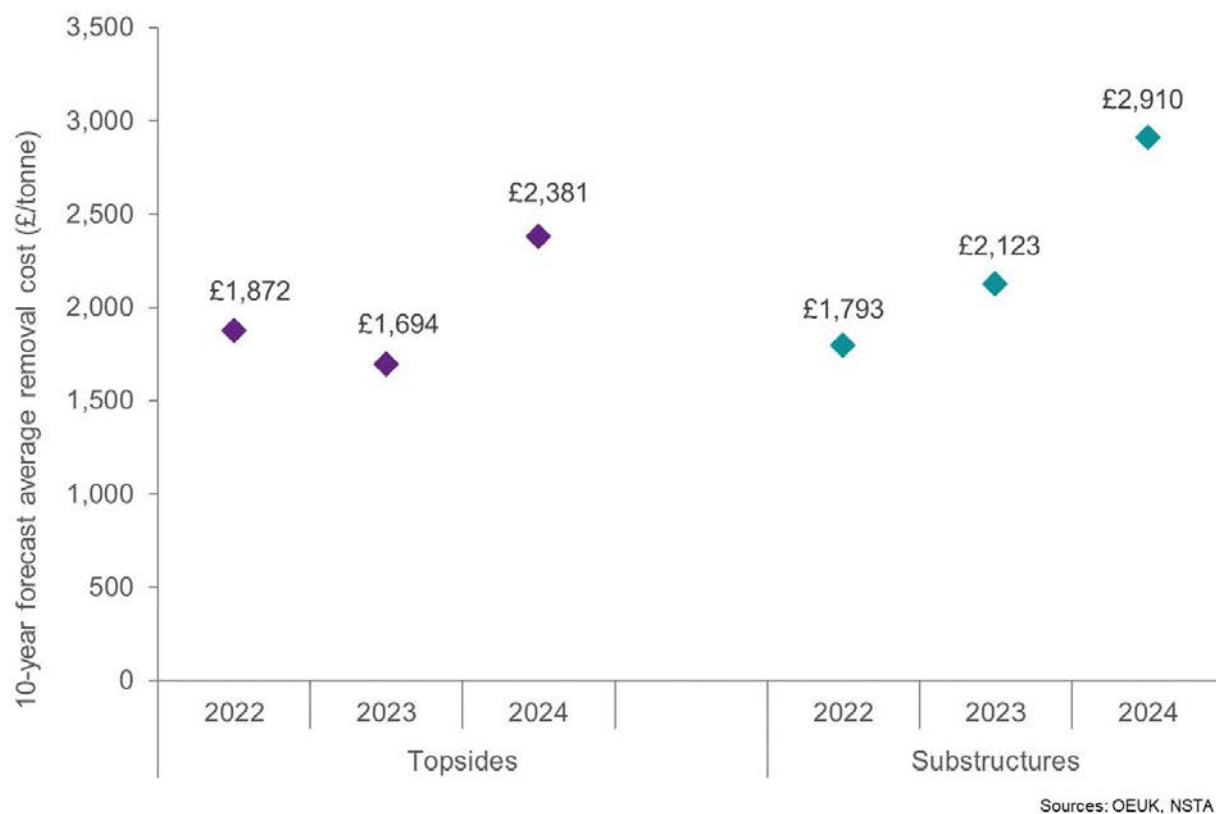
**Figure 10**  
**Topsides to be decommissioned**



## Topsides and substructure decommissioning

2024 – 2033 Forecast	NNS & WoS	CNS	SNS & IS	Total UKCS
Topsides removal	19	30	68	117
Total weight (tonnes)	366,249	398,891	149,469	917,609
Substructure removal	15	30	69	114
Total weight (tonnes)	186,758	231,222	90,592	508,572

**Figure 11**  
Estimated cost/tonne



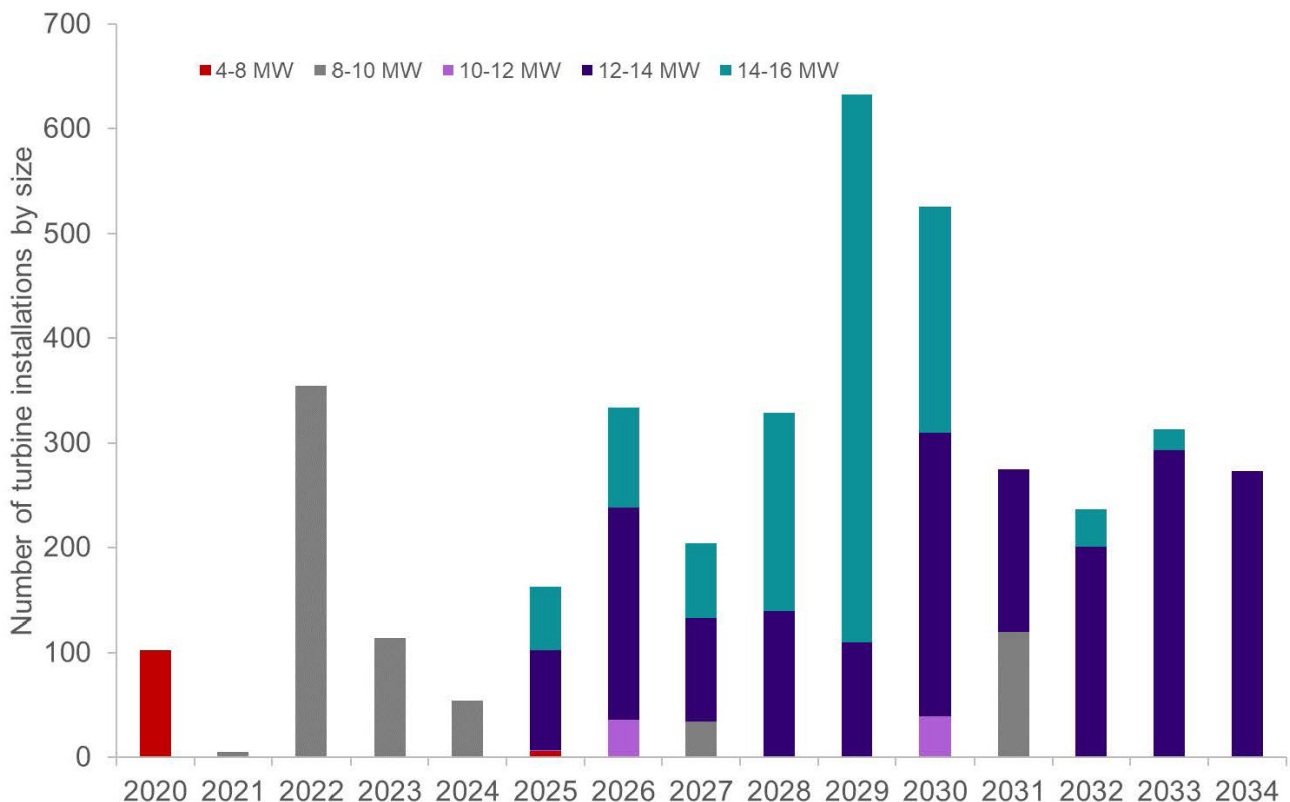


## 6. Integrated energies

**More turbine installations crack UK's decommissioning plans:** Although cross-sectoral collaboration between offshore wind and oil and gas is alive and kicking, the battle for heavy-lift assets continues. The next decade will see a significant increase in the planned offshore wind installation. Clashing work schedules and the inevitable battle for resources and for the personnel to execute them, in either sector, is visibly intensifying. There will be an unprecedented scope increase in both sectors later this decade, beyond what has been delivered in this region so far. The two industries must, as a matter of

urgency, share their work programmes, their assets and their skills. This challenge should be seen as one of the greatest industrial opportunities ever seen on the UKCS and its unmatched supply chain needs to be at the forefront. To achieve excellence in decommissioning, the offshore industry's strong commercial relationships with other sectors are imperative in order to innovate as much as needed. Other such clashes that call for collaboration and provide opportunity lie in the subsea space as well as pipeline/cable removals and topsides/substructure removals.

**Figure 12**  
Turbine additions (by capacity)



Source: Rystad, OEUK

**Case study: J+S Subsea**

**Results from Carbon Assessment: Subsea Control Module Mounting Base**

We successfully repurposed a Subsea Control Module Mounting Base that had remained unused from a capital project. J+S Subsea engineered and remanufactured it to meet client's specific requirements. This approach not only significantly reduced costs and lead times but also delivered substantial carbon savings, aligning with sustainability goals.

Repurposing unused capital equipment

Re-engineering the design

Remanufacturing the equipment

76% reuse of existing material

Only 8% of the original material went to waste.  
Total climate impact for materials savings (only)  
-2,345 kg CO<sub>2</sub> or the equivalent of 106 trees.

Retain local skilled jobs  
Feed directly into client Scope 3 reporting  
Help sustain UK oil and gas production



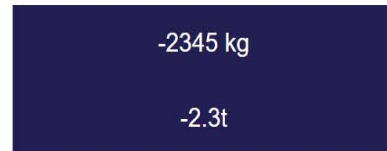
J&S Subsea Limited's total impact per year

eco-costs of human health euro	-54.81
eco-costs of eco-toxicity euro	-376.6
eco-costs of resource depletion euro	-485.9
eco-costs of carbon footprint euro	-288.4

Impact per Subsea control module mounting base (SCMMB)

Impact of 1 times Subsea control module mounting base (SCMMB)

Carbon footprint  
CO<sub>2</sub>eq.



Equivalent to



106 trees

0 Average humans



## Case study: Subsea7

### Conductor Drilling & Pinning

Subsea7 has designed, developed and delivered the first fully remotely operated vehicle (ROV): an automated drilling and pinning tool (DPT) for use on a decommissioning project for international operator EnQuest in the UKCS.

The efficiency gains that this DPT enabled had an immediate impact offshore, demonstrating the value of the innovative solution and Subsea7's commitment to deploying advanced decommissioning practices.



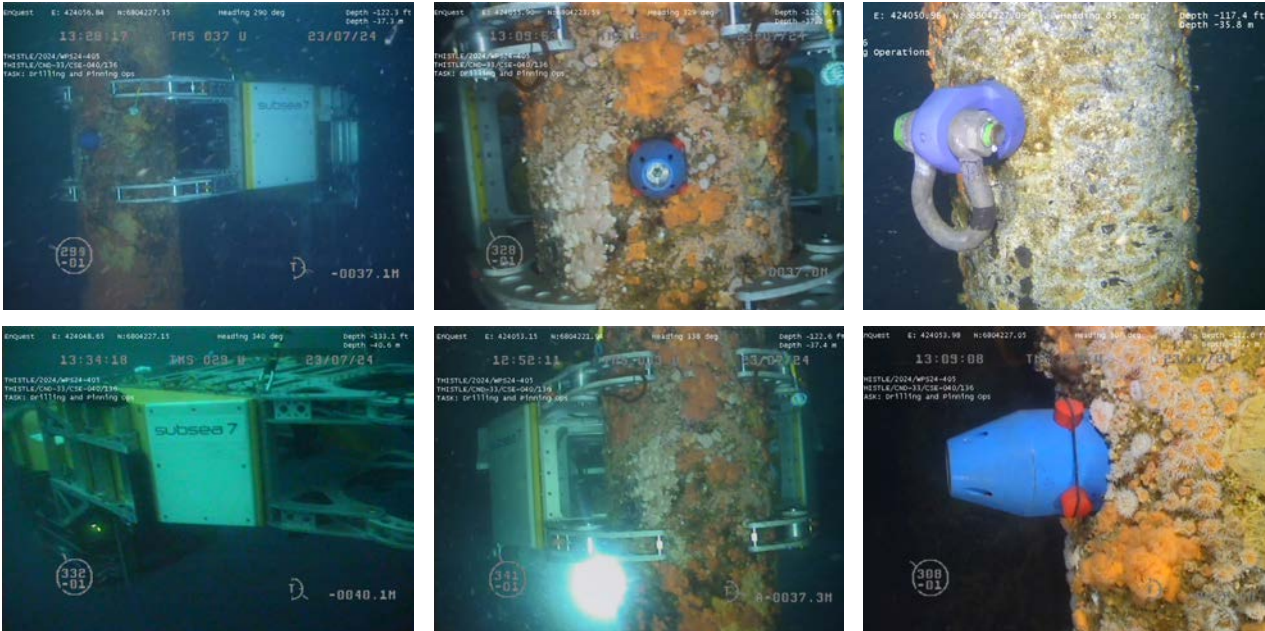
The system has already achieved substantial time savings, more than halving the time spent on DPT, to around 80 minutes, down from a previous average of three or four hours, including pin engagement.

The Conductor DPT project for EnQuest involved the removal of conductors in the North Sea at water depths between 12 and 36 metres. The tool was designed to allow the conductors to be drilled and pinned to aid subsea removal without topside assistance, as these conductors could not be recovered conventionally as part of the platform decommissioning activities.

The work was carried out from the *Seven Atlantic* vessel, with Subsea7's teams using their extensive experience in subsea decommissioning operations to adapt existing ROV tooling and design a fully automated ROV DPT.

In addition to designing and building the ROV DPT system, Subsea7 also developed SMART ROV pins and diver-installable pins and made improvements to the existing 48-inch ROV diamond wire saw used to cut the conductors. This saw used the same deployment and connection system as the DPT, with modifications made to the deployment basket to allow the saw and new tooling to be deployed and recovered subsea.





Further improvements were made to the subsea docking system, ensuring easier ROV docking to the tooling in the subsea deployment basket. The ROV hotstab system was also upgraded to be fully automated, eliminating the need for hoses and reducing the risk of snagging.

The project underwent successful concept trials and factory acceptance testing, ensuring the system was ready for the offshore environment.

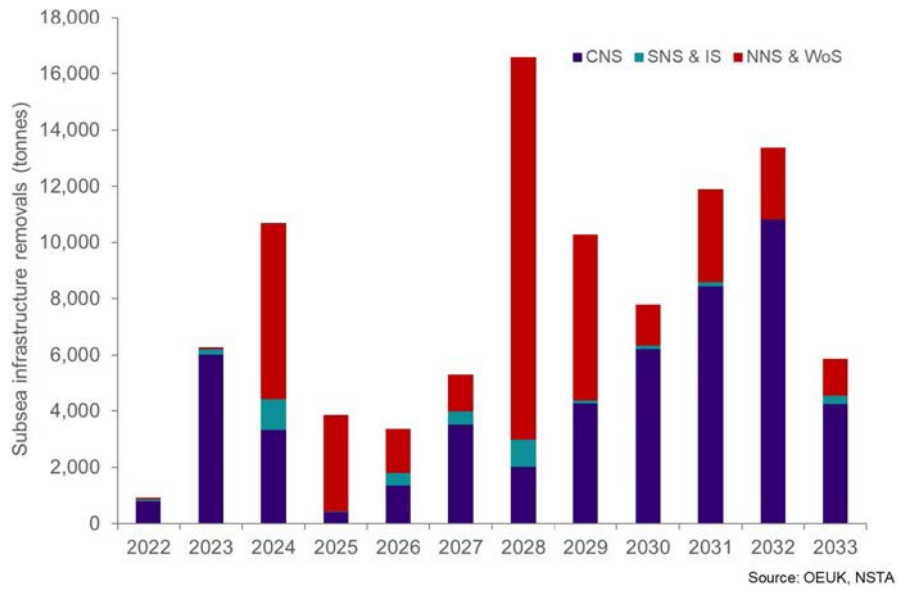
The project scope includes the removal of subsea sections of conductor and the internal strings, using subsea methods. In 2024, the pin installation was successfully trialled with a 30-inch external conductor and a 20-inch internal conductor as the initial test case.

The three-string conductor, C33, consisting of 30-inch outer, 20-inch inner, and 13-inch central casings, was also drilled. Future operations are planned to remove the sections and complete the task in 2025.

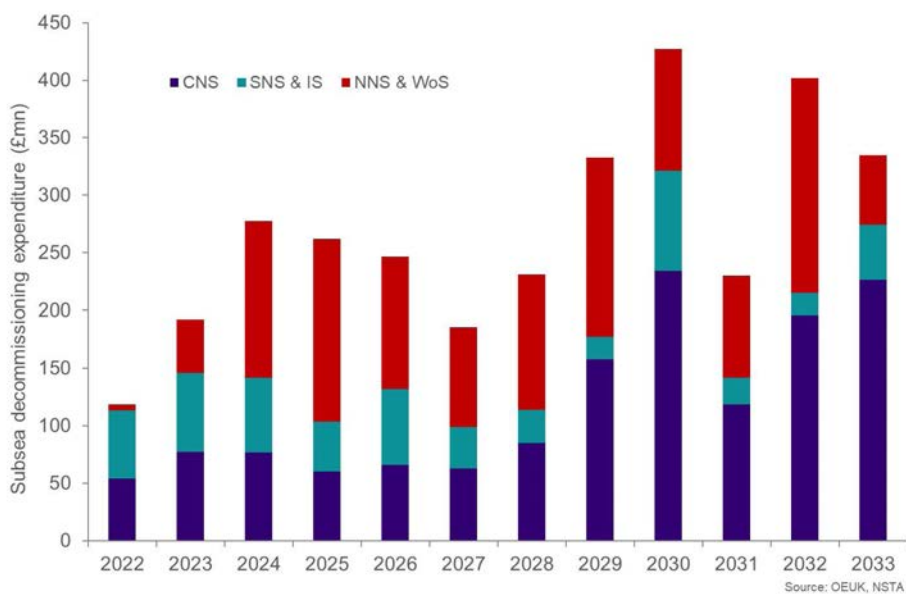
Still ongoing, the project has proven its considerable benefits after rapid turnaround from concept design to offshore deployment in as little as five months – highlighting the importance Subsea7 places on internal design, manufacturing, and testing processes, to deliver timely results.

## 7. Subsea decommissioning

**Figure 13**  
Subsea infrastructure removals



**Figure 14**  
Subsea decommissioning expenditure



**Picking up pace:** subsea decommissioning fell short of the forecast amount in 2023. But six times more infrastructure was brought ashore in 2023 than the year before. There will be no let-up in the subsea decommissioning space where an average of almost £300mn/yr will be spent for the next decade, and possibly more than £400mn/yr in the early 2030s. The CNS, NNS and WoS will take the majority of the spoils while the SNS & IS pick up around 15%.

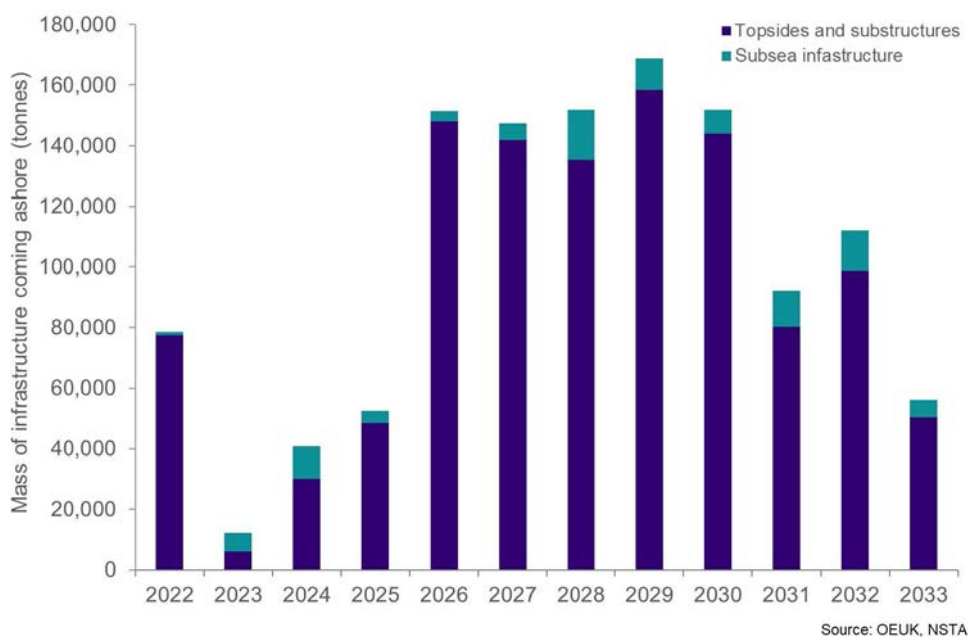
A slight change in data shows that the true subsea decommissioning upsurge will take place

from 2029-2033. However, record-breaking years for overall spend as well as the tonnage removed will precede that. Indeed, 2028 shows a peak of almost 17,000 tonnes of subsea infrastructure are forecast to be removed, mostly in the NNS & WoS.

2023 saw over 6,000 tonnes of subsea infrastructure removed. Last year's report called for the UK's historically strong subsea supply chain to capture the bulk of this colossal opportunity. This chance is still here and the opportunities are only going to increase before the end of the decade.

2023 (actual)	2024 (forecast)	Activity from 2025-2033
8.1 km	9.1 km	800 km pipelines planned to be removed
6,262 tonnes	10,668 tonnes	78,292 tonnes of subsea structures to be removed
1,250 mattresses	3,851 mattresses	34,551 mattresses to be removed

**Figure 15a**  
Mass of infrastructure coming onshore







Source: AF Offshore

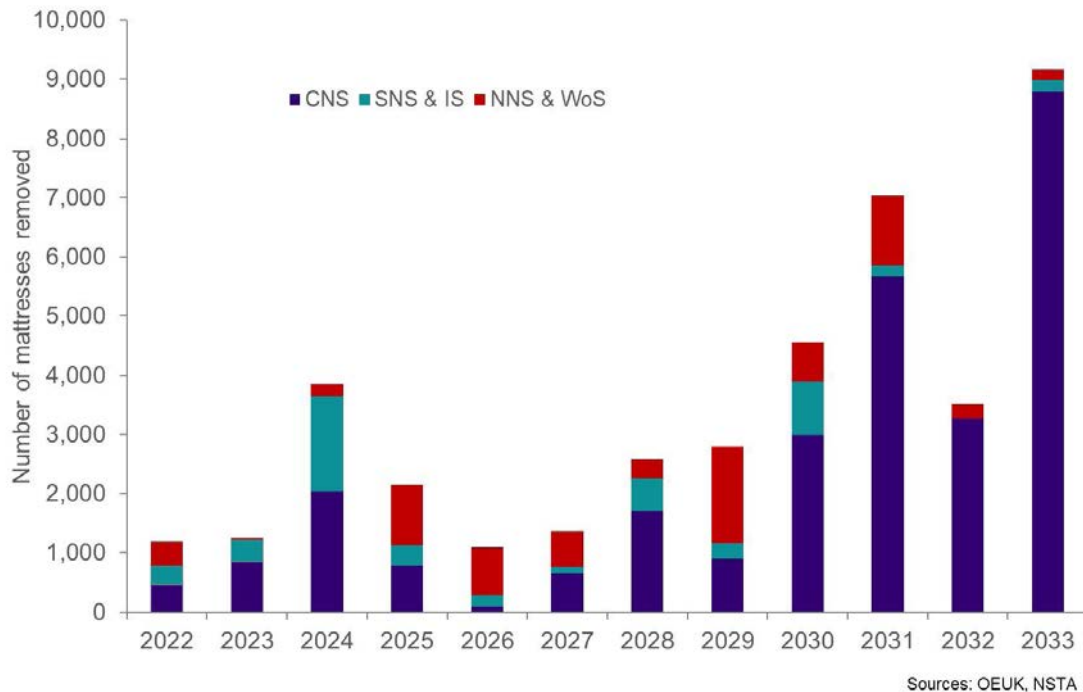
## 8. Onshore dismantling and re-use opportunities

**The onshore wait is over:** the UK's onshore market had a quiet year in terms of the overall mass of infrastructure returning ashore in 2023: less than 10,000 tonnes. This puts the UK's yards into a holding pattern, ticking over at best. But this year (2024) and next look set for a step change in activity and there could be a significant opportunity up for grabs. 2026 ushers in a half decade of opportunity, with over 100,000 tonnes of infrastructure – subsea, topsides and substructures – coming ashore every year. We must work to maintain our UK supply chain in this space so that we can bring as much of the spoils to the UK shores as possible. This will take a combined effort from supply chain and operators but the prize would be the UK's enhanced reputation as a centre of excellence in onshore

dismantling. Perhaps government initiatives should find ways to help the onshore dismantling work. Advances in the onshore offering could be a key strategic pawn in the energy transition that could add to the UK's global offering.

**No crashing out on the mattress:** The UK supply chain has been recovering mattresses with gusto over the past couple of years, with over 1,000/year since 2022-23. A dramatic rise is forecast for 2024 when almost 4,000 are expected to be removed. This provides a great opportunity for innovative solutions in the reuse and recycling space. With multiple examples already common practices for reuse of mattresses. Watch this space for further UK repurposing excellence.

**Figure 15b**  
**Mattress removals**



## Case study: AF Offshore Decom

### The importance of offshore preparation campaigns

AF Offshore Decom's experiences with a bridge-linked flare stack have provided valuable insights into optimising offshore operations. One of the key takeaways is the critical role of extensive preparatory work, particularly from the platform complex. This proactive approach significantly reduced the time required for the heavy lift vessel (HLV) in the field.



Additionally, by focusing the preparatory activities during the winter months, the team effectively optimised the use of the HLV for the summer, leading to enhanced operational efficiency.

In contrast, a major platform in the Norwegian sector posed unique challenges that were successfully managed

through meticulous planning. A series of comprehensive helicopter surveys and a thorough engineering phase minimised unexpected issues during the main offshore removal campaign. This was then followed by an HLV campaign with a large preparation crew to handle all the topsides preparations combined with smaller modular lifts.

Mitigating risk through a phased execution allowed for detailed engineering and interface management which was a crucial part of the project. The final step was a second HLV campaign which included a large integrated modularised steel frame lift and an efficient jacket lift. The preparatory works were essential in facilitating a smooth and effective campaign. The structures were then transported onwards to AF's environmental base, Vats, for onshore dismantling and recycling.

These insights underscore the importance of thorough engineering, preparation and strategic planning in offshore decommissioning projects, leading to safe and cost-effective outcomes.



## Case study: Port of Aberdeen

### Project scope

The onshore receipt, offload, and safe preparation of about 10 km of flexible flowlines and umbilicals from one of DOF's Subsea's decommissioning projects for a North Sea client prior to recycling.

Phoenix Decom was contracted by DOF Subsea to support landside decommissioning at Aberdeen South Harbour to:

- Manage and contain any residual fluid within the flowlines and umbilicals
- Shorten the flowlines and umbilicals into sections that may be transported by road before being dispatched to a licensed recycling facility
- Dispatch the contained liquid waste to a licensed treatment facility

### Challenges

The substantial quantity of flexible flowlines and umbilicals required significant quayside laydown space and had the potential for multi lifts and handling, which could increase the project's risk, duration, and cost.

### Solution

South Harbour's design enabled the project team to lay the extended lengths of flowlines and umbilicals along the quayside, allowing for in-situ processing and cutting operations. This approach proved to be highly efficient, consolidating multiple steps at a single location, thereby reducing asset movement and manual handling.



### Benefits

This operation was completed with zero health and safety recordable incidents, and the offloading method adopted reduced the anticipated timeline by nearly a third.



"Port of Aberdeen's new South Harbour facility offers ample space for subsea decommissioning and we have undertaken a number of jobs there this year including the flexible offload. The available drafts and quayside lengths proved to be ideal for this project."

Simon Davies  
Environmental Manager,  
Phoenix Decom

# 9. The wider North Sea

## 9.1 Norway's decommissioning plan to 2033

Number of wells to be decommissioned: **283** of which:

Platform wells: 220

Subsea wells: 63

Topsides tonnage to be removed:

**163,288**

Substructure tonnage to be removed:

**100,675**

Pipelines to be decommissioned:

**818 km**

Umbilicals to be decommissioned:

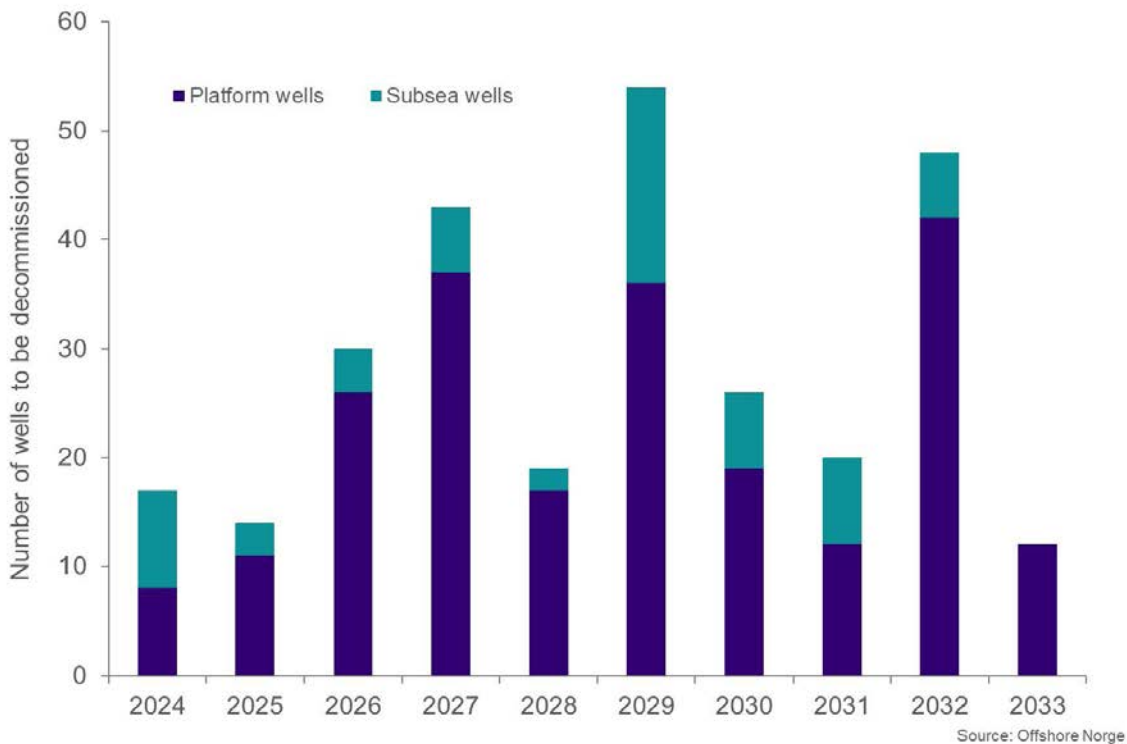
**172 km**

Mattresses to be decommissioned:

**710 tonnes**



**Figure 16**  
Norwegian well decommissioning



Source: Offshore Norge

## 9.2 The Netherlands' decommissioning plan to 2033

**Number of wells to be decommissioned: 384** of which:  
 Platform wells: 301  
 Subsea wells: 16  
 Suspended E&A wells: 67

**Topsides tonnage to be removed:  
 131,132**

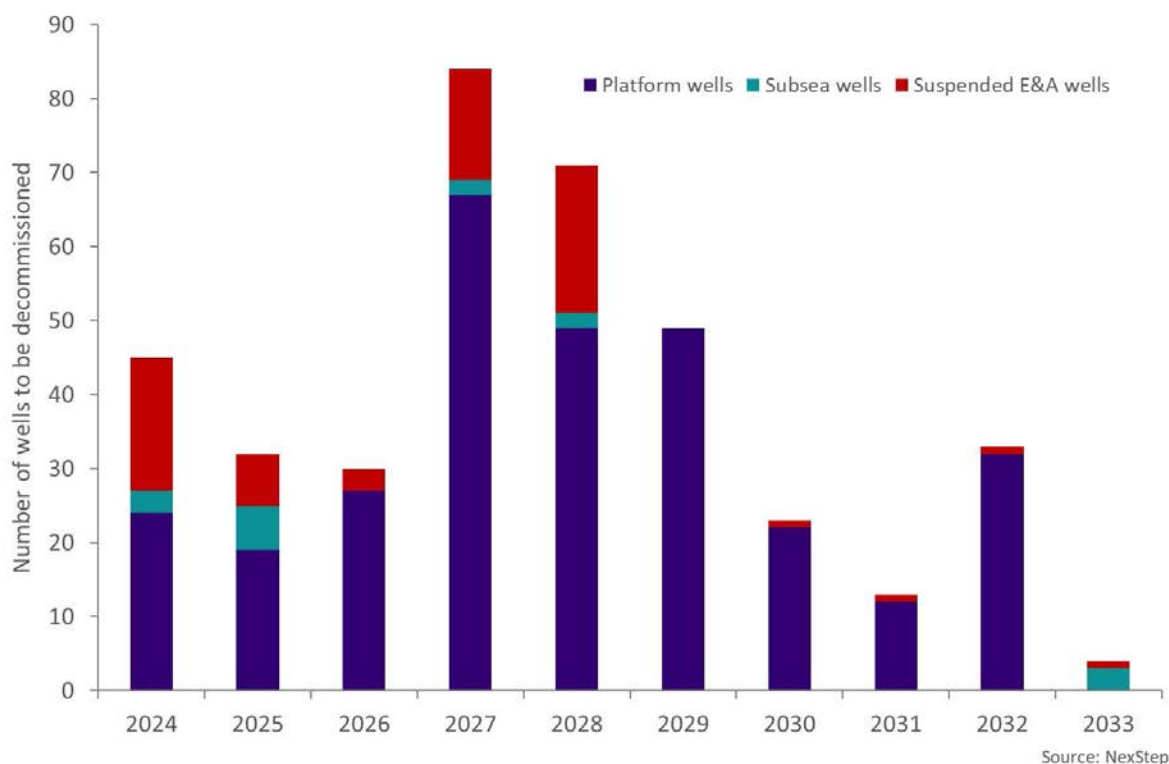
**Substructure tonnage to be removed:  
 69,311**

**Pipelines to be decommissioned:  
 1,455 km**

**Umbilicals to be decommissioned:  
 282 km**



**Figure 17  
 Netherlands well decommissioning**

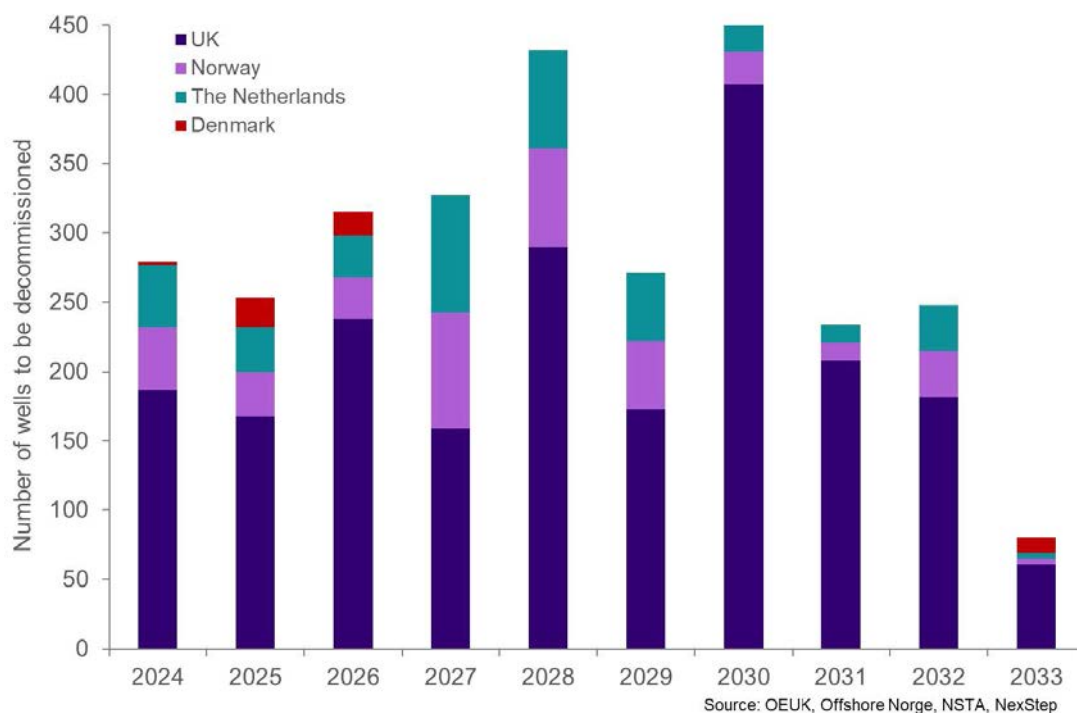




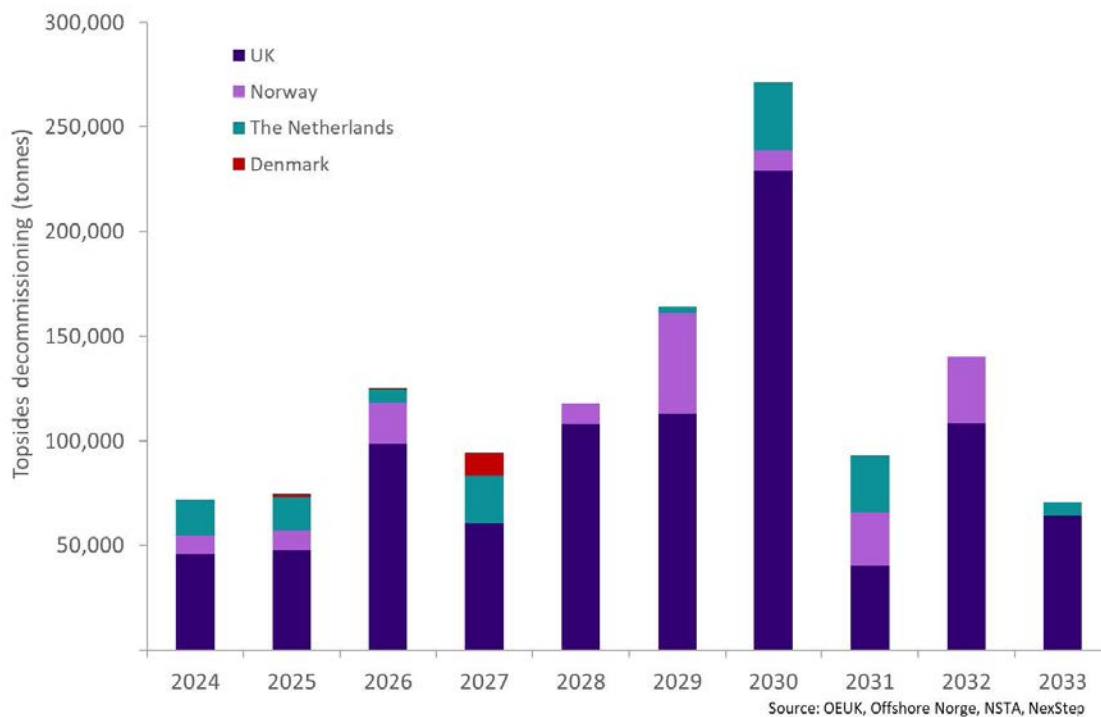
### 9.3 North Sea decommissioning 2024-33

Country	Wells	Topside	Substructures
UK	74%	75%	72%
The Netherlands	14%	11%	10%
Norway	10%	13%	14%
Denmark	2%	1%	4%

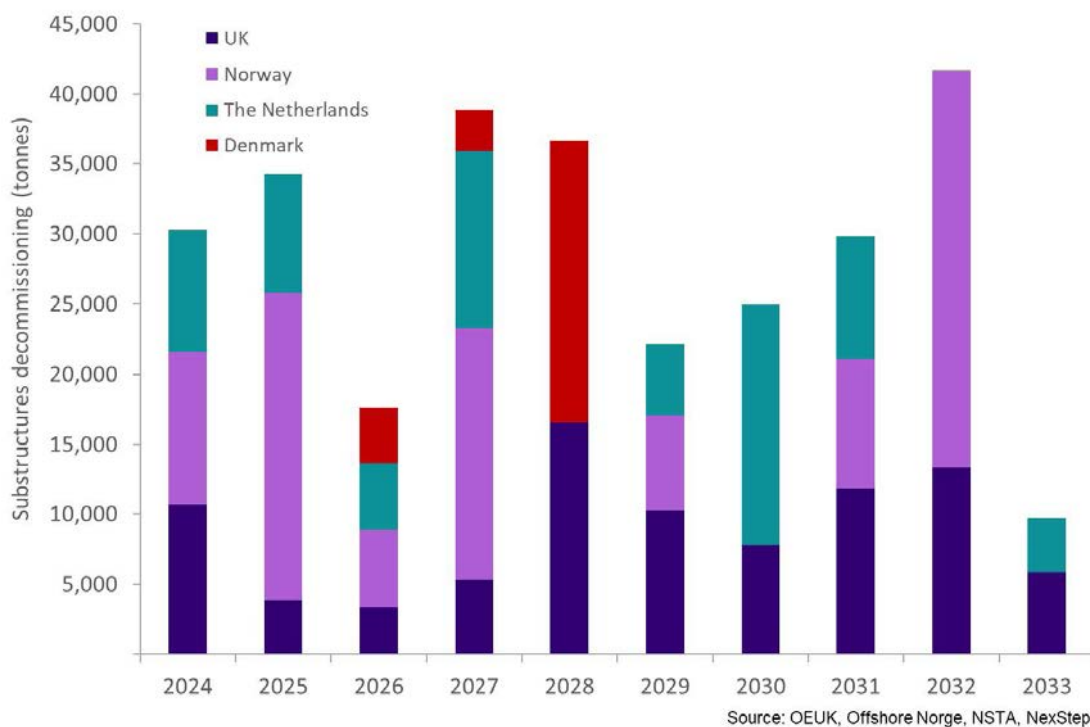
**Figure 18a**  
Well decommissioning in the North Sea



**Figure 18b**  
**Topsides mass decommissioning in the North Sea**



**Figure 18c**  
**Substructure mass decommissioning in the North Sea**



## 10. Glossary

<b>AACE</b>	Association for the Advancement of Cost Engineering
<b>Asset Stewardship Survey</b>	A survey run by the NSTA which creates a single source of robust data. It is used to inform stewardship reviews and provide meaningful insights into current and forecast activity in the UKCS.
<b>CCUS</b>	Carbon Capture, Utilisation and Storage
<b>CGBS</b>	Concrete gravity-based structure
<b>CNS</b>	Central North Sea
<b>Comparative Assessment</b>	Used to compare options, examine differences and identify the 'most preferred' option in the development of decommissioning programmes for: a) All installations for which derogation is sought under OSPAR Decision 98/3; b) All pipelines being decommissioned under the Petroleum Act 1998; and c) All drill cuttings piles that are not screened out at Stage 1 of OSPAR
<b>CoP</b>	Cessation of production
<b>COP26</b>	The 2021 United Nations Climate Change Conference, more commonly referred to as COP26, was the 26th United Nations Climate Change conference, held in Glasgow 2021
<b>Decommissioning Programme</b>	The Petroleum Act 1998 requires owners to set out the measures to decommission disused installations and/or pipelines in a decommissioning programme. A decommissioning programme must identify all the items of equipment, infrastructure and materials that have been installed and describe the decommissioning solution for each.
<b>Derogation</b>	In the context of offshore installations, derogation is related to leaving a structure wholly or partially in place as an exemption to the OSPAR convention which prevents disposal of waste at sea.
<b>DBT</b>	Department of Business and Trade
<b>EBN</b>	Energie Beheer Nederland: state-owned producer and equity holder
<b>E&amp;A</b>	Exploration and appraisal
<b>FPSO</b>	Floating production, storage and offload vessel
<b>HSE</b>	Health & Safety Executive
<b>IS</b>	Irish Sea
<b>Making safe</b>	'Making safe' of facilities includes cleaning, freeing equipment of hydrocarbons, disconnection and physical isolation, and waste management. 'Making safe' of pipelines involves depressurising them and removing any hydrocarbons. Then the pipelines are cleaned and purged, in line with the cleaning programme based on the specific needs of the system.



<b>Mattresses</b>	A structure laid over or under a pipeline to provide protection, stabilisation or structural integrity.
<b>NNS</b>	Northern North Sea
<b>NOGPA</b>	Netherlands Oil and Gas Exploration and Production Association
<b>NZTC</b>	Net Zero Technology Centre
<b>OGA/NSTA</b>	Oil & Gas Authority (now North Sea Transition Authority)
<b>OPRED</b>	Offshore Petroleum Regulator for Environment and Decommissioning
<b>OSPAR</b>	OSPAR is the mechanism by which 15 governments & the EU co-operate to protect the marine environment of the northeast Atlantic.
<b>Post-CoP OPEX</b>	Operational expenditure after production has ceased.
<b>SNS</b>	Southern North Sea
<b>Topsides</b>	The facilities which sit on top of an installation, typically including drilling, processing and living quarters.
<b>Work Breakdown Structures (WBS)</b>	The WBS shows all elements of a typical decommissioning project and forms the basis for calculating decommissioning expenditure during different stages of the process.
<b>WDON</b>	Well Decommissioning Operators Network
<b>WG4</b>	Work Group 4
<b>WoS</b>	West of Shetland

## 10.1 Forecast activity in the UKCS over the next decade in detail

		Northern North Sea & West of Shetland	Central North Sea	Southern North Sea and Irish Sea	Total UKCS
Number of wells to be decommissioned	Platform wells	346	606	309	<b>1,261</b>
	Subsea wells	296	369	44	<b>709</b>
	Suspended E&A wells	39	36	29	<b>104</b>
	<b>Total</b>	<b>681</b>	<b>1,011</b>	<b>382</b>	<b>2,074</b>
Number of topsides to be removed		19	30	68	<b>117</b>
Total weight of topside to be removed (tonnes)		366,249	398,891	149,469	<b>914,609</b>
Number of substructures to be decommissioned		15	30	69	<b>114</b>
Total weight of substructures to be decommissioned (tonnes)		186,758	231,222	90,592	<b>508,572</b>
FPSO weight to be removed (tonnes)		65,688	118,949	20,576	<b>205,213</b>
Subsea structures to be removed (tonnes)		40,739	44,543	3,678	<b>88,960</b>
Number of mattresses for removal		7,149	26,863	4,390	<b>38,402</b>
Length of pipelines, umbilicals and cables to be decommissioned (km)		2,527	8,405	837	<b>11,769</b>
<b>Total spend (£bn)</b>		<b>9.1</b>	<b>11.6</b>	<b>3.9</b>	<b>24.6</b>





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