North Sea Transition Authority

# UKCS Decommissioning

## Cost and Performance Update

2024

# Contents



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The document can be found on the NSTA's website.



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# Executive summary

## Decommissioning North Sea oil and gas infrastructure remains a multibillion-pound opportunity for the UK economy and supply chain.

With more than half of remaining decommissioning expenditure forecast to be spent by 2032, the actions industry takes now are crucial for cultivating a sustainable supply chain which can support and execute projects efficiently for the long-term.

The UK's offshore industry has earned its status as global-leader in cost-effective decommissioning, having delivered £15bn worth of savings to the cost estimate between 2017 and 2022[1]. This was largely achieved by improved cost estimating, knowledge sharing, learning from experience and making robust plans.

The North Sea Transition Authority (**NSTA**) continues to see examples of strong and effective collaboration between groups of operators and the supply chain, resulting in timely and cost-effective project execution.

However, challenging economic conditions, including inflation, increasing global demand for critical supply chain resources and changes in scope, including accelerated Cessation of Production (**CoP**), have contributed to an increase of £3bn in the decommissioning cost estimate over the decade, from £21bn to £24bn[2].

In the face of strong headwinds, it is even more important that industry continues to embrace good practice and work closely with the supply chain to bear down on costs and deliver its obligations.

Industry spent close to £2bn on decommissioning in 2023. Despite this significant financial outlay being in line with forecasts, industry did not meet its plan attainment targets for the year, only achieving 70% of planned well decommissioning activities, while also falling short in other areas, such as topside and substructure removals.

The NSTA is concerned by the growing backlog of well decommissioning work caused by continued deferral of activity. Failure to undertake this activity in a timely manner is forcing suppliers to seek opportunities overseas. This risks contraction within the UK service sector, which could push prices further upwards. Industry can and must reverse this trend by engaging early with the supply chain, providing greater visibility of decommissioning schedules, and awarding contracts to deliver regulatory obligations on time.

The NSTA is using its regulatory powers to hold operators to account. Promoting visibility and surety of work, the NSTA will develop a basin-wide picture of upcoming well decommissioning activity reflecting supply chain opportunity and capacity to support collaboration and maximise campaign opportunities.

Adjusted for inflation, the overall decommissioning cost is now £40bn[3] which reflects an increase in costs over the past two years. While it has become more challenging to deliver savings in the current climate, clear opportunities to reduce costs over the long-term remain.

[1] Further details available in the Decommissioning Cost Report 2023
[2] 2023 prices
[3] 2021 prices; 2023+ scope


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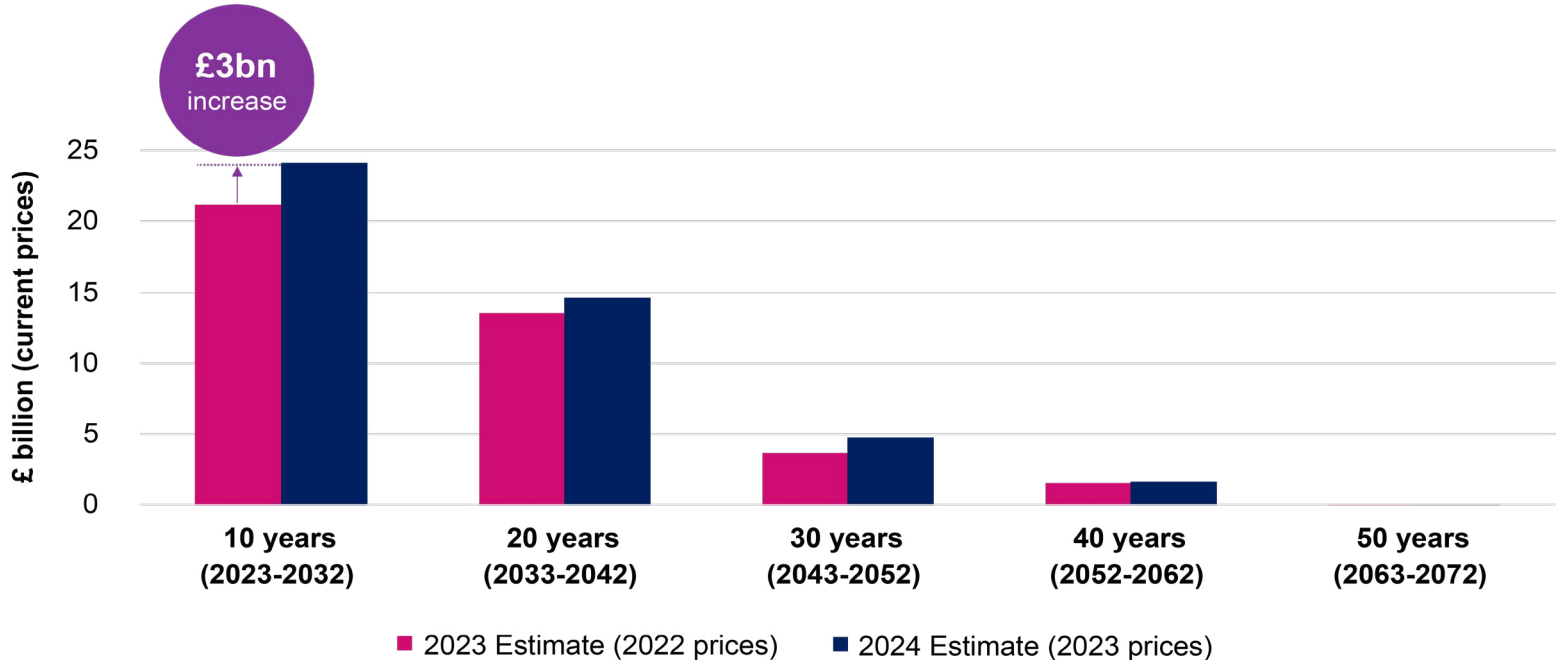
# Decade of decommissioning

With more than half of remaining expenditure on decommissioning forecast to be committed by 2032, it is a pivotal time for the delivery of sustainable cost-efficient decommissioning. Action taken by stakeholders during the current decade will set the direction for the sector in subsequent years. As such, embedding good practice and striking a balance between supply chain capacity and demand for services in the near-term is crucial.

In 2023 industry forecast £21bn of expenditure for this decade. In 2024 the forecast has increased by net £3bn (Figure 1) to £24bn with a peak spend of £2.5billion p.a. forecast (Appendix 2).

**Figure 1: Decommissioning cost profile per decade** (£bn, 2023+, current prices, +adjustments)




**2023-2032 decade spend**

**£21bn**

**2023 estimate**
(in 2022 prices)

**£24bn**

**2024 estimate**
(in 2023 prices)

# Decade of decommissioning

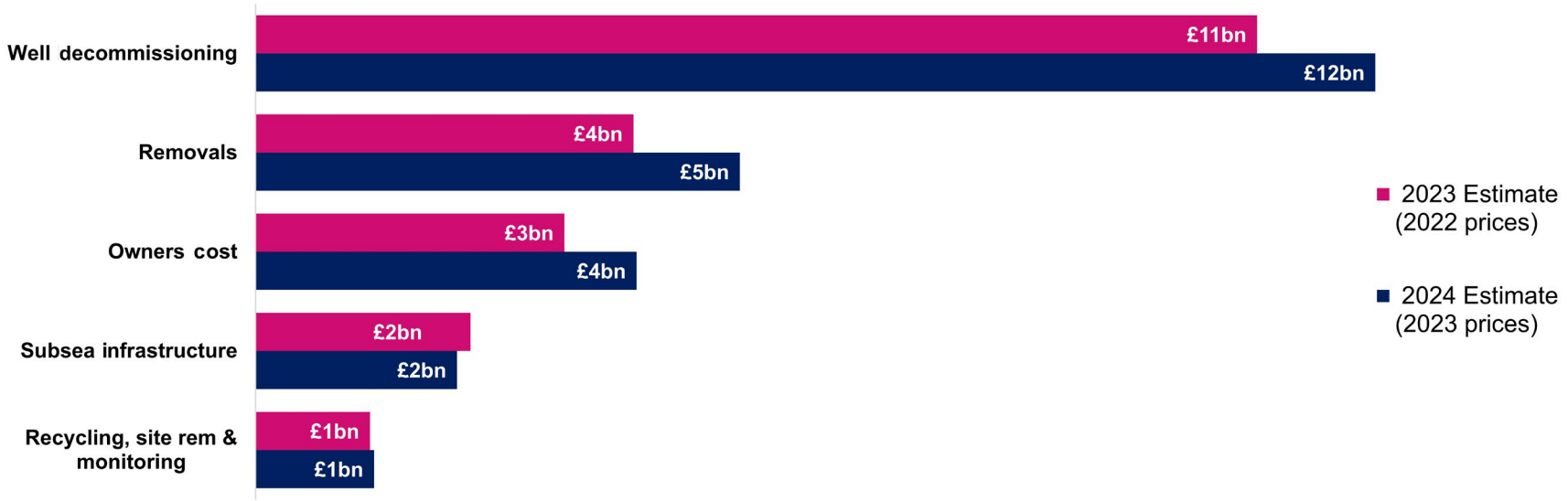
The increase is attributed to growth in underlying cost basis and increases in scope associated with licensees' decisions to bring forward Cessation of Production (**CoP**) dates for a number of fields.

The data also shows significant deferral of work.

Significant movement in scope is not conducive to cost-efficiency.

Well decommissioning work is the most expensive aspect of decommissioning and contributed the largest cost increase during this 10-year period (Figure 2). The increase would have been greater, but for the fact that several licensees are proposing to defer well decommissioning activities until the following decade (2033-42), partly in hope that prices will have dropped by then. While there are regulatory requirements to consider, the short to medium-term market outlook suggests well decommissioning rates will increase, contradicting the rationale that deferral improves cost-efficiency, and reinforcing the need for operators to collaborate with and commit to the supply chain.

**Figure 2: Cost of decommissioning (up to 2032) per Work Breakdown Structure (WBS)** (£bn, 2023-2032, +adjustments)



The changes in cost estimates reinforce the importance of industry doubling down efforts on decommissioning planning and readiness as set out in NSTA Stewardship Expectation 10 – Cost Effective Decommissioning focusing on efficiency of execution while also fulfilling its regulatory obligations.

Incremental and radical gains in decommissioning performance are still achievable through effective planning, commercial transformation, campaigns delivering economies of scale and routine deployment of disruptive technology e.g. for well decommissioning.

This will build confidence and trust to establish a secure UK decommissioning supply chain and workforce which can capitalise on the opportunity.

While decommissioning activity is forecast to peak from now through to the early to mid-2030s, activity levels remain high beyond this period and decommissioning is expected to continue through to the early 2070s. This offers a significant market opportunity for the UK supply chain and economy.

Data gathered shows that 95%[4] of decommissioning contracts awarded between April 2023 and March 2024 went to UK-based organisations, demonstrating the strength of the UK supply chain and industry's commitment to the North Sea Transition Deal.

However, the supply chain is fragile, and it needs surety and visibility of work to create a sustainable, efficient market. Industry needs to commit and deliver decommissioning in accordance with obligations and continue to market upcoming decommissioning plans including through the use of Energy Pathfinder and the Decommissioning Data Visibility Dashboard.

Industry must also continue to support the energy transition through pursuit of alternatives to decommissioning, including progressing credible reuse and repurposing opportunities.

Contrary to the increase in costs, there remain many examples of efficient delivery and good performance, demonstrating that cost efficiencies are still achievable despite the pressures.

[4] Source of data: 2024 Supply Chain Action Plans (SCAPs)

# Decade of decommissioning

SERICAENERGY DIAMOND OFFSHORE DEEPOCEAN

*Earlier this year Serica completed a programme to perform final abandonment operations on eight Exploration and Appraisal (E&A) wells across two areas in the Northern North Sea. This campaign of work was carried out through the late winter months using rig and vessel-based solutions for different wells. The known weather risk associated with conducting such operations during the late winter months was mitigated by a combination of decisions taken during the planning stage.*

*Both the rig (Diamond Ocean Patriot) and vessel (Deepocean Siem Day) were selected based on their track record and operational capabilities in harsh environments. Moreover, the application of certain technical solutions provided more confidence in the schedule. This included the world's first deployment of a 7" subsea well abandonment tool that enabled vessel-based abandonment of a complex subsea well instead of a more expensive rig option and the use of abrasive water jet cutting instead of explosives to sever wellheads which provided more certain outcomes. Importantly, abrasive water jet cutting also meant less disturbance to marine life.*

*These decisions combined with collaboration with other North Sea operators during rig intake and mobilisation of the vessel to the Bruce area contributed to the programme being delivered within two years of decommissioning plan approval. The cost outturn compares favourably with the existing benchmarks for equivalent activities even during periods of generally better weather.*

# Performance metrics

Decommissioning performance metrics (Appendix 5) were introduced in 2023 to complement the decommissioning cost estimate by improving focus and driving targeted outcomes.

**Key insights from the metrics include:**

- Actual cost (£2bn spend) in 2023 was consistent with the level forecast, however plan attainment (decommissioning scope liquidation) for the same period fell short of forecasts.
- Material changes in asset/field CoP dates, and by inference decommissioning timing, are evident. Stable plans and decommissioning readiness are key to achieving predictable project outcomes.
- Minimising post-CoP OPEX through pre-CoP platform well decommissioning and minimising the length of time taken to achieving cold stack status need to remain a priority.
- Investment in well decommissioning technologies almost doubled in 2023. To realise the benefit of this investment offshore deployment at scale is now required over the course of this decade.
- The backlog of inactive UKCS wells is increasing year on year.
- The average number of barriers per well (the scope) is trending upwards. Decommissioning cost is significantly influenced by the barrier philosophy being applied (e.g. re-introduction of intermediate barriers (AB2) to achieve Carbon Capture and Storage (**CCS**) well abandonment standards). Early communication and engagement between teams (wells and sub-surface) in the development of an agreed Basis of Design (**BoD**) remains key.

## Plan attainment

Plan attainment figures for three primary decommissioning categories are significantly below 100% (Table 1). The ability of industry to deliver forecast plans within approved annual decommissioning budgets is under considerable pressure as a result of an increasing cost base. Appendix 3 provides additional details of the breakdown of planned versus actual performance.

**Table 1: 2023 decommissioning plan attainment**

| | Plan attainment |
|---|---|
| Development wells | **71%** |
| Topsides removals | **33%** |
| Substructure removals | **50%** |

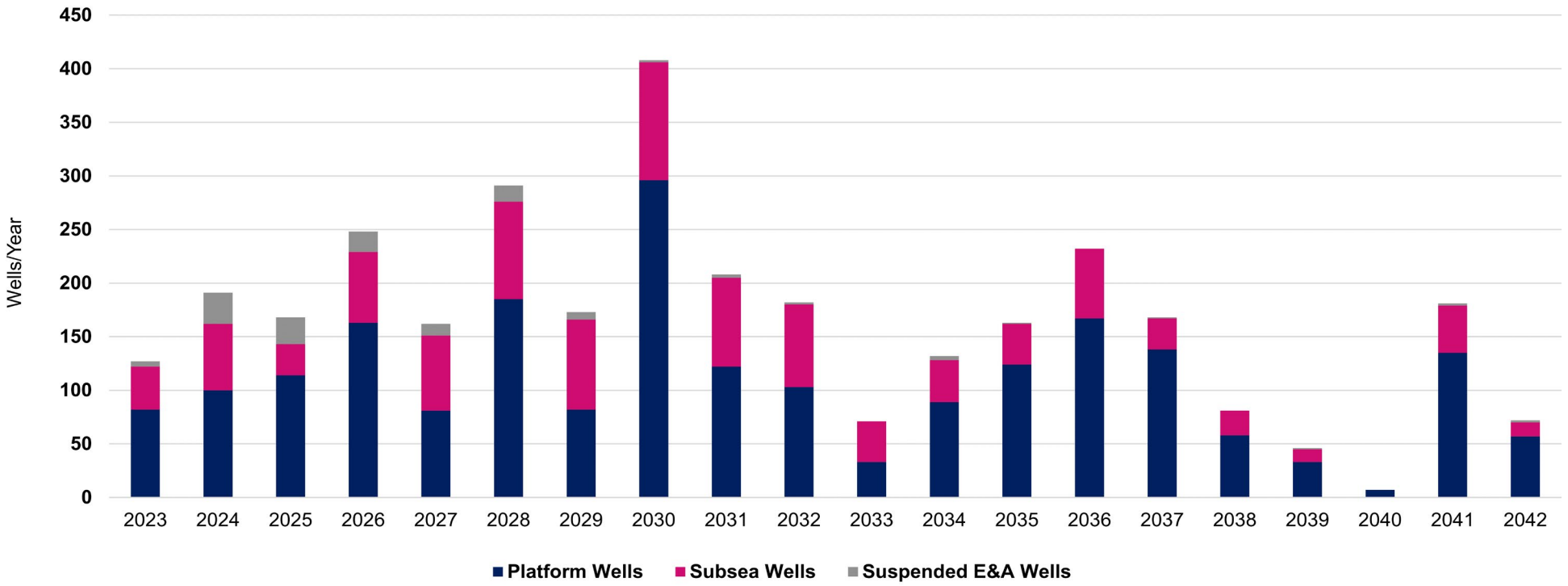
Scope liquidation is being constrained by the limits of previously approved annual budgets, so in an inflationary environment, decommissioning readiness (planning) and efficiency of execution remain key to fulfilling obligations in a timely and cost-effective manner.

# Well decommissioning

## Well decommissioning has seen the largest cost increase in the current decade (Figure 2) which is consistent with well decommissioning making up approximately half of the cost of decommissioning.

The medium to long-term outlook of inactive wells available for decommissioning should present a predictable and stable scope of work for the UK supply chain out to the early 2040s (Figure 3).

**Figure 3: Inactive well decommissioning profile (UKSS 2023)**

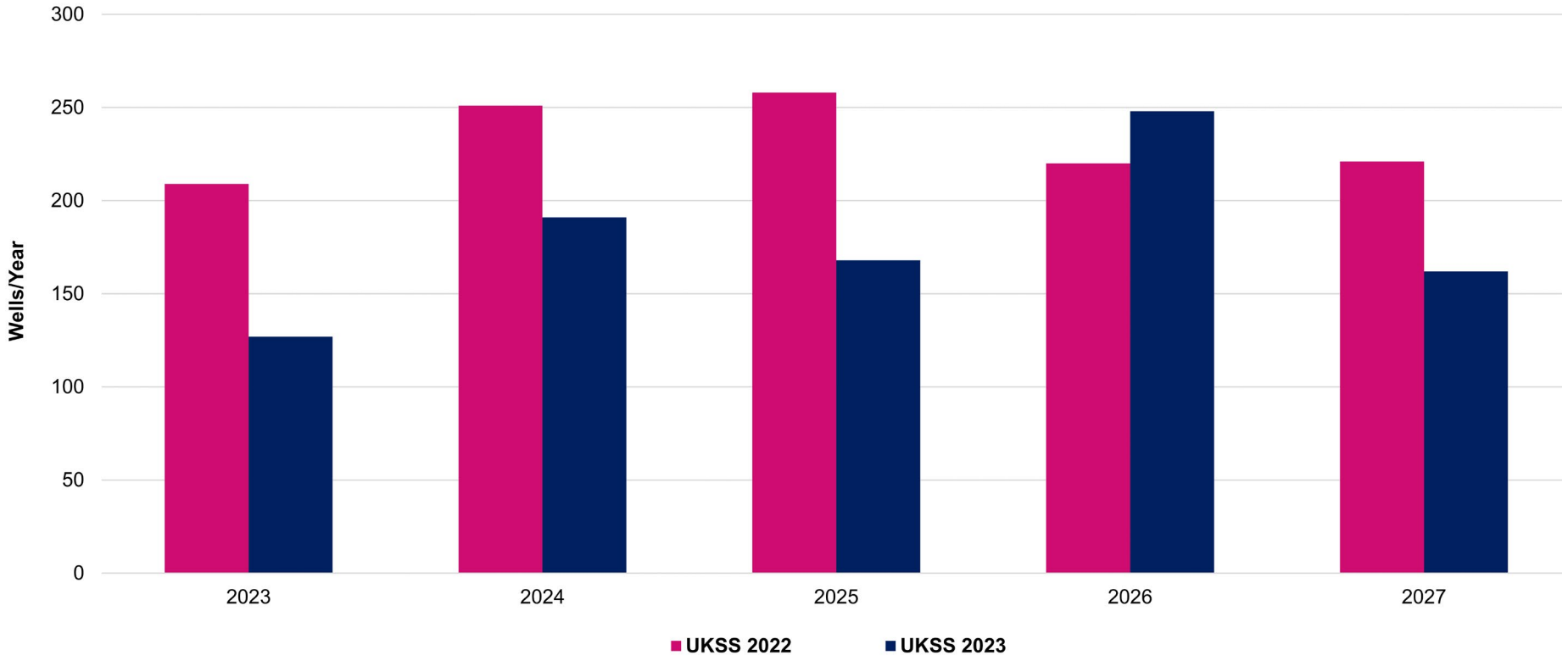


The change in inactive well profiles from 2022 to 2023 (Figure 4) highlights that:

- Industry (operators and licensees) is not delivering well decommissioning to plan in the short-term.
- Significant changes in well decommissioning outlook over medium to long term are foreseen.

Plan stability and predictability over the short to medium term horizon are critical to efficient planning and execution. Deferred activity means there are over 500 inactive wells awaiting decommissioning.

**Figure 4: Change in inactive well quantities between UKSS 2023 and UKSS 2022**



# Well decommissioning

Although the level of inactive wells to be decommissioned is increasing, the availability of the rig (semi-subs and jack-ups) supply chain continues to reflect a downward trend (Figure 5a and 5b).

In the absence of surety of demand and long-term commitment from UKCS operators, combined with a bias for awarding short-term, piece small, seasonal contracts, rig owners are increasingly active in marketing and managing their fleet overseas.The UK can ill-afford to lose resources – people and equipment – to other regions and must address this challenge. Furthermore, the contract terms being offered in the UK, in terms of duration, rates and scope, are often insufficient to justify the significant investment required to return cold-stacked rigs to service.

These issues also apply to many other categories of equipment and resources essential to the delivery of well decommissioning, e.g. tooling, WROVs and people.

**Figure 5a: Jack-ups: rig demand and supply for the UK and other North West Europe** (source: Westwood Global Energy, June 2024)

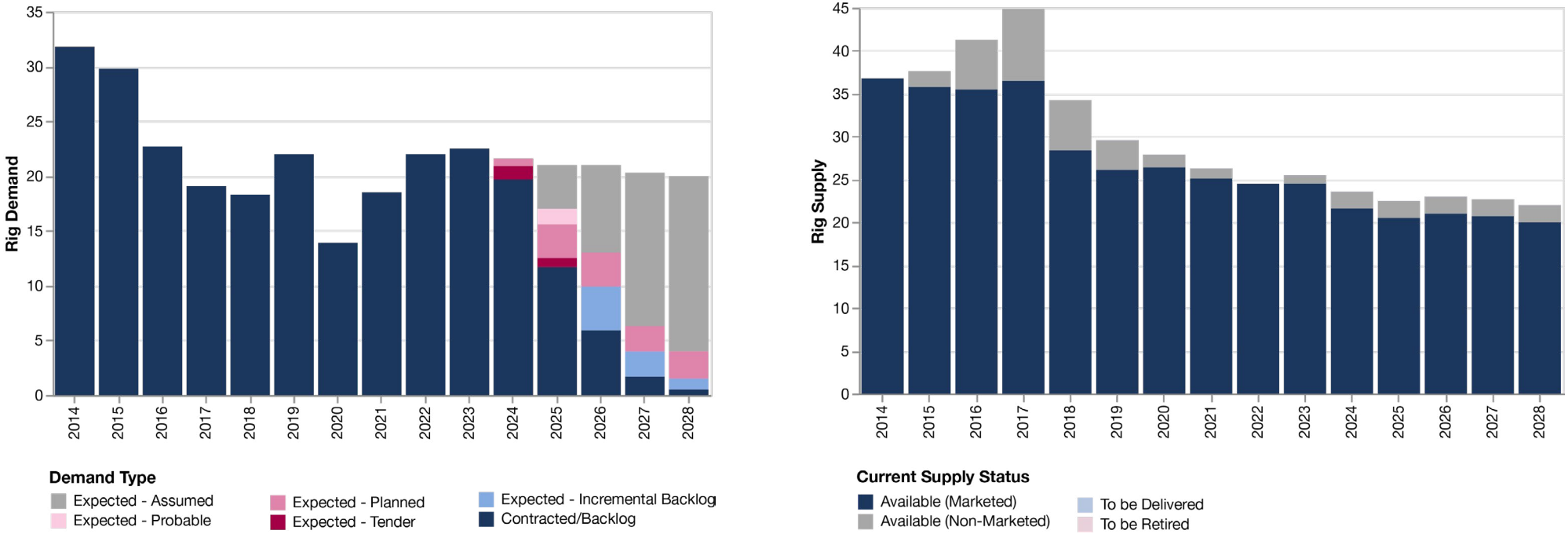
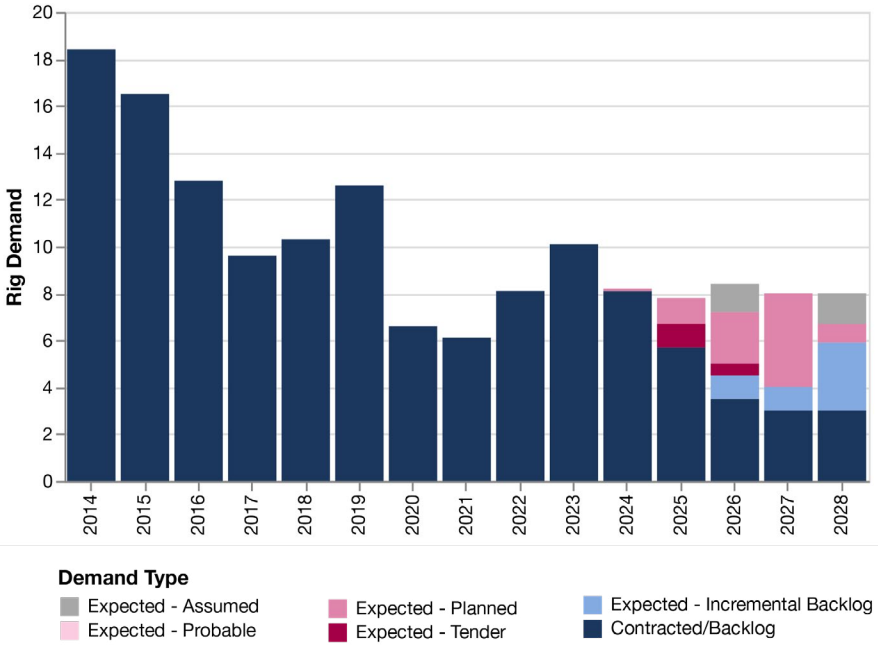
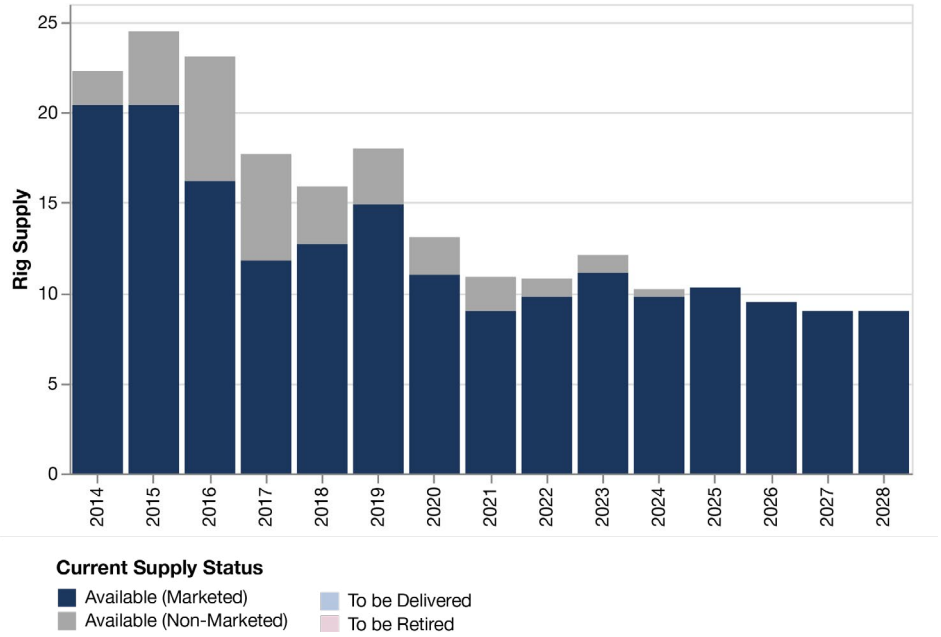


**Figure 5b: Semi-subs: rig demand and supply for the UK and other North West Europe** (source: Westwood Global Energy, June 2024)



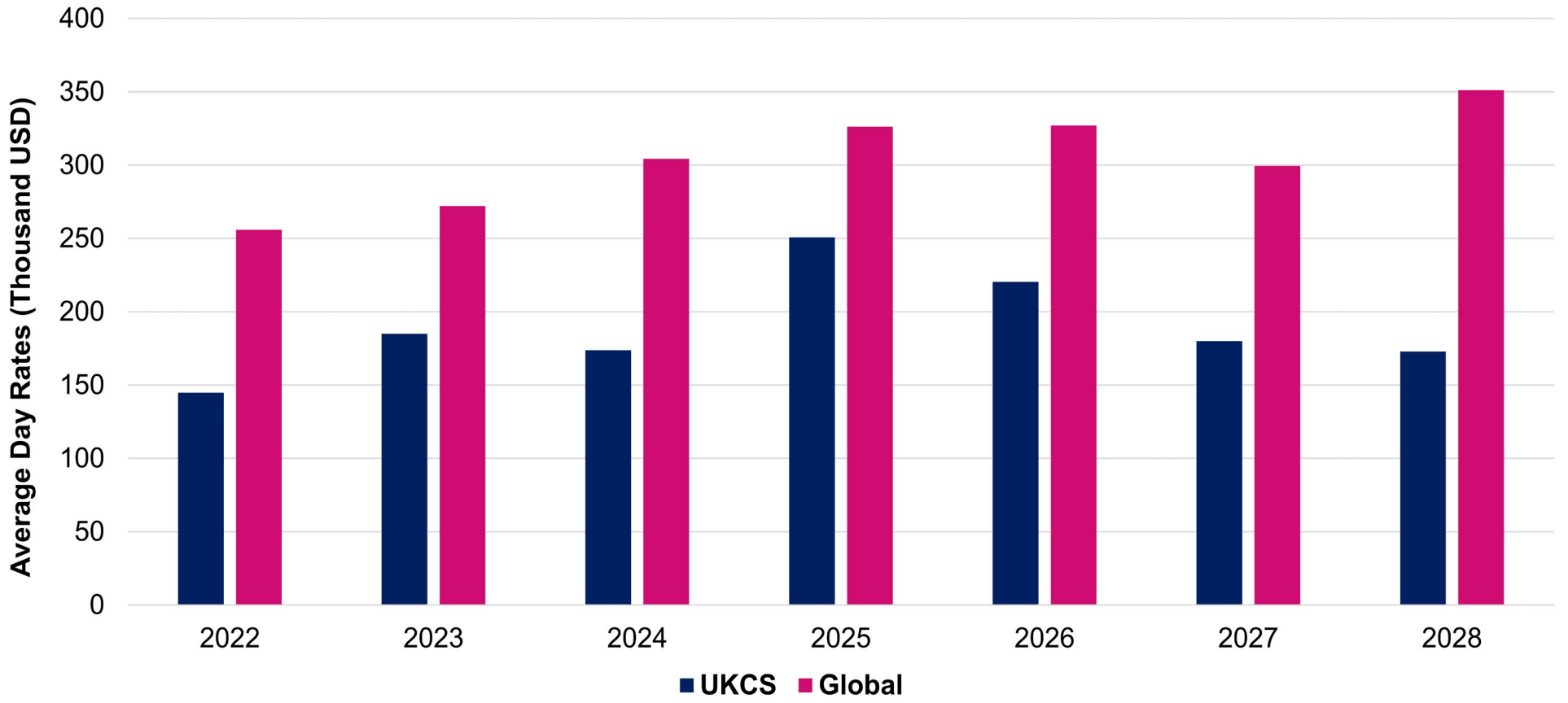

Several operators and supply chain companies are proactively pursuing alternative strategic business and contractual models to deliver decommissioning. This includes exploring options to secure long-term contractual commitments especially for rigs and marine construction vessels to mitigate potential future shortfalls in the market.

However, further action is still required by all parties to mitigate long-term market changes and the risk of further loss of supply chain capability within the UKCS.

Despite the challenges, some operators are identifying incremental gains through technology development, improved execution techniques and scope removal opportunities resulting in reductions in forecast well decommissioning costs (Appendix 6).

The UK P&A semi-sub market is currently supported by a number of third and fourth generation rigs which are both technically suited to well P&A and economically more attractive than global rig rates (Figure 6); a long-term shrinkage in third and fourth generation rigs available to complete P&A will result in UKCS competing with global demand and higher rates for sixth generation semis.

**Figure 6: Semi-sub average day rates (thousand USD)** (source: based on Westwood Global Energy data, June 2024)

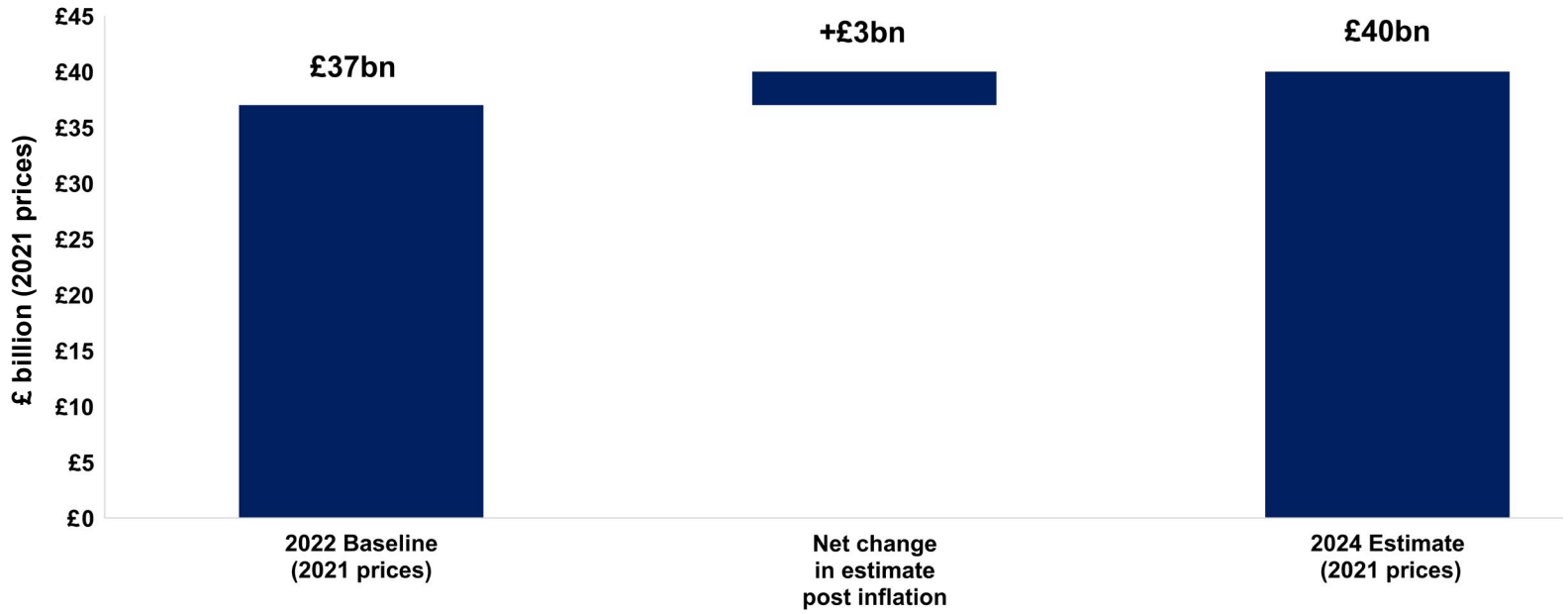


# Cost outlook

## UKCS estimate breakdown and outlook

The forecast cost of decommissioning from start of 2023 onwards is now £40bn in 2021 prices (Figure 7). A challenging economic environment for the industry and rapidly changing market conditions, driven in part by the global energy transition, have contributed to the increases seen in the past two years.

**Figure 7: Cost estimate 2024** (£bn, 2023+, 2021 prices, +adjustments)




The estimated cost of decommissioning the remaining UKCS infrastructure and facilities (2024 forward, in 2023 prices) is £43bn (Appendix 1).

# Decommissioning risks and opportunities

Industry efforts to decommission UKCS infrastructure more cost efficiently remain subject to risks and opportunities, including:

## Risks

**Geopolitical instability**, **macro-economic pressures** and **economic policies**, including:

- Direct and indirect impact of global and UK inflation on the energy sector and decommissioning
- Effect of policy on investment decisions
- Access to finance and investor confidence

Maintaining a **steady** and **predictable UKCS decommissioning workload** and creating a **sustainable decommissioning supply chain**

- Competition for UKCS supply chain capability/capacity from other energy sectors or other global regions
- Lack of availability and competition for transferable skills and resources

**Regulatory changes** leading to an **increase** in UKCS decommissioning scope

- Environmental policy changes including amendments to OSPAR 98/3 may impact UKCS cost estimates

**Net zero**, **reuse** and **repurposing**

- Scope and cost growth from increased CCS licensing rounds and CCS project development
- Wells being decommissioned to a CCS standard (e.g. additional intermediate barriers)
- Sub-optimal decommissioning sequencing and availability of critical path resources

## Opportunities

**Growth** in **UK skills base** and increased opportunity to **export UK decommissioning capability** and **knowledge** to other regions.

Establishment of **alternative decommissioning business models** (e.g. consortium or joint venture models) formed on the principle of collaboration between owner/operators and strategic supply chain partners.

Economies of scale and **efficiency** from learning through aggregation of scope across multiple entities to establish campaign models of execution.

**Continued investment** in and **deployment** at scale of proven incremental and disruptive technologies.

# Actions and expectations

## Actions

The NSTA is holding industry to account on its **decommissioning obligations**, including well decommissioning, through its **regulatory powers**.

The NSTA will develop a **holistic well decommissioning programme** for 2026-30 reflecting the market capacity necessary to meet well decommissioning demand for that period, while also identifying credible campaigning and collaboration opportunities.

**NSTA Decommissioning Benchmark Report 2024** will be made available online to industry during the third quarter of 2024.

**Increased visibility** of **planned decommissioning scopes** will continue to be provided to the industry with annual updates to the Decommissioning Data Visibility Dashboard and regular Energy Pathfinder updates.

The NSTA will continue to **steward licensees** in support of cost-effective decommissioning whilst also maintaining open and **regular communication** with the UK supply chain.

## Expectations

Throughout the decommissioning lifecycle and in support of cost-effective decommissioning, the NSTA continues to expect the following of industry:

1. **Comply with obligations set out in the Petroleum Act 1998 and the OGA Strategy.**
2. **Fulfil the requirements of Stewardship Expectations (Asset Stewardship Expectations):**
   - SE10 Cost Effective Decommissioning
   - SE11 Net Zero
   - SE12 Supply Chain Collaboration and Cooperation
3. **Compliance with NSTA well decommissioning guidelines UKCS Well Applications and Consents Guide.**
4. **Commitment to the North Sea Transition Deal including the voluntary industry target of 50% local UK content for oil and gas decommissioning projects.**

# Appendices

## Appendix 1: Decommissioning cost estimate methodology (2024)

Unless otherwise indicated, the decommissioning section of the 2023 UKCS Stewardship Survey was used as the data source for all analysis and reporting, with decommissioning cost inputs provided by all operators for all current and unsanctioned offshore facilities, pipelines development wells, suspended open water exploration and appraisal wells and onshore terminals. Data was collected using the Offshore Energies UK (**OEUK**) Work Breakdown Structure (**WBS**)[5].

Reference to '+adjustments' indicates the inclusion of unsanctioned projects, sanctioned, non-producing fields, terminals and trunk pipelines and E&A wells, based on data submitted in other sections of the Stewardship Survey.

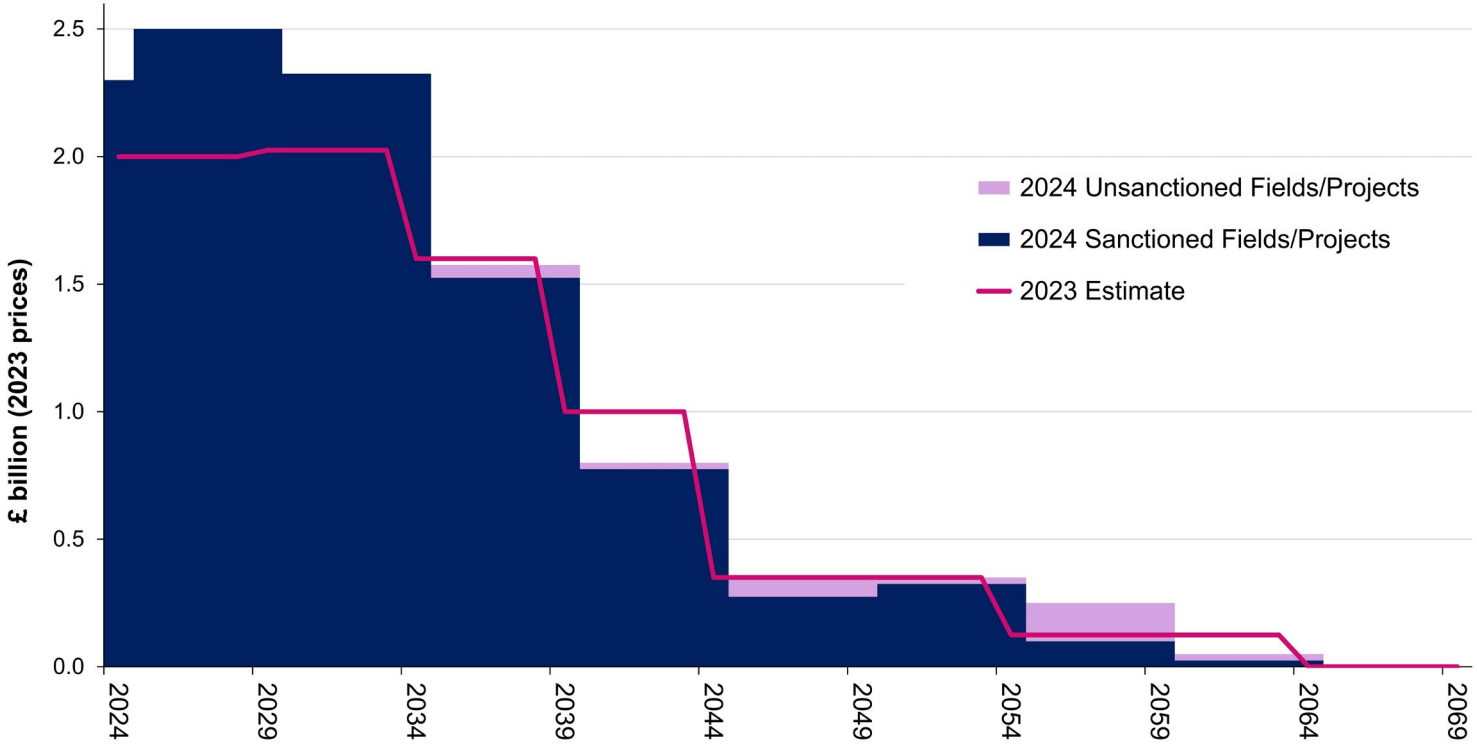
| Method | Baseline | 2023 Estimate | 2024 Estimate | Actuals |
|---|---|---|---|---|
| **Estimate Type** | Forecast | Forecast | Forecast | Actuals |
| **Cost Estimate** | £37 billion | £40 billion | £43 billion | £2 billion |
| **Prices (£money)** | 2021 | 2022 | 2023 | 2023 |
| **Years (included)** | 2023+ | 2023+ | 2024+ | 2023 only |
| **Profile Type** | Best estimate,<br>Full (not like for like) | Best estimate<br>Full (not like for like) | Best estimate,<br>Full (not like for like) | Actuals,<br>Full (not like for like) |
| **Scope** | All UKCS Fields Unsanctioned Projects Sanctioned, Non-Producing Fields, Terminals and Trunk Pipelines, E&A Wells | All UKCS Fields Unsanctioned Projects Sanctioned, Non-Producing Fields, Terminals and Trunk Pipelines, E&A Wells | All UKCS Fields Unsanctioned Projects Sanctioned, Non-Producing Fields, Terminals and Trunk Pipelines, E&A Wells | All UKCS Fields Unsanctioned Projects Sanctioned, Non-Producing Fields, Terminals and Trunk Pipelines, E&A Wells |

[5] OEUK: Decommissioning Work Breakdown Structure Guidelines

**Impact of inflation:**

An adjustment for inflation has been made to the forecast using the GDP-deflator, however the GDP-deflator is an economy wide deflation factor which does not fully reflect the rate of inflation in the UK oil and gas industry.
Source: GDP deflators at market prices, and money GDP March 2024 (Quarterly National Accounts).

**Appendix 2: Annualised decommissioning cost profile** (£bn, 2024+,2023 prices, +adjustments)



## Appendix 3: Plan attainment (2023)

Decommissioning activities executed during 2023 (planned vs executed):

| 2023 Activities (No.) | Scope Planned (UKSS 2022) | Scope Executed (UKSS 2023) | Attainment Status[6] |
|---|---|---|---|
| **Platform dev wells** | 109 | 82 | 75% |
| **Subsea dev wells** | 62 | 40 | 65% |
| **Topsides removed** | 6 (4,666Te) | 2 (2,945Te) | 33% |
| **Substructure removed** | 8 (11,123Te) | 4 (8,722Te) | 50% |

## Appendix 4: Forecast scopes (2024 – 2032)

Decommissioning activities planned for 2024-2032 (9 years):

| 2023 Forecast Activities (No.) | Scope Planned (UKSS 2023) | Average Per Annum (/9years) |
|---|---|---|
| **Platform dev wells** | ~1300 | ~140 |
| **Subsea dev wells** | ~700 | ~80 |
| **Topsides to be removed** | 111 (828,000Te) | 12 |
| **Substructure to be removed** | 112 (999,000Te) | 12 |
| **FPSO to be removed** | 8 (205,000Te) | 1 |

[6] Not full P&A scope (activities only)

## Appendix 5: Performance metrics

### Leading measures

| | Metric | Units | 2023 Report: Measure leading[7] | 2024 Report: Measure leading[8] |
|---|---|---|---|---|
| 1 | Forecast decommissioning costs | **£(bn)** | **£40bn** (2023+) | **£43bn** (2024+) |
| 2 | UKCS platform wells forecast to be decommissioning pre-CoP | **%** | **60%** (2023+) | **45%** (2024+) |
| 3 | Forecast total UKCS post-CoP running cost | **£(bn)** | **£3.4bn** (2023+) | **£3.7bn** (2024+) |
| 4 | Change in 10-year forecast (2023-2032) | **%** | **6%** | **14%** |
| 5 | No. of assets expected to CoP in next 6yrs | **No.** | **171** (2023-2028) | **183** (2024-2029) |
| 6 | No. of producing assets with accelerated CoP (move forward by 1 year or more)[9] | **No.** | **84** | **94** |
| 7 | Operator technology spend on well decommissioning[10] | **£MM p.a** | **Forecast: £7.4MM** (2023)<br>**Actual: £4.6MM** (2022) | **Forecast: £10.0MM** (2024)<br>**Actual: £8.7MM** (2023) |

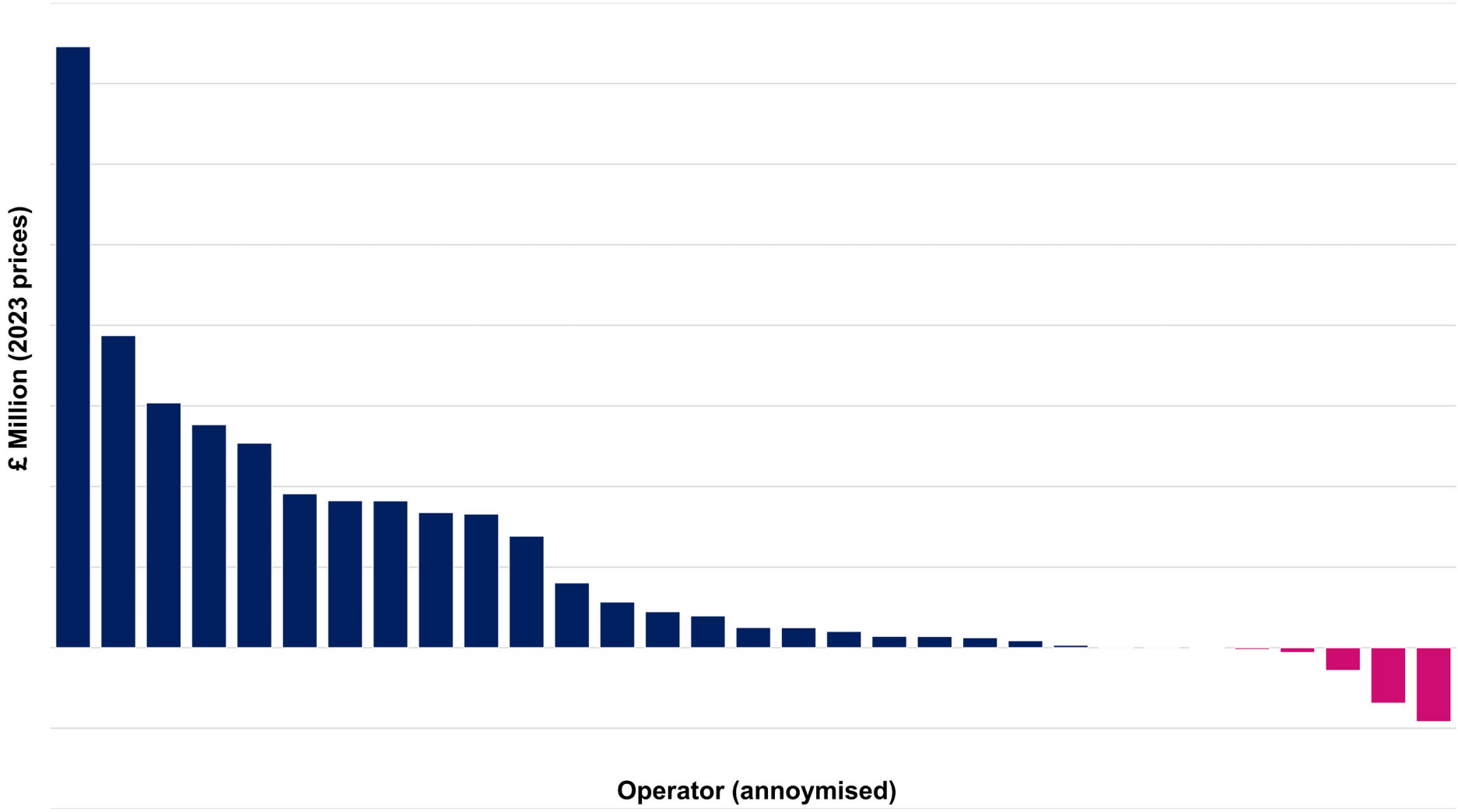
[7] 2022 prices for financial related performance metrics
[8] 2023 prices for financial related performance metrics
[9] Current year survey vs previous year survey
[10] Direct operators spend, excluding supply chain

### Lagging measures

| | Metric | Units | 2023 Report: Measure lagging | 2024 Report: Measure lagging |
|---|---|---|---|---|
| **8** | Actual spend (current year)[11] | **£(bn)** | **£1.6bn** (2022) | **£1.8bn** (2023) |
| **9** | Capital efficiency (NPT/WoW) well decommissioning[12] | **%** | **In 2022:**<br>**18% (platform)**<br>**12% (subsea)** | **In 2023:**<br>**19% (platform)**<br>**13% (subsea)** |
| **10** | Wells decommissioned (in current year) | **No.** | **In 2022:**<br>**95 (platform)**<br>**21 (subsea)** | **In 2023:**<br>**82 (platform)**<br>**40 (subsea)** |
| **11** | Barriers placed (in current year) | **No.** | **In 2022:**<br>**301 (platform)**<br>**34 (subsea)** | **In 2023:**<br>**381 (platform)**<br>**71 (subsea)** |

[11] Does not include '+adjustments' so excluding unsanctioned fields/projects, terminals & trunk pipelines and E&A wells
[12] Excludes project management and facilities upgrade costs

**Appendix 6: Well decommissioning Operator forecast cost change 2023 vs 2024 estimate** (£bn, 2024+, 2023 prices)



# Glossary of acronyms and abbreviations

**BoD** – Basis of Design

**CCS** – Carbon Capture and Storage

**CoP** – Cessation of Production

**E&A** – Exploration and appraisal

**NPT** – Non-productive time

**NSTA** – North Sea Transition Authority

**OEUK** – Offshore Energies UK

**OPEX** – Operating Expenditure

**p.a.** – Per Annum

**P&A** – Plugging and Abandonment

**UKCS** – UK Continental Shelf

**UKSS** – UKCS Stewardship Survey

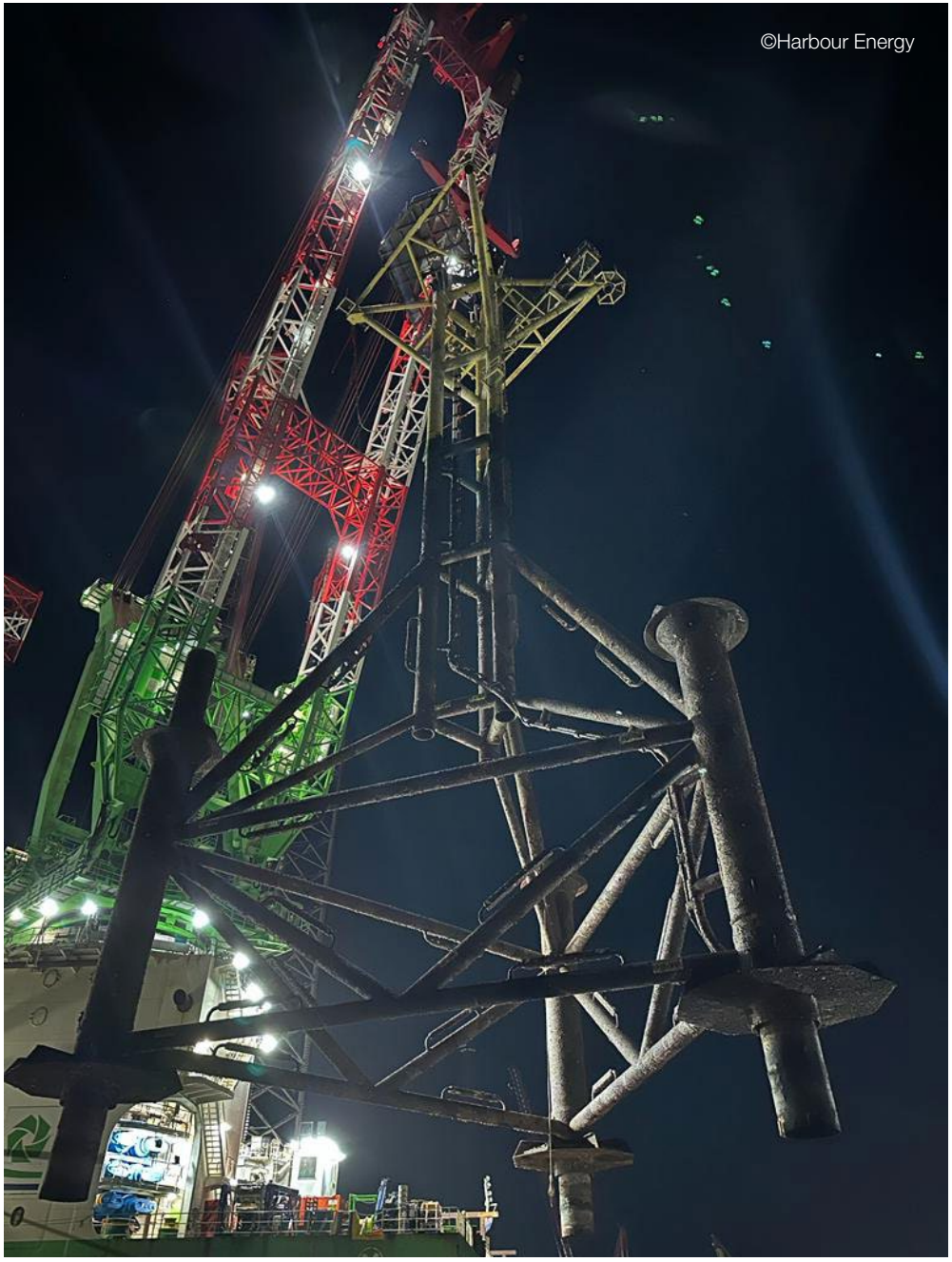
**WBS** – Work Breakdown Structure

**WoW** – Waiting on Weather

**WROVs** – Work-class Remotely Operated Vehicles

**£MM** – UK Pounds (millions)

**£bn** – UK Pounds (billion)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