

# Oil & Gas UK - 2010 Decommissioning Insight



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## Introduction

Through the publication of this brochure Oil & Gas UK hope to provide a fresh insight into the emerging decommissioning market. Decommissioning is still a relatively new activity in the life of the North Sea and there is currently only limited experience on the scale and nature of the market. The brochure aims to address three questions; (i) How much? (ii) Where? And (iii) when? bringing together for the first time a range of sources of data and expertise across the industry representing both supply chain and operating companies alike.

Over the last forty years more than £283 billion (2009 money) have been invested in offshore facilities, transportation infrastructure and onshore processing of oil and gas from the North Sea. To date only a limited number of fields have been decommissioned and yet the prospective value of the business is equivalent to around ten percent of the total investment and will ultimately require the removal of 630 installations and associated infrastructure, 10,000km of pipeline and around 5,000 wells. Each of these decommissioning projects poses its own technical, economic, environmental and health and safety challenges which must be resolved. Decommissioning projects such as Maureen and North West Hutton, have already added to the learning curve. As the UK gains further experience, it will acquire new competencies in an emerging industry which can also be exported to a global market.

Whilst it is certain that there will be a significant increase in decommissioning activity over this decade, the industry is still very immature. Uncertainties surrounding the timing of decommissioning and the value of the market have proved to be a barrier to investment for companies seeking to develop such a capability. It is now recognised that it is in the interests of all parties that the supply chain develops rapidly to meet the demands of the emerging UKCS decommissioning market. For the supply chain this means that they are taking advantage of the business opportunities presented by activity on the UKCS and gaining a first mover advantage into a much bigger market. Whilst for operators the development of a decommissioning supply chain will provide a much needed resource and perhaps signal an end to the spiralling cost inflation of recent years.

This report covers three aspects of the decommissioning market:

**Section one provides a market overview** both quantifying the nature and scale of the opportunities on a general level and also identifying the key market segments. **Section two explores these subsectors in more detail** looking at what is involved in each part of the decommissioning process and where possible providing metrics on these market sectors over the next decade. **Section three addresses the trends and influences within the decommissioning market** including the uncertainty around decommissioning dates and spend as a result of a range of factors such as changing field economics and cost inflation.

Whilst the brochure covers the decommissioning market until 2050 particular attention is paid to this decade; firstly as this is the most relevant activity to companies making near term investment decisions. Secondly, beyond this period activities are more uncertain due to the scope for more significant changes in market conditions. The objective has been to provide details of the scale and nature of the market rather than to discuss the commercial and fiscal issues of decommissioning across the UKCS; for a fuller discussion of these subjects you may consult the Oil & Gas UK Activity Survey 2010.

In putting together this research, Oil & Gas UK have used a wide range of data sources, calling particularly on information provided by operators in the Oil & Gas UK Activity Survey. Other sources such as the CDA Deal database provide information on wells and this is matched by external data on the scope of offshore installations, jacket/topside and subsea structure weights. There has also been interaction and discussions with a range of people and organisations both from the operator and supply chain community. In particular the members of the decommissioning workgroup jointly led by DECC and Oil & Gas UK and the DECC Offshore Decommissioning Unit have been very generous with their time and help.

This is the first insight into the subject from Oil & Gas UK; the intention is to revisit this on a regular basis and feedback is welcome from all parties.

Editorial Note: all sums referring to decommissioning costs are in 2009 money.

## **Summary of Key Findings**

### **General:**

- Current projections indicate around £27 billion will be spent on decommissioning over the next forty years, of which £9.2 billion will be spent over this next decade. Decommissioning expenditure is expected to rise from around £0.5 billion in 2011 through to £1 billion by 2015 and continue at that level through the remainder of this decade.
- Over this decade the number of installations commencing decommissioning will peak between 2015 and 2017, however the associated expenditure will be phased over the next decade, representing a more gradual growth in activity.
- Of the 259 field clusters currently in production across the UKCS, it is expected 144 fields may commence decommissioning by 2020. In contrast it is anticipated that new investment could result in an additional 73 new developments coming on stream over the next decade, demonstrating the future potential of the basin.

### **Timing:**

- Decommissioning dates will remain uncertain. For many fields they have moved out over the last decade in response to higher oil prices, increased recovery and the tieback of nearby developments. However the latest signs are that this trend is slowing down, particularly for fields scheduled to cease production within the next five years.
- All fields about to enter decommissioning are listed on DECC's website, which is currently the most up-to-date source of such information.

### **Cost Escalation:**

- Total costs of decommissioning have more than doubled over the last five years from £11 billion to £27 billion. Whilst this reflects the general cost trend over the period, the total cost has also risen through the addition of new fields coming on stream over the last five years and is compounded by the immaturity of the decommissioning market.

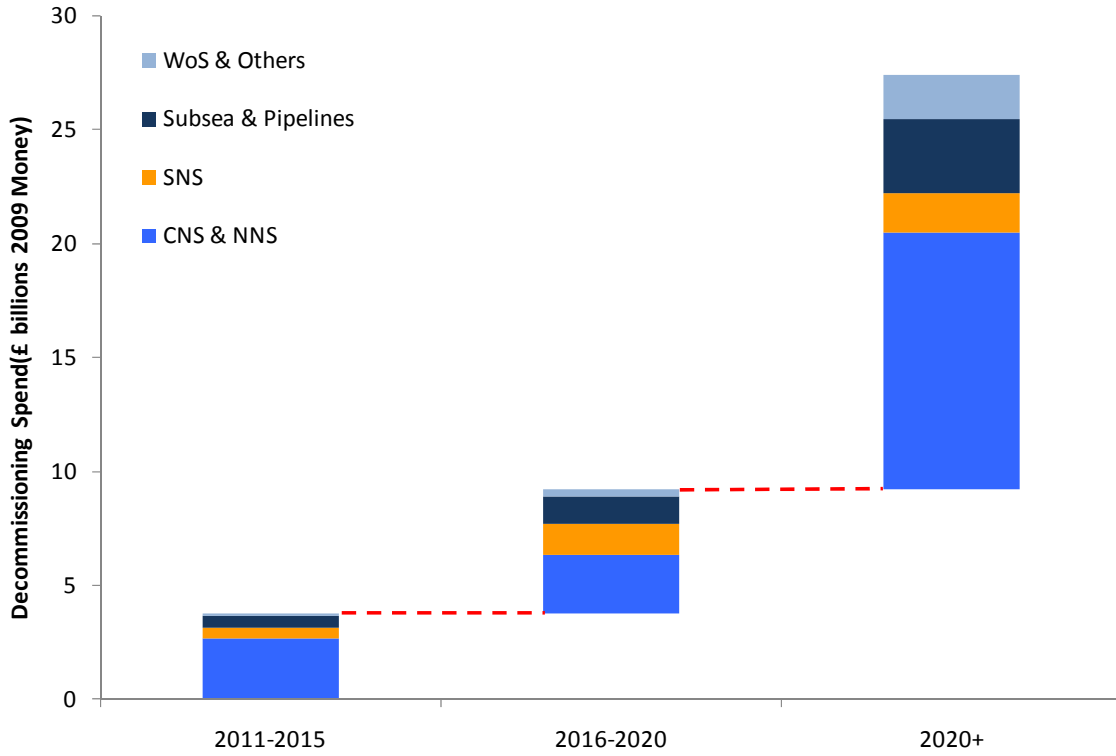
### **Key Activities:**

- The largest market disciplines over the next decade are jacket removal (£1.4 billion), topside removal (£1.5 billion), wells plugging and abandonment or P&A (£1.5 billion) and operations (£1.3 billion). Combined, these four sections of the market make up over 65% of forecast expenditure prior to 2020.

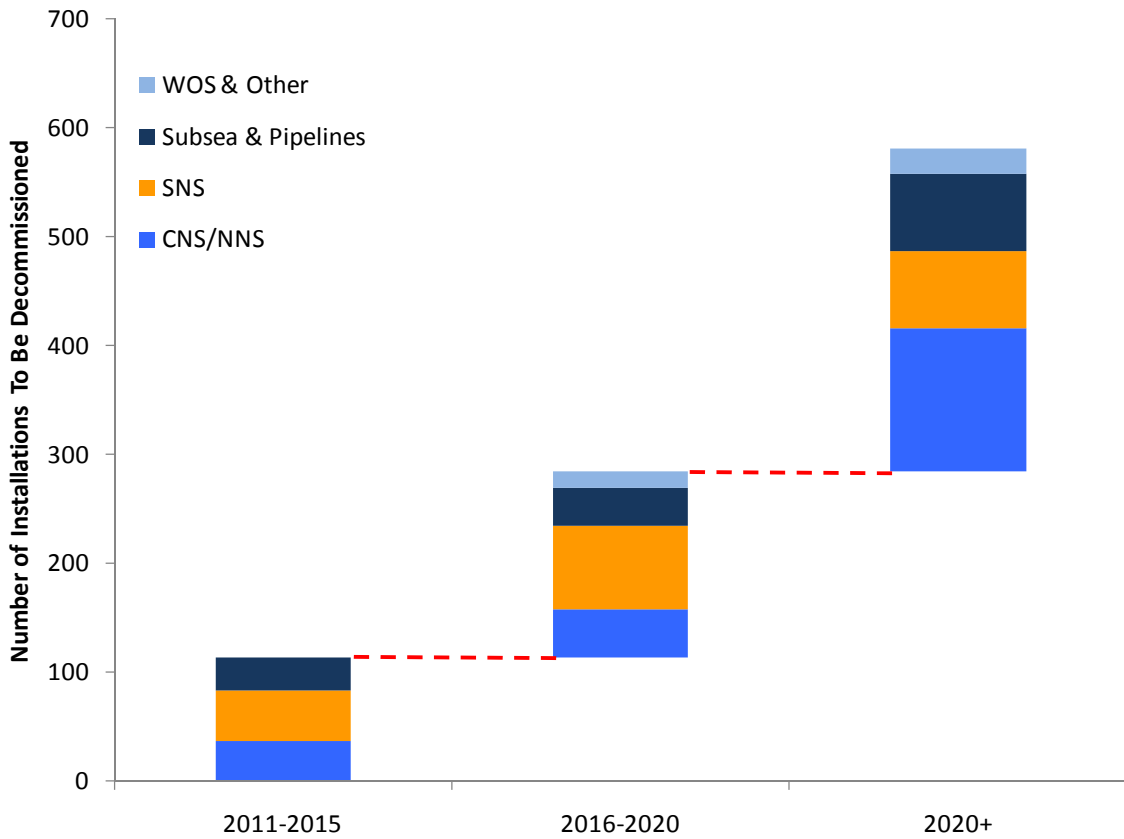
It is expected that 284 installations, subsea structures and interfield pipelines from 144 fields may be ready to be decommissioned over the next decade. Similarly, up to 940 wells could be decommissioned over the same period.

**Section 1: Market Overview**

**I. Decommissioning Market**

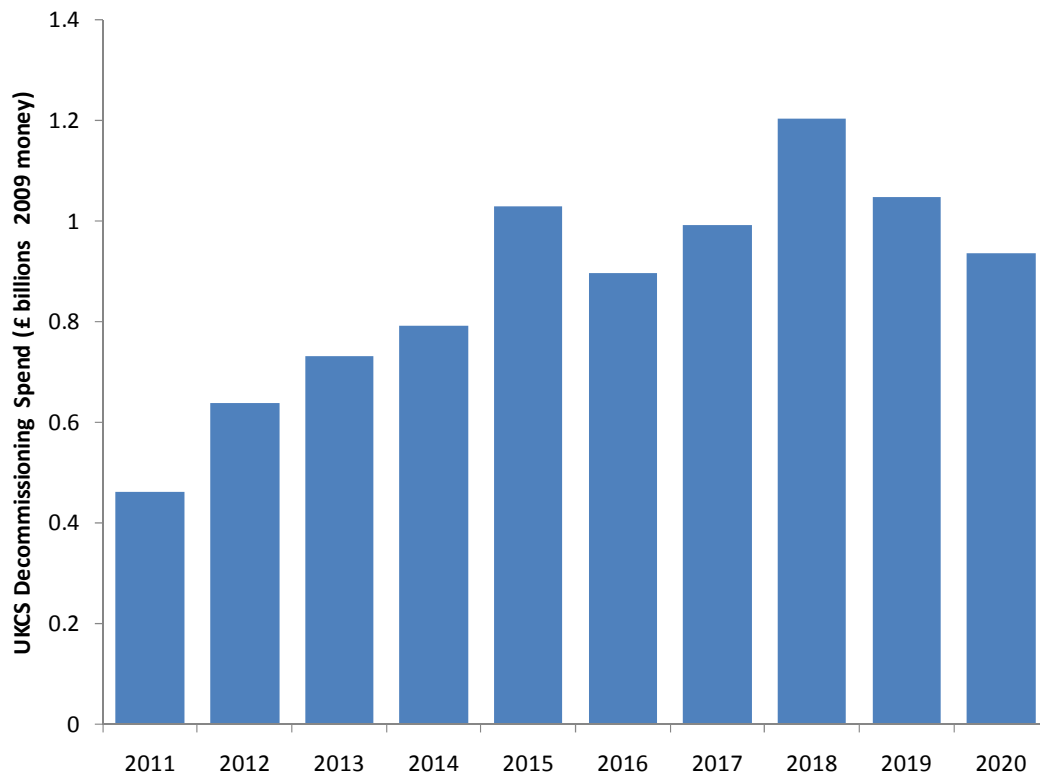


**Figure 1. Decommissioning Expenditure and Timing by Area of the UKCS**



**Figure 2. Number of Installations to be Decommissioned by Timing**

Total decommissioning expenditure across the UKCS is now expected to exceed £27 billion by 2050 and with further investment in new developments, this will continue to rise in years to come. Despite the UKCS being considered by many to be a mature basin, investment and production forecasts have shown that there are substantial reserves still to be recovered. This is reflected in the balance of decommissioning expenditure which indicates two thirds of total spend to take place after 2020. However, the scale of the potential decommissioning market, worth £9.2 billion over this decade, should not be underestimated; £3.8 billion is to be spent in the next five years and £5.4 billion between 2016-2020. During this period, 284 installations and elements of infrastructure from 144 fields may begin or complete the decommissioning process by 2020.



**Figure 3. Annual UKCS Decommissioning Expenditure 2011-2020**

Decommissioning costs and timings vary widely depending on factors such as water depth, type, size and weight of structure, complexity, age of the installation and the number of wells. Large platforms with extensive topsides and concrete or steel jackets in deep water will involve substantially more work and expense than a steel gas platform found in shallow water. Consequently the average cost of decommissioning an installation in the central and northern North Sea is around £65 million, in comparison to subsea and southern North Sea installations which average £30 million and £15 million respectively.

An insight into the typical duration of decommissioning programmes is a necessary pre-requisite in developing an overview of activity, phasing and expenditure. After wide consultation within the industry, it has been decided for the purpose of this analysis that typical decommissioning project durations of five years have been assumed for southern North Sea installations and subsea assets and pipelines, with a project duration of seven years for central and northern North Sea installations.

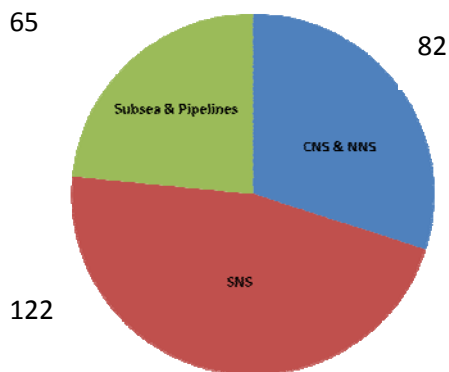
It is realised that this is a gross assumption, but it is necessary to take such an approach. Further details of the decommissioning programme and component activities are described later in this document.

	Year						
	-2	-1	1	2	3	4	5
Central/ Northern North Sea	Decommissioning Programme		Wells P&A	Clean	Topsides Removal	Jacket Removal	Pipeline Decommissioning
Southern North Sea	Decommissioning Programme		Wells P&A/Clean	Topsides/Jacket Removal	Pipeline Decommissioning		
Subsea & Pipelines	Decommissioning Programme		Wells P&A/ Pipeline Flush	Subsea Structure Removal	Pipeline Decommissioning		

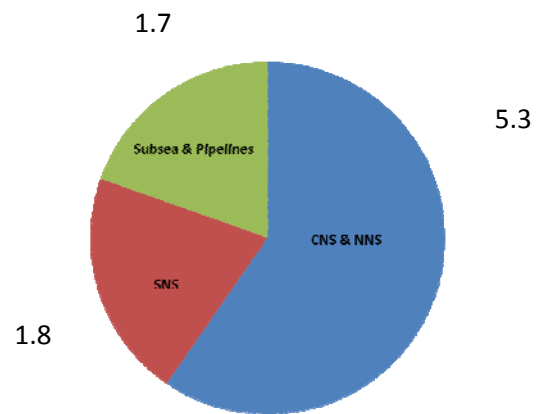
**Figure 4. Decommissioning Programme and Main Activities**

Over the next decade there will be a significant amount of decommissioning activity in the southern North Sea, with around 122 installations (around 43% of all installations to be decommissioned in this period) potentially being decommissioning by 2020. Decommissioning projects are typically smaller and less complex than those found in the central and northern North Sea, therefore the cumulative spend of these projects is only £1.8 billion contrasting with the 82 installations which account for just over £5 billion of costs in the central and northern North Sea. Subsea and pipelines will make up £1.7 billion from 65 installations being decommissioned across the North Sea.

Number of Installations to be Decommissioned



Decommissioning Spend (£ billion)



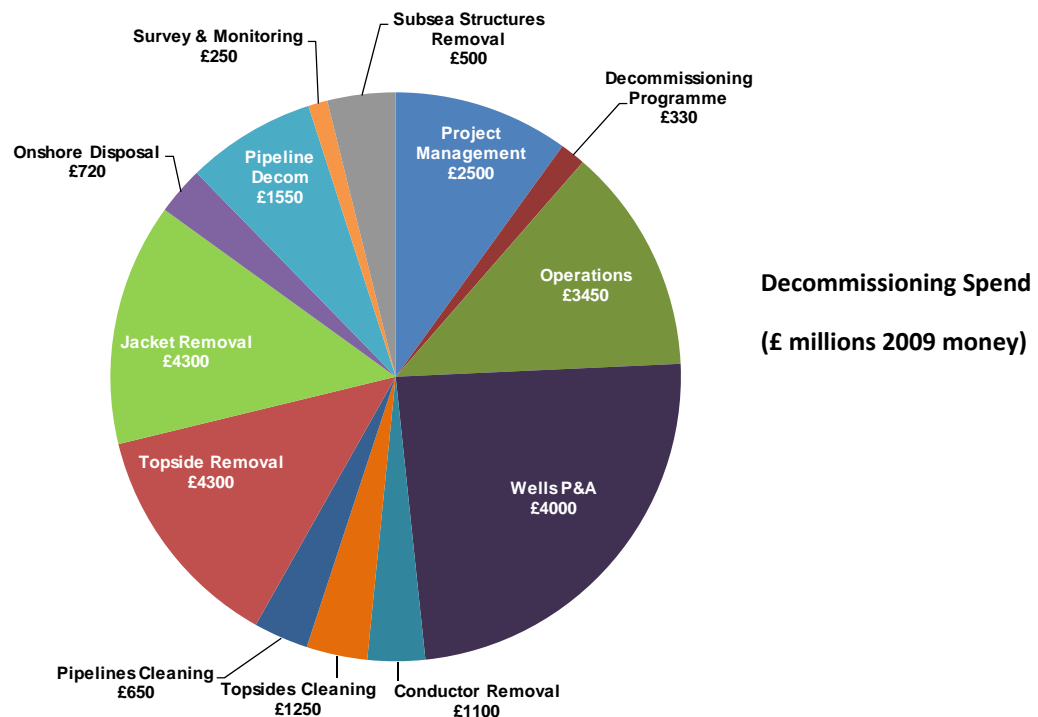
**Figure 5. Frequency and Spend of Decommissioning Projects by Area: 2011-2020**



## II. Market Segmentation

The industry currently lacks an insight into the scale, timing and value of the various technical activities which are needed to carry out a decommissioning project. Oil & Gas UK has made its own assessment based on total projected decommissioning expenditure throughout the UKCS. This assessment has been derived by combining actual data from a range of ongoing projects with planned expenditure submitted in our most recent activity survey. Inevitably it is an approximation which will vary by area (southern, central and northern North Sea and West of Shetland) and by field. Nor can it capture the impact of efficiency improvements or new technologies which will inevitably emerge with time.

Forecasts of the market segments are grouped into three main categories on the basis of similarities of decommissioning programmes and timescales. Platforms and FPSOs in the southern North Sea form the first category and central/northern North Sea make up the second. The third category is subsea and pipelines which are grouped together irrespective of their location. These categories account for 92% of the forecast decommissioning spend until 2050, consequently we have not included west of Shetland and Irish Sea installations in the market segmentation analysis instead choosing to focus on the main three areas of spend.



**Figure 6. Market Segmentation of the UKCS Decommissioning Market 2011-2050 (Excludes west of Shetland and Irish Sea)**

Over 65% of total decommissioning spend is contained in four core activities covering (i) jacket removal, (ii) topside removal, (iii) wells plugging and abandonment and (iv) operations. Oil & Gas UK forecasts that the largest expenditure will be on jacket and topside removal constituting £8.6 billion, wells P&A valued at £4 billion and operations valued just under £3.5 billion respectively. Location and facility type can also have a significant impact on decommissioning activities and spend allocation; decommissioning of a platform from the central and northern North Sea or southern North sea is a complicated task often requiring expensive heavy lift vessels, consequently the removal of the jacket and topside account for 43% and 40% of the overall decommissioning spend in these areas respectively. Removal of a subsea structure is often much smaller and the vast majority of decommissioning spend is focussed on wells P&A (50%). Within this market there are many additional commercial and broader project activities which also need to be taken into account which have not been incorporated in our assessment of the market segmentation. These include:

- Financing, risk management and preparation of contractual agreements;
- Health, safety and environmental management;
- Cross-operator / contractor collaboration to co-ordinate/ aggregate activities;
- Duty-of-care responsibilities for disposals;
- Residual liabilities and site survey and monitoring requirements.

### **III. Regional Analysis**

#### **Southern North Sea**

Over the next decade nearly half the installations decommissioned on the UKCS will be in the southern North Sea. This area's decommissioning market is characterised by a small number of decommissioning projects dominating the landscape before 2020, these tend to be fields with multiple fixed steel platforms above the regional average size and weight. The largest eight fields to be decommissioned in the Southern North Sea before 2020 will involve the removal of 59 of these 122 installations and pieces of infrastructure. Oil & Gas UK forecasts that over the next five years the Southern North Sea will see £450 million spent before the market becomes more substantial towards the end of the decade, with £1.4 billion due to be spent between 2016 and 2020. The nature of the Southern North Sea decommissioning projects dictates that the majority of spend will be focussed on operation and jacket and topside removal, these three areas making up 60% of the total. Decommissioning expenditure from projects which begin in 2020 or before will continue up until 2022, between 2020 and 2022 there will be a further £175 million due to the completion of these projects.

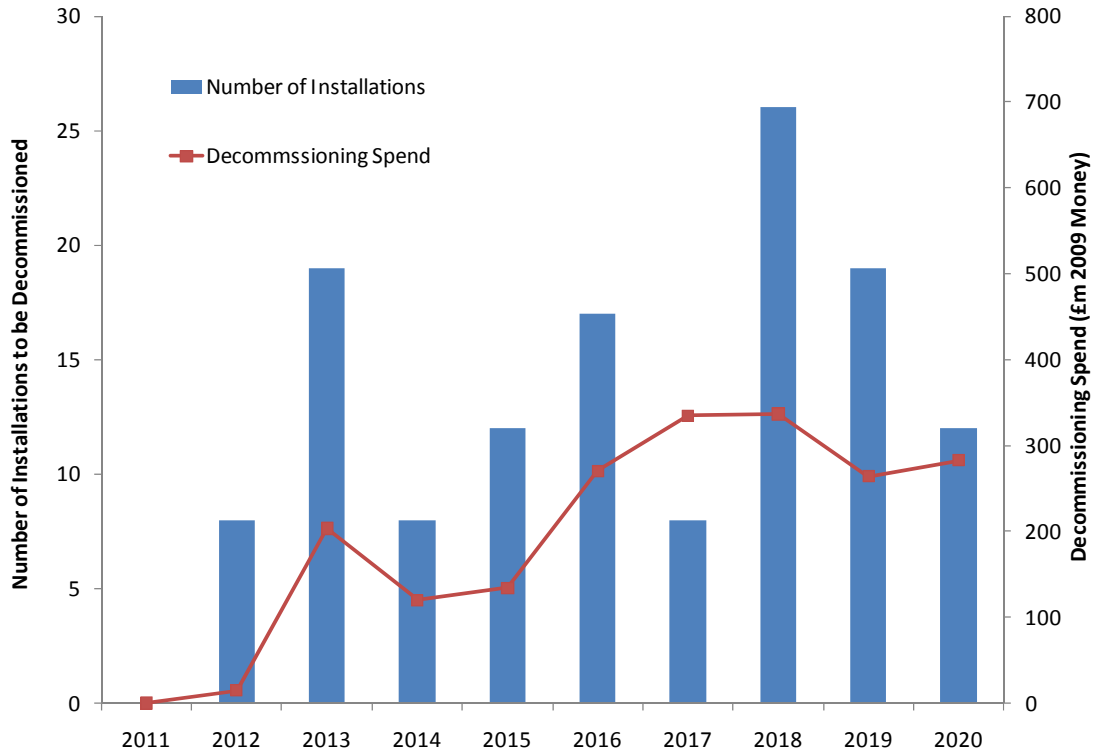


Figure 7. Number of Installations to Begin Decommissioning and Associated Spend 2011-2020 – Southern North Sea

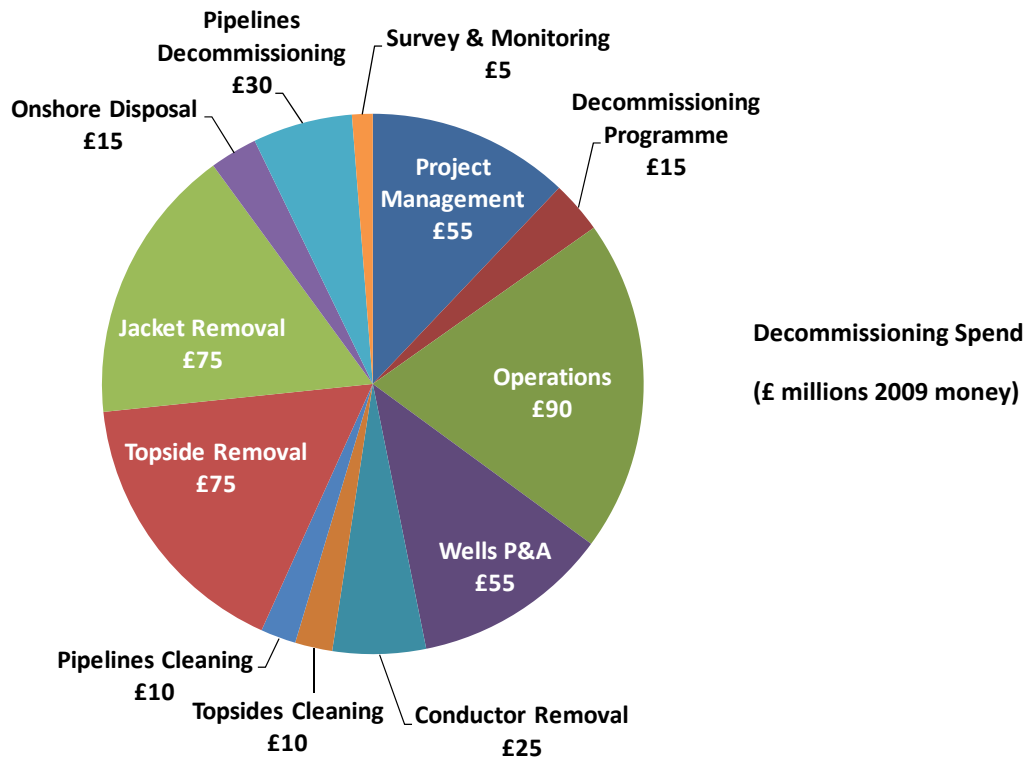
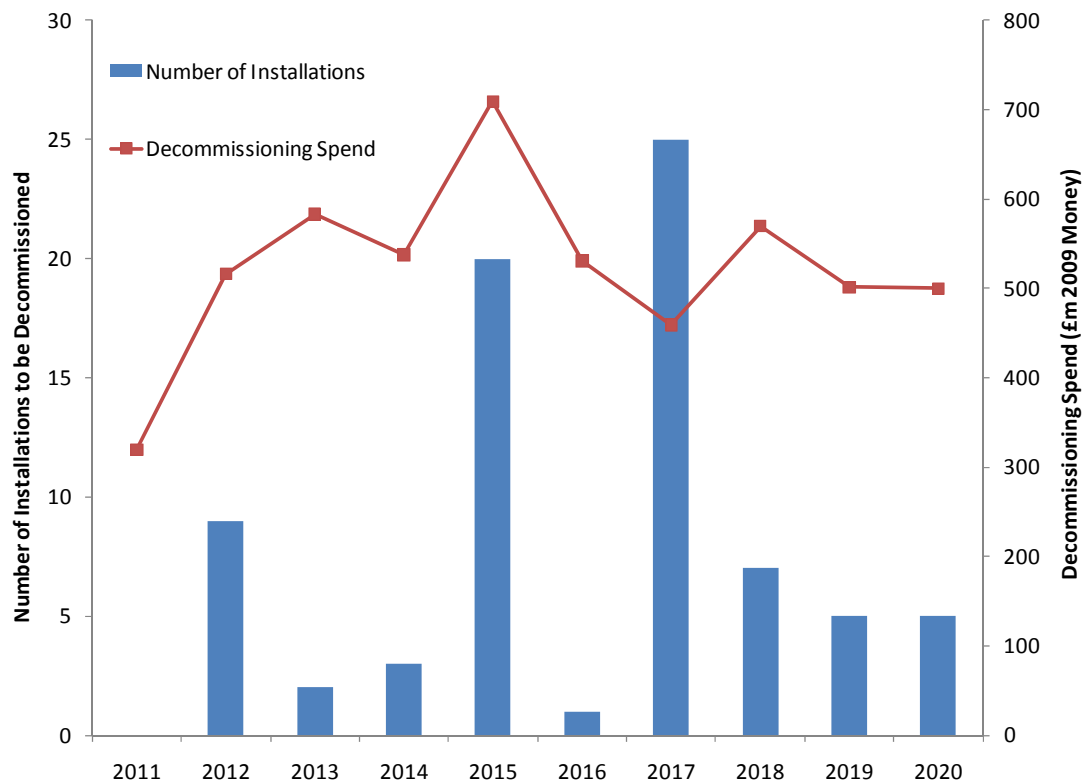


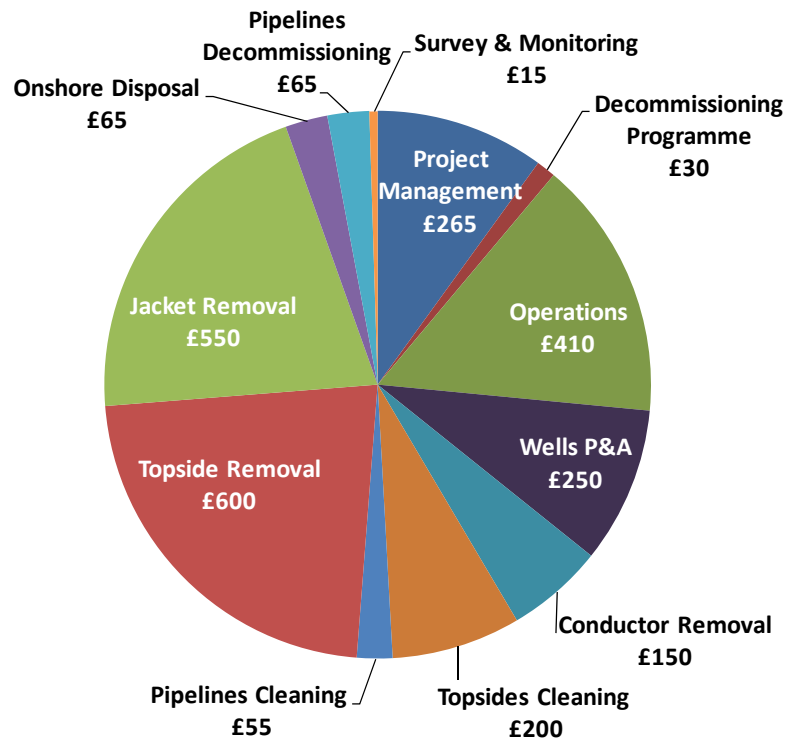
Figure 8. Market Segmentation: Southern North Sea 2011-2015

### Central and Northern North Sea

A substantial proportion of the activity in the central and northern North Sea decommissioning market, 132 installations, will take place after 2020. However with 82 installations and around £5 billion to be spent over the next decade there will be significant opportunities for decommissioning supply chain companies; £2 billion of this is expected to be spent from 2011-2015 and the remaining £2.9 billion in 2016-2020. Expenditure associated with decommissioning programmes beginning prior to 2020 is not constrained to that decade; from 2021, £700 million will be spent, in addition to expenditure associated with decommissioning programmes beginning in that decade.



**Figure 9. Number of Installations to Begin Decommissioning and Associated Spend 2011-2020 – Central/ Northern North Sea**



**Figure 10. Market Segmentation: Central/ Northern North Sea 2011-2015**

### Subsea and Pipelines

The subsea decommissioning market will also grow slowly throughout the next decade with majority of spend being post 2020. Over the next ten years 65 installations may be decommissioned with expenditure from 2011-2020 forecast to be £1.7 billion; £550 million is expected to be spent from 2011-2015 and £1.15 billion from 2016-2020. The majority of the subsea installations are found in the central and northern North Sea where the water depth and conditions make subsea development the most economically viable option as a platform installation tends to be more costly, although subsea tie backs are also used in the southern North Sea. It is also worth noting that the cost of decommissioning subsea installations follows a similar regional trend to platforms; costs associated with decommissioning programmes in the central and northern North Sea tend to be higher than those in the southern North Sea due in part due to the water depths which are 110 metres and 35 metres respectively.

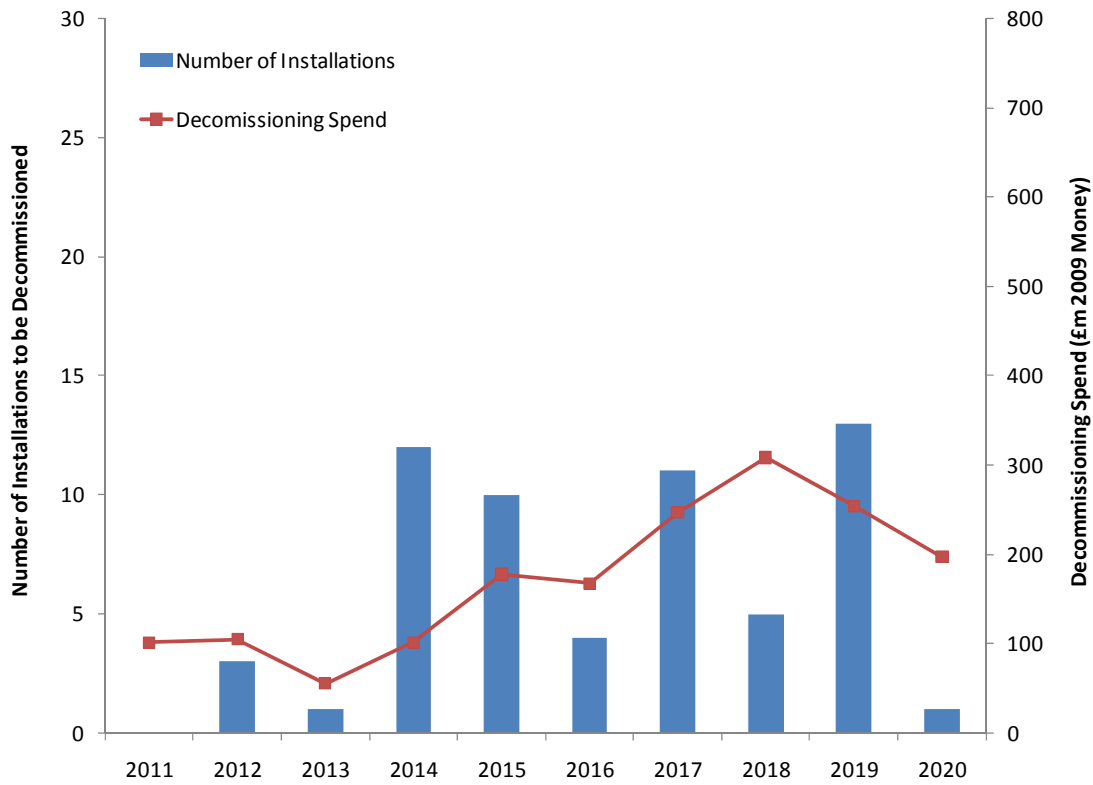


Figure 11. Number of Installations to Begin Decommissioning and Associated Spend 2011-2020 – Subsea and Pipelines

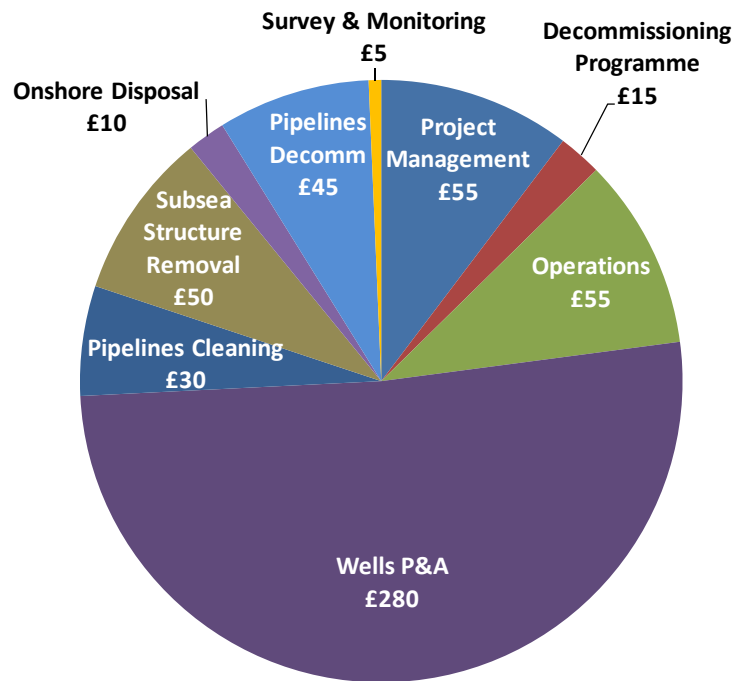
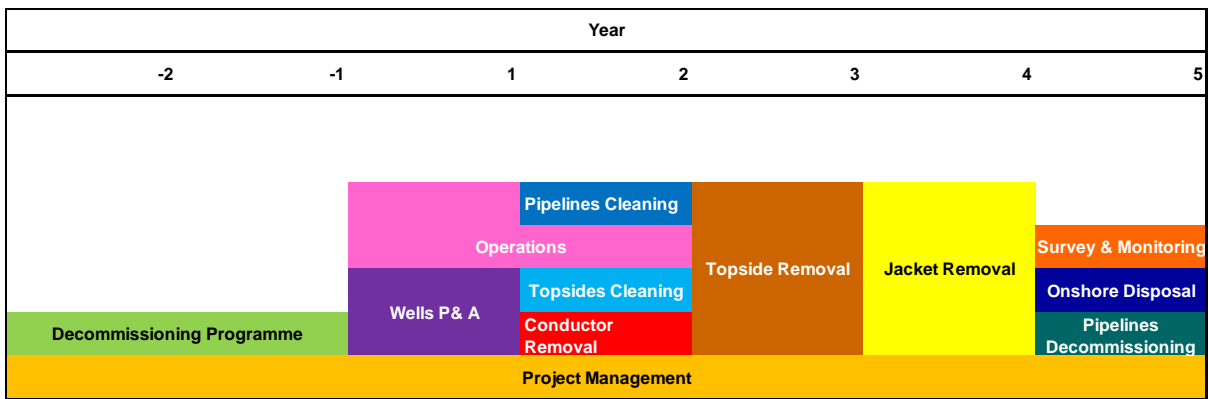


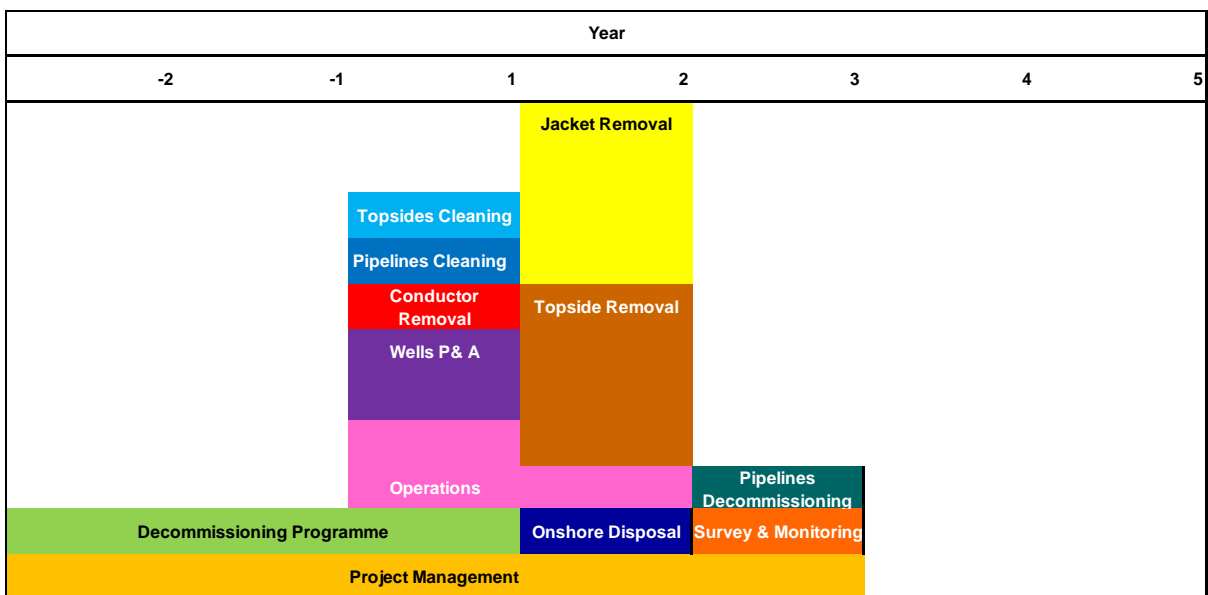
Figure 12. Market Segmentation: Subsea and Pipelines 2011-2015

**Section 2: Subsector Analysis**

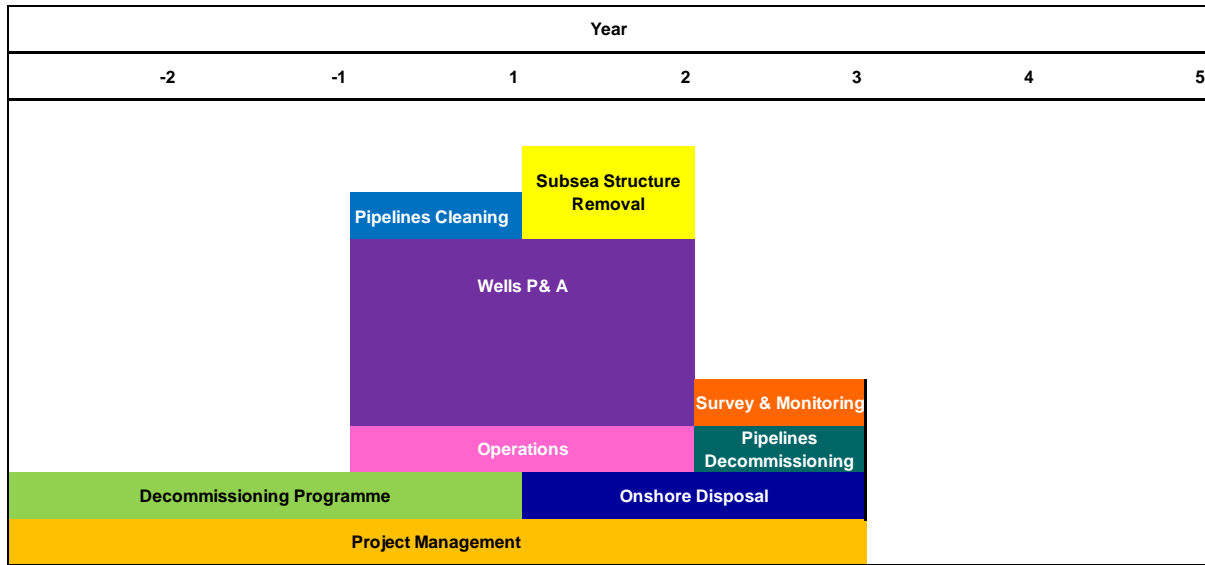
A decommissioning programme consists of a number of activities sequenced over a period of time. Each programme is highly integrated with each component to a large extent dependent on completion of the activities preceding it in the decommissioning plan. Based on recent experience Oil & Gas UK has developed a typical template of decommissioning activities which are used to help evaluate the various phases of a decommissioning project. Illustrations of the work breakdown structures used for each area can be seen below (not to scale).



**Figure 13. Central/Northern North Sea Decommissioning Timeline**



**Figure 14. Southern North Sea Decommissioning Timeline**



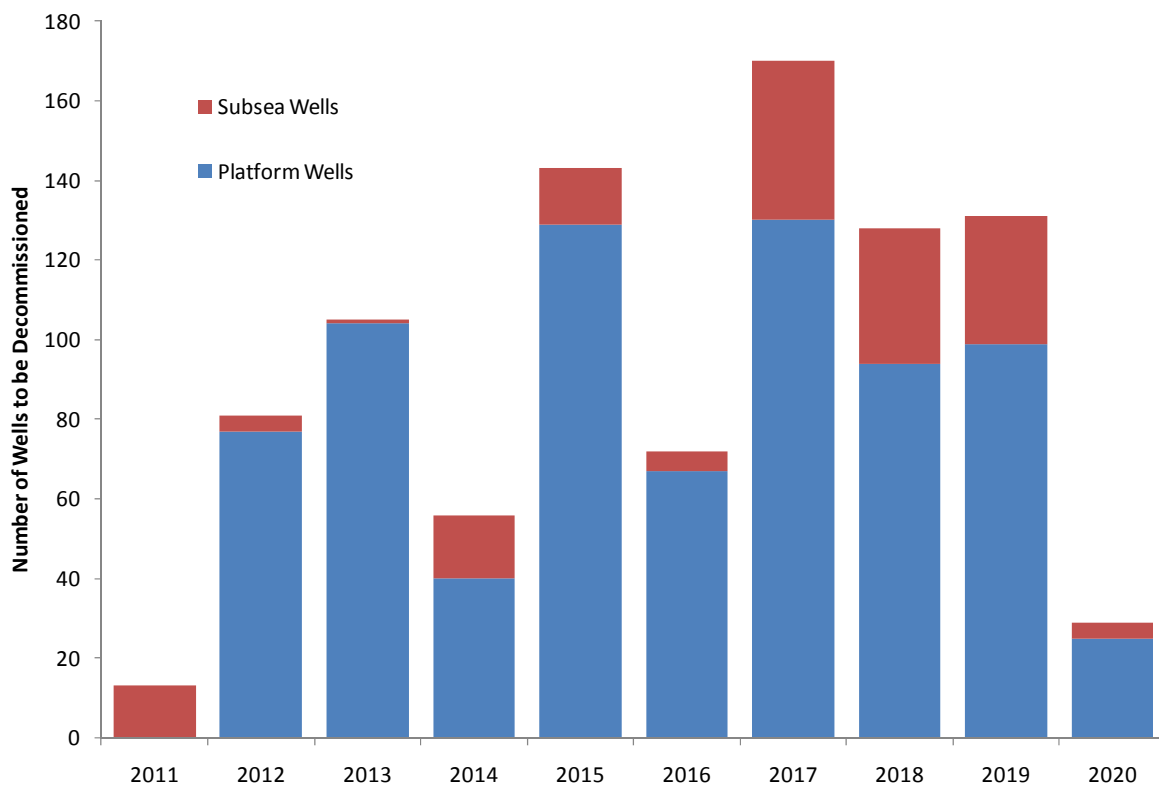
**Figure 15. Subsea & Pipelines Decommissioning Timeline**

The methodology then allocates each field’s decommissioning spend through the work breakdown structure to give a phased spend split by discipline, year 1 in the phasing is based on the operator’s first year of major decommissioning spend (as indicated in the Activity Survey). Cessation of production was not used due to the possibility of deferred decommissioning such as for a batch programme.



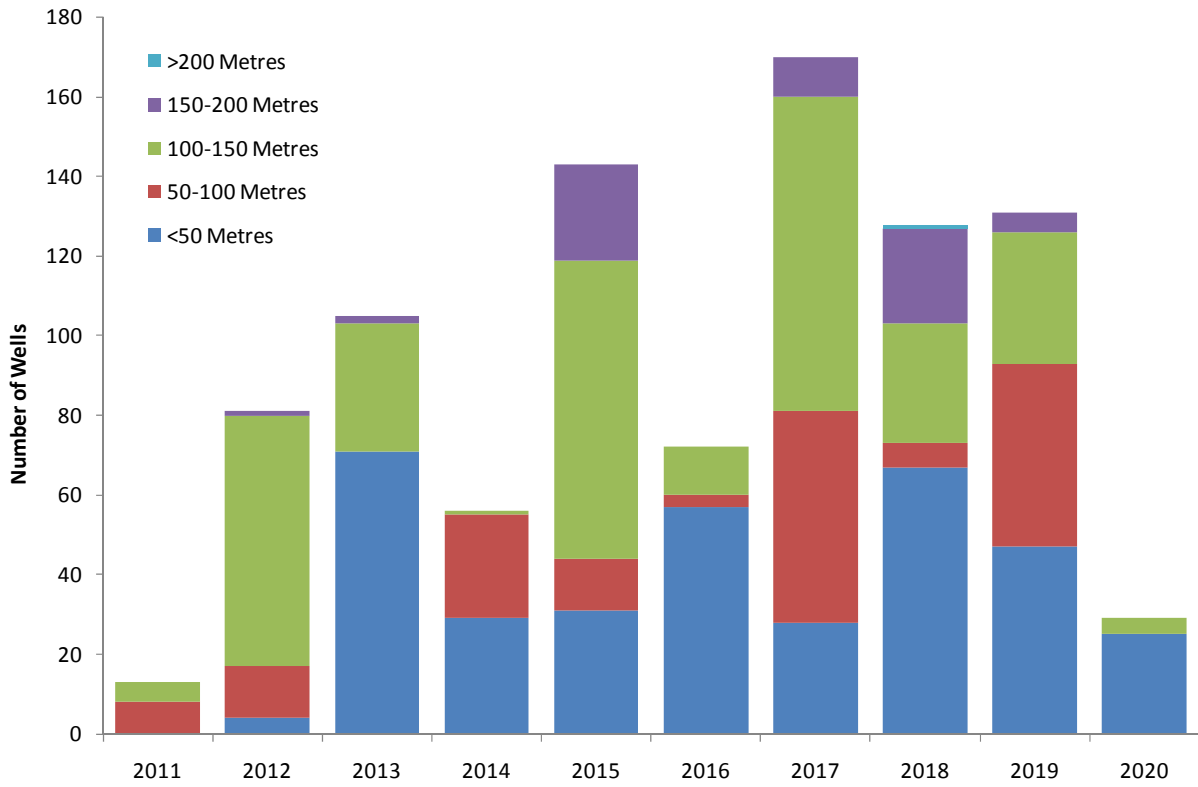
## I. Wells Plugging and Abandonment (P&A)

The plugging and abandonment of wells makes up a significant proportion of any decommissioning programme which is reflected in the expected costs at around £1.5 billion for the decade; Just over £575 million occurring in 2011-2015 and the remaining £925 million from 2016-2020. This corresponds to around 940 wells being decommissioned before 2020. In 2011-2015 around 400 wells will be plugged and abandoned; nearly 90% of these being platform wells. Towards the latter part of the decade we will see 530 wells decommissioned in 2016-2020, a higher proportion of these being subsea matching the increase in subsea and pipeline decommissioning we saw in the market overview; the percentage of platform wells to be decommissioned drops to 78%.



**Figure 16. Wells due to be Plugged and Abandoned 2011-2020**

As more installations are decommissioned towards the end of the decade there is corresponding steady growth in the well decommissioning market, between 2017-2019 the market will see over 120 wells plugged and abandoned per annum. The majority of the wells to be decommissioned over the next ten years are in relatively shallow water, with only a very small number of 200 metres in depth. 93% of wells forecast to be plugged and abandoned are in less than 150 metres of water and 57% are in less than 100 metres of water.

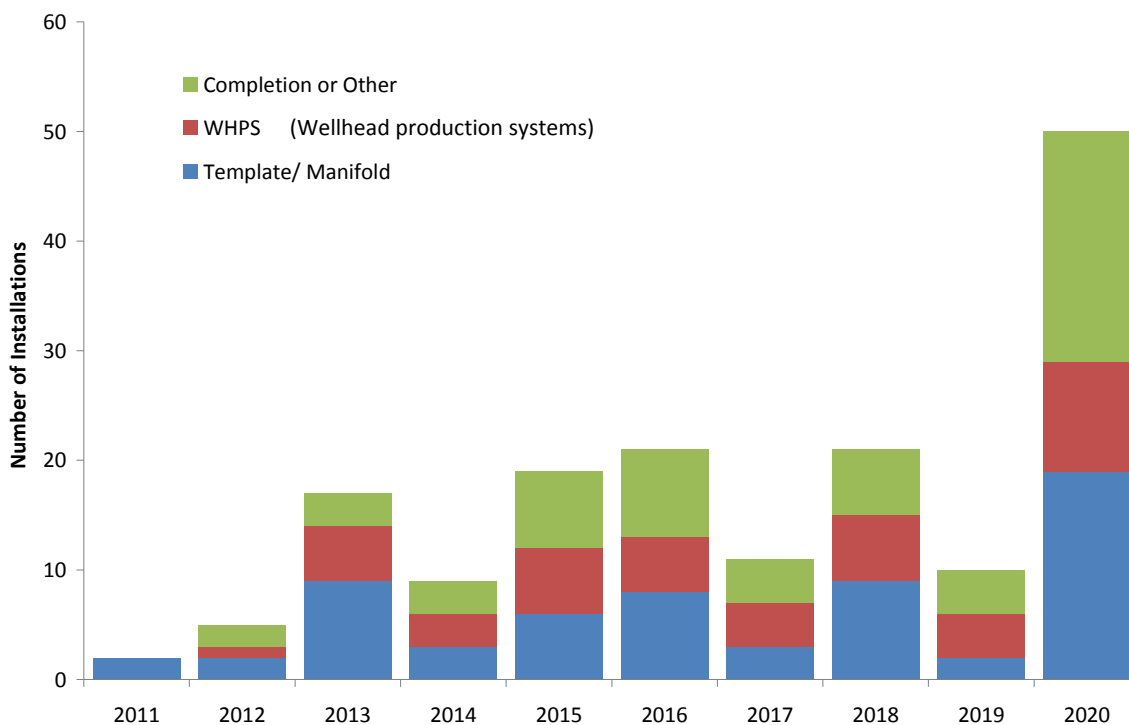


**Figure 17. Wells to be Decommissioned 2011-2020: Water Depth**

## II. Jacket and Subsea Structure Removal

The jacket and subsea structure removal market accounts for a large amount of decommissioning expenditure as a result of the high cost of the equipment and lift vessels required to handle such large pieces of infrastructure and also the large number of man hours which go into this part of the programme. It is expected that between 2011-2020 this market will be valued at £1.4 billion; £630 million of this occurring between 2011-2015 and the remaining £780 million between 2016-2020. This will be made up of 430 individual installation removals (all figures in the jacket and topside removal section are based on the assumption that all installations are subject to complete removal).

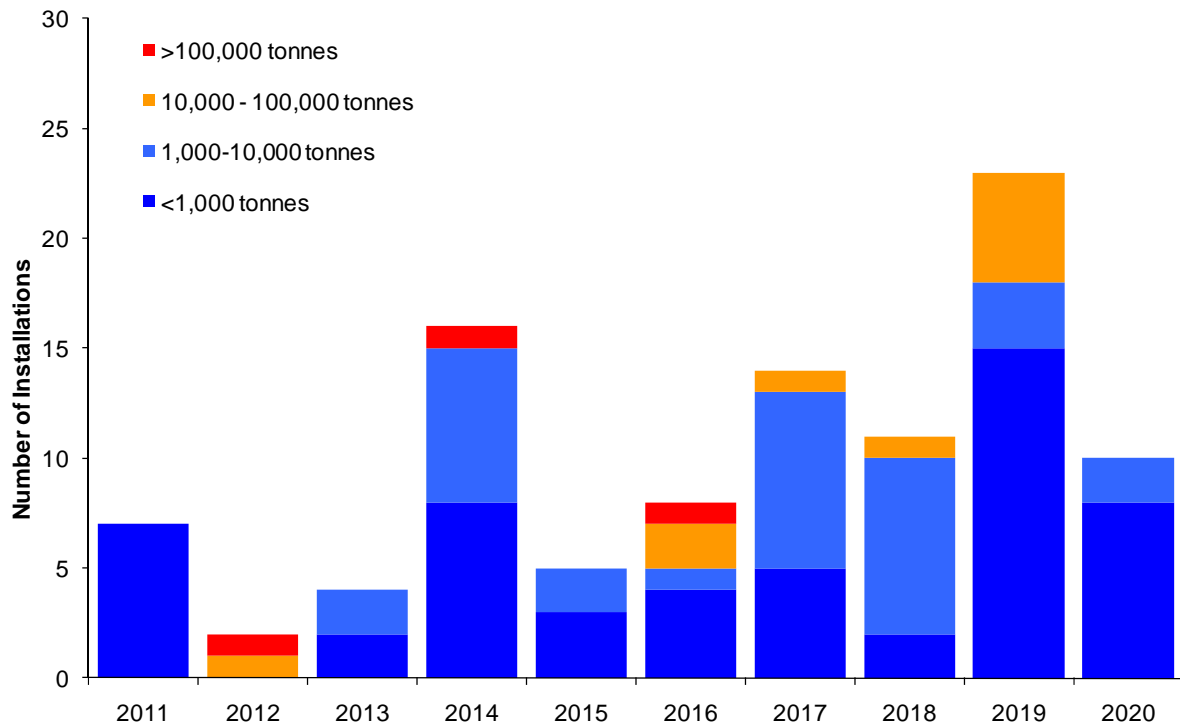
This sub-sector has been split into two parts for this analysis; Subsea structures (including subsea structures associated with platforms) in one section and platform jackets in the second. However as these will be serviced by the same supply chain they should not be considered in isolation. The subsea structure removal market, illustrated in figure 18, is once again characterised by the increasing activity throughout the decade with consistent growth over the first five years before a substantial jump in activity in 2020. In the next ten years we will see 165 subsea structure removals (all of which weigh less than 1,000 tonnes), 52 of these being prior to 2016.



**Figure 18. Subsea Structure Removal Market 2011-2020 (includes subsea structures linked to platforms)**

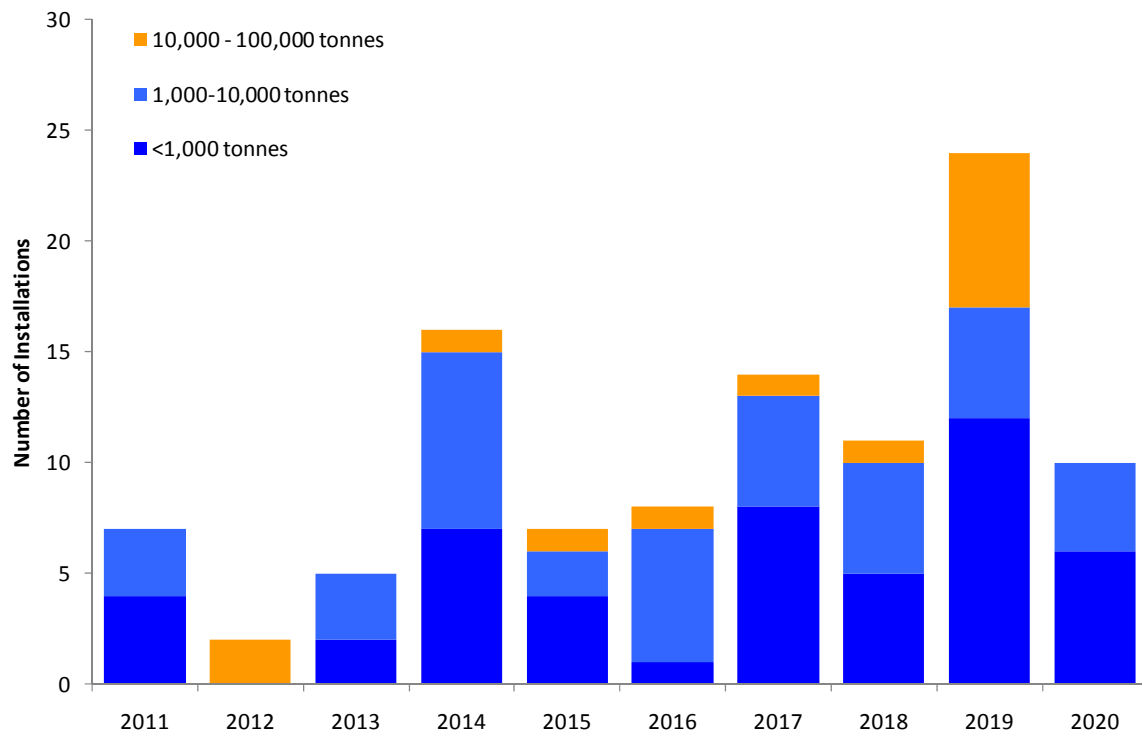
Forecasts show that around 100 platform jackets may be removed for onshore disposal, re-use or derogation during the next decade; the market is expected to grow steadily throughout this period towards the peak of 2019 where 23 platforms are predicted to be decommissioned. Of these 100 platforms there is considerable variation in size; the majority are less than 1,000 tonnes (54%), however there are also 13 of platforms over 10,000 tonnes to be decommissioned. The heavy lift

vessels which service the decommissioning market are also used to install new infrastructure; this leaves the industry open to capacity bottlenecks if the supply chain is not sufficiently developed.



**Figure 19. Platform Jacket Removal Market 2011-2020**

### III. Topside Removal



**Figure 20. Topside Removal Market 2011-2020 (includes FPSOs)**

The topside removal market is closely linked to the jacket removal market. As the decade continues we will see demands on the supply chain begin to increase in order to meet the requirements of UKCS decommissioning. Once again the majority of the platforms to be decommissioned will be relatively small for much of the decade. Some of the larger platforms are due for removal towards the latter part of the decade, in particular 2019 where there is a spike in the requirements for removal of large jackets. This subsector is valued at £1.5 billion from 2011-2020; from 2011-2015 expenditure is expected to be £675 million and just over £800 million from 2016-2020.

### IV. Decommissioning Programme and Project Management

Planning a decommissioning programme will take place before any physical removal has begun. Even though it involves a relatively small amount of the total expenditure, it is vital to the success of the project. The decommissioning programme should detail all the measures proposed in connection with the project including a range of consultations such as societal, engineering and environmental impact studies. Between 2011-2015 Oil & Gas UK forecast that this section of the decommissioning market will account for £60 million and from 2016-2020 another £70 million spent. This typically takes place in the two years prior to the start of the decommissioning process, in many cases before cessation of production.

Efficient project management is essential in order to ensure that an installation is removed in a timely, cost-effective, and most importantly, a safe manner. Any delays to an element of the project will often have knock on effects for future timings and can make services contracted prior to the start of the programme obsolete. Therefore careful management of the progress of the timeline and of the range of hazards faced while work is underway, including weather conditions, ageing and

corroding infrastructure) are very important. Oil & Gas UK forecast that £375 million will be spent on project management over the next 5 years with a further £500 million in 2016-2020.

#### **V. Operations**

Expenditure on operations forms a significant proportion of costs with 14% of total decommissioning expenditure over the next 40 years to be spent in this area. Forecasts for expenditure on operations are £550 million from 2011-2015 and in 2015-2020 £750 million. Whilst work continues on an installation to prepare for its final removal, a large amount of the day to day expenditure of a producing platform will continue whilst the decommissioning takes place; in the case of Normally Unmanned Installations costs can actually increase as accommodation and facilities for staff must be put in place for the duration of the project. Ensuring asset integrity is maintained is a fundamental requirement of a decommissioning programme and this is an area where costs can escalate quickly if the process is not managed properly.

#### **VI. Conductor Removal, Onshore Disposal, Topsides and Pipeline Cleaning and Pipelines Decommissioning**

If it is not possible to reuse an installation elsewhere or derogation is not a suitable option, then it is brought onshore for disposal. To date a high proportion of materials are recycled; during the onshore disposal of North West Hutton it is estimated that 97% of the material was recycled at the Able Yard on Teesside. Onshore disposal is forecast to require spend of £90 million between 2011-2015 and £150 million between 2016-2020.

Topsides cleaning is a process with expenditure not only based on the actual cleaning but also on waste management of any hazardous substances that occur as a result. Spend in this area is expected to be £215 million between 2011-2015 and £220 million for 2016-2020. Pipeline cleaning is forecast to account for £100 million of expenditure between 2011-2015 and £140 million between 2016-2020.

Pipeline decommissioning is a difficult market for which to forecast costs as in this area derogation is more likely and the pipelines associated with each platform can vary considerably in size (only intra platform pipelines are considered here, large pipelines are treated as installations in the subsea & pipelines category). We forecast that £460 million will be spent in this area from 2011-2020; £130 million of that between 2011-2015 and £330 million between 2016-2020.

Conductor removal is expected to cost £180 million between 2011-2015 and £230 million for 2016-2020.

#### **VII. Surveying and Monitoring**

At the end of the decommissioning programme the operator is required to supply a 'close out' report to DECC showing that the approved activities were implemented. However this is not the end of the decommissioning process as the operator retains the liability for the area and is required to carry out monitoring on any items left in place on the seabed and to test for any possible chemical contaminations which could occur. Expenditure on surveying and monitoring is forecast to be £25 million from 2011-2015 and £50 million from 2016-2020.

### **Section 3. Trends and Influences**

Decommissioning timings, costs and programmes are shaped by a range of factors, from field specific issues such as economics and cost levels, through to industry wide influences such as the regulatory regime and the price of hydrocarbons. This section will cover two main themes:

- a. the UKCS regulatory regime and the impact this has on the decommissioning process and timeline;
- b. a number of drivers and their potential impact on costs and timings.

Whilst the forecasts provided in sections one and two are based on both a sound methodology and data sources they are highly susceptible to the conditions of the time.

### **Regulatory Requirements**

Decommissioning of offshore oil and gas installations and pipelines is regulated by the Petroleum Act 1998. The current owners of the assets are jointly and severally liable for decommissioning and its costs. Whilst companies make full and proper provision for the costs in their accounts, currently there are no dedicated decommissioning funds, nor does the fiscal regime encourage such an approach.

Liability for decommissioning costs is not however restricted to the current owners of an asset. Under the Petroleum Act, previous parties may also be held liable in the event that the current owners are unable to meet their obligations. This is achieved through Section 29 of the Act which places these decommissioning obligations on previous licensees, except where the Secretary of State has chosen to release them from their liabilities. Thus, when a company sells its interest in a field, it may still retain a liability for decommissioning, even when the purchaser has accepted the responsibility, unless given a release by DECC. Even where a former licensee has been released from its obligations, it can still be called back to decommission the asset under Section 34 of the Act. DECC has made these provisions to ensure that, typically, one of the major oil companies still retains a liability for decommissioning, regardless of whether it retains any commercial interest in the field.

### **Decommissioning Programme Process**

Before decommissioning work on any asset can begin there will have been a significant amount of planning and discussion to ensure the project is carried out in a safe and timely manner. There are strict international obligations which operators are required to meet regarding the decommissioning of an asset under OSPAR decision 98/3, however the process up to the submission of the final decommissioning programme as regulated by DECC is intended to be flexible, transparent and subject to consultation. The five main stages of a decommissioning project are shown below; it is not until the fourth stage that the operator will be able to prepare for or undertake removal of the asset.

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Preliminary discussions with DECC	Detailed discussions and submission of consultation draft programme to DECC, other interested parties and the public for consideration	Formal submission of a programme and approval under the Petroleum Act	Commence main works and undertake site surveys	Monitoring of site

**Figure 21. Decommissioning Programme Process – Main stages<sup>1</sup>**

**Stage 1:** At this point the operator will begin initial discussions with DECC. This should occur well ahead of cessation of production; in the case of large fields it could be 3 years in advance and for a potential derogation case up to 5 years ahead of cessation of production. These discussions are intended to ensure the operator understands the process and what is required to decommissioning an installation in a safe and timely manner. At this point DECC can involve other government departments for consultation.

**Stage 2:** DECC and the operator will have more detailed discussions alongside consideration by DECC and other interested parties of a consultation draft of the programme. The length of this stage is related to the complexity of the decommissioning project, if the operator is seeking derogation it is that this point that the government will begin consultation with other OSPAR contracting parties in accordance with Decision 98/3.

**Stage 3:** Following the consultation on the draft programme DECC and the operator should agree a final version of the decommissioning programme at which point it will be formally submitted to the Secretary of State.

**Stage 4:** Implementation of the decommissioning programme will take place. At agreed milestones progress will be reviewed on which DECC will be kept informed. Any revisions at this stage would require the Secretary of State's approval.

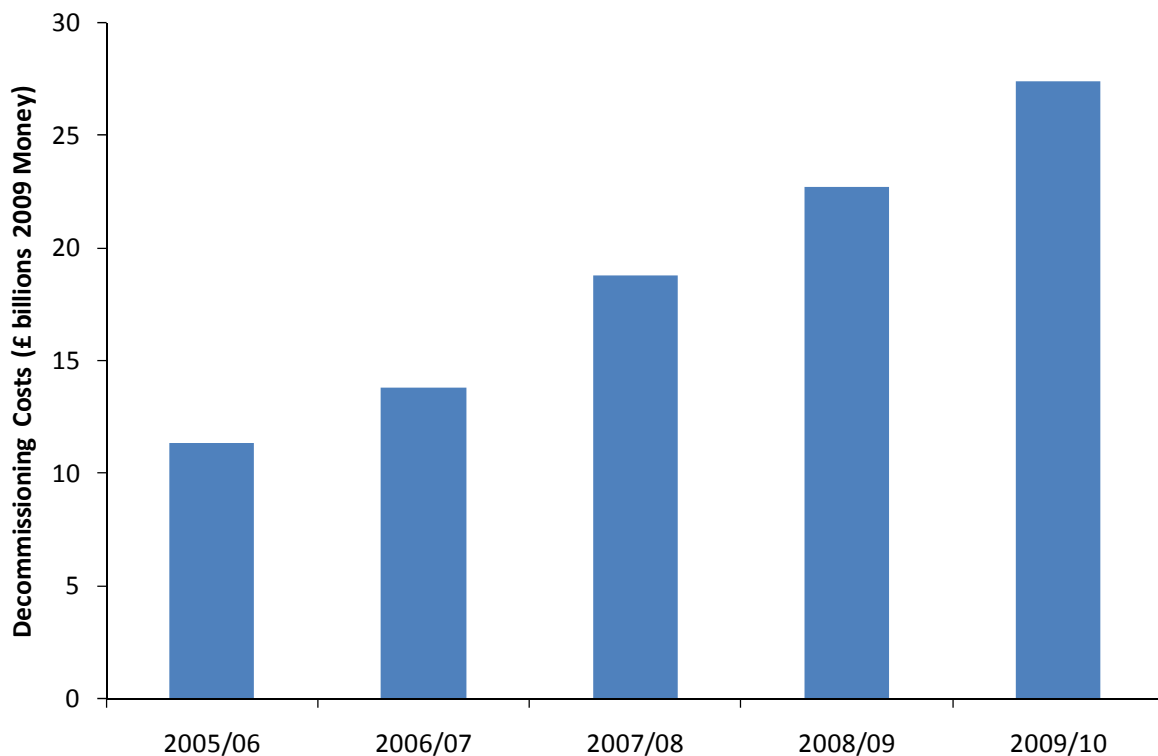
**Stage 5:** The operator will continue to carry out monitoring, maintenance and management of the site and any remains left in place, the extent of this will have been agreed in the final decommissioning programme.

<sup>1</sup> Decommissioning of Offshore Oil and Gas installations and Pipelines under the petroleum Act 1998, Offshore Decommissioning Unit, DECC. January 2010.



### Costs and Cost Inflation

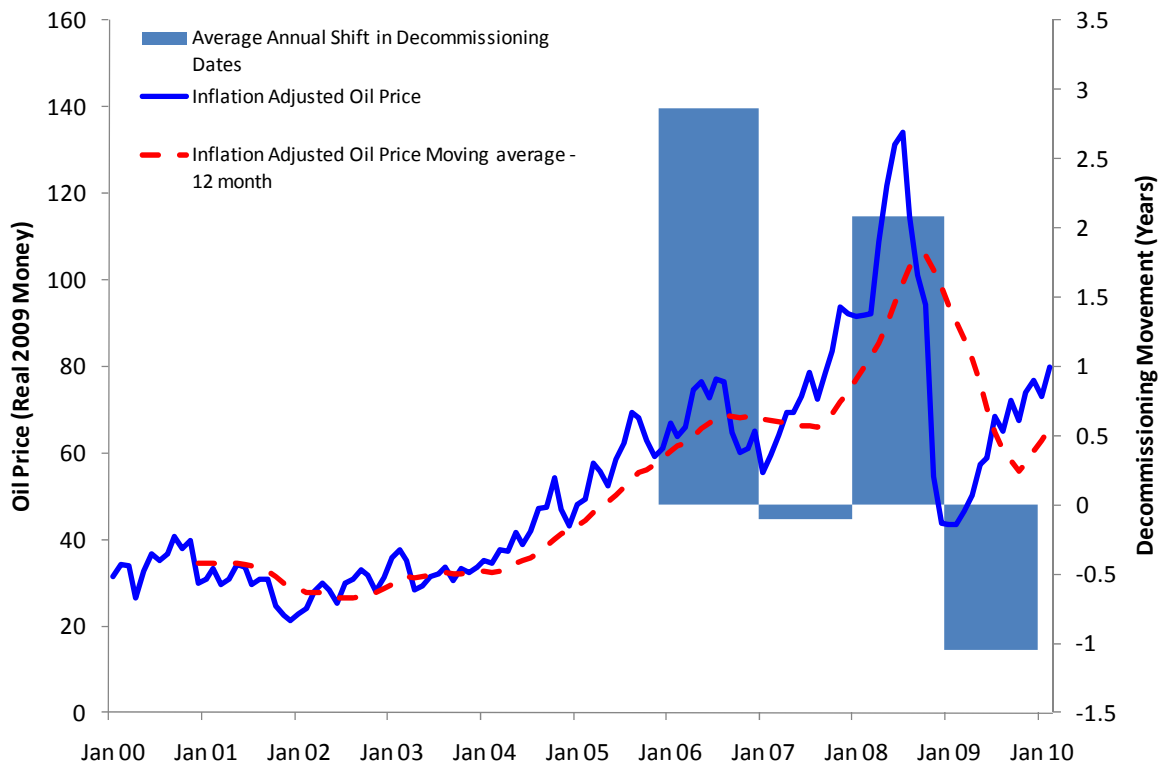
Over the last five years forecast decommissioning costs have more than doubled from £11 billion to just over £27 billion; in the last year alone costs have risen by around £3 billion. This has been driven by both cost inflation and operators making more accurate assessments of the scope of work and experience from current decommissioning projects. With continued investment in infrastructure across the UKCS these costs are likely to increase further over the coming years. Uncertainty around costs, and also decommissioning timings as will be shown in the next section, have made companies within the decommissioning supply chain hesitant to invest despite the scale of the forecast expenditure. Greater transparency and access to operators' timelines would act as a potential catalyst for investment.



**Figure 22. Projected Decommissioning Costs**

### Cessation of Production and Decommissioning Timings

The decision to cease production on an oil or gas field is dependent on a wide range of factors. Through analysis of dates for planned decommissioning over recent years we have seen considerable variations in asset decommissioning plans. On average over the last five years planned dates have been delayed by an average of five years, although there have been fields with decommissioning dates moving both earlier and later in every year. This is due to changing current and expected business conditions, including estimations of recoverable reserves, cost base and tax regime. A significant influence on asset life extension in this period has been the increase in oil and gas prices and the high revenues that accompany them. This suggests that the cessation of production date is very flexible; the reality is that the decision to decommission can become fixed some five or more years before decommissioning occurs.



**Figure 23. Decommissioning Dates: Movements Vs Oil Price**

Other factors which can affect the timings of COP and decommissioning dates are:

- Increased Recovery – from existing fields, new exploration and tie-back fields, which will extend the productive life of assets and infrastructure;
- Certainty/uncertainty about the future fiscal and regulatory regimes – which will influence the investment environment;
- Long term trends in oil and gas prices – which will determine whether it remains economic to keep a field in operation;
- Reduction of decommissioning costs – through experience, greater co-ordination with supply chain and a more systematic approach to decommissioning;
- Technical innovations – which will further enhance oil and gas recovery, extend the life of many existing facilities and ultimately reduce the costs of decommissioning;
- Securitisation – which will impact commercial decisions around decommissioning timing and investment;
- CCS and asset re-use – which can extend the life of infrastructure or reduce the cost of decommissioning.