



Paper 4/1 – Oil and Gas sector background information

For information

1. Purpose

1.1 This paper provides Commissioners with background briefing on the oil and gas sector in Scotland. Scottish Government officials have drafted this paper, at the request of the secretariat.

2. Background

1.2 The paper provides an overview of recent trends in UK Continental Shelf (UKCS) activity, the economic impact of the sector, skills, and the role the Scottish Government sees the sector playing in facilitating energy transition.



1. Context

1.1 Oil and gas are Scotland's principal sources of fuel and power, making up 75% of all energy consumption, accounting for 90.5% of all heat demand and almost all energy consumption in transport.

1.2 Scotland is estimated to be the largest oil producer and second largest gas producer in the EU on an internationally comparable basis. Offshore activity is supported by a highly specialised supply chain which supports a large downstream manufacturing sector.

1.3 There is extensive infrastructure associated with oil and gas developments in the UK Continental Shelf, including seabed and platform-mounted production facilities and networks of pipelines bringing oil and gas ashore for processing. The UK has nearly 500 installations (50:50 fixed and subsea production systems), approximately 5,000 wells and 3,300 pipelines.

1.4 The Oil and Gas sector is a key component of our economy, having contributed £16.2 billion in GVA to the Scottish GDP, and supporting an estimated 105,000 jobs in Scotland in 2019. Total sales by Scottish oil and gas supply chain companies in 2017-18 was estimated at £18.4 billion, with over half of these (£9.7 billion) international sales either through export sales or through international subsidiaries.

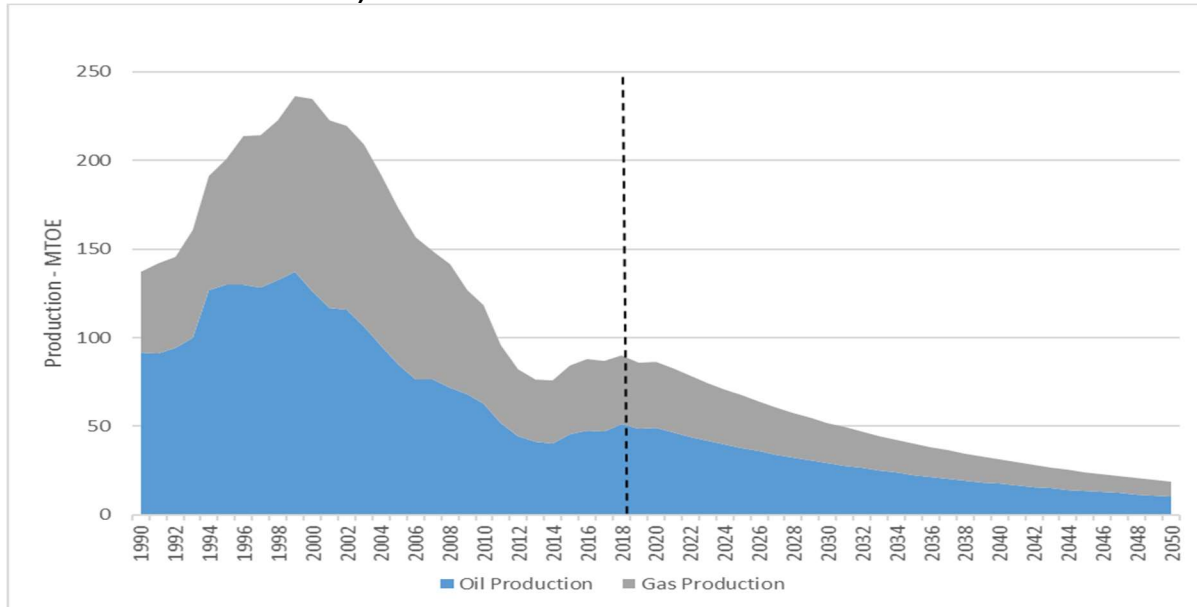
2. Trends in UKCS activity

2.1 Around 43 billion barrels of oil equivalent (boe) have been extracted from the UK North Sea since production commenced in late 1960s. The Oil and Gas Authority (OGA) estimate that there remain between 10 and 20 billion boe of reserves, which could sustain production for at least another 20 years, but the potential to extract this depends on commercial and technical considerations.

2.2 Oil and gas production from the UKCS decreased by 34% from 1990 to 2018, and is down 62% from peak production in 1999. While production has increased since 2016 following a period of significant investment during high oil prices, it is expected to return to a trend of annual decreases over the remainder of its lifespan. The OGA assume that production will decrease by 5% annually from 2024.

2.3 Production from Scottish adjacent waters comprises the majority of UK North Sea production. In 2018, Scottish production is estimated to have been 77.2 million tonnes of oil equivalent (mtoe), meaning Scotland accounted for 95% of UK crude oil and natural gas liquids (NGL) production, and 62% of UK natural gas production. In 2018, the approximate sales value of oil and gas produced in Scotland was estimated at £24.8 billion, accounting for 88% of the UK total.

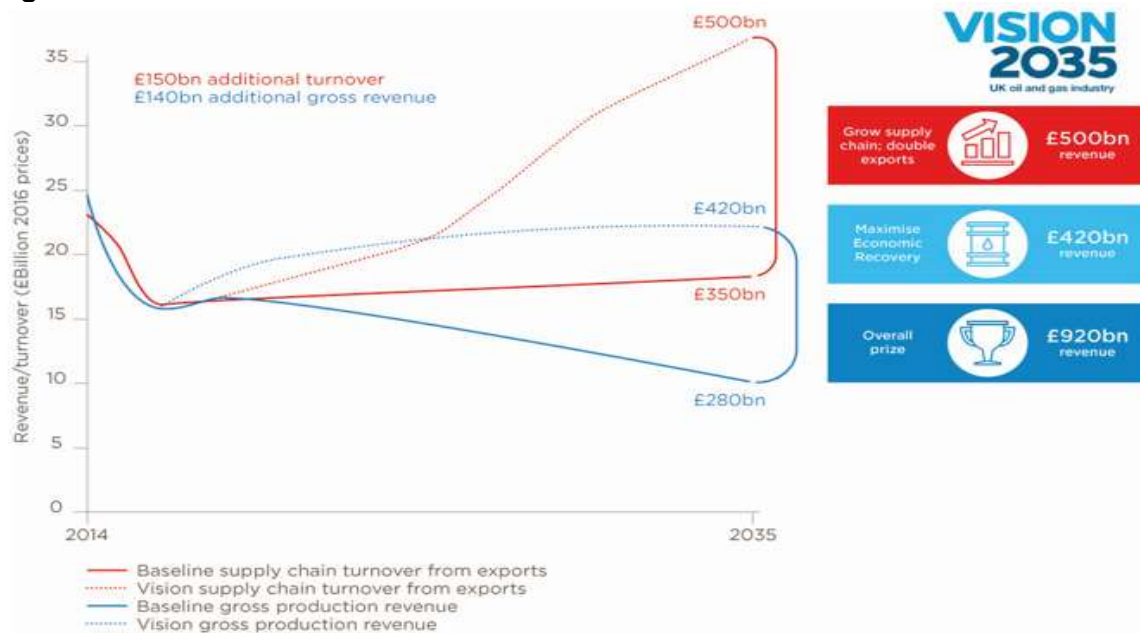
Figure 1: UK North Sea Oil and Gas Production (1990-2018), Forecasts (2019-2050 assuming 5% annual decline from 2024)



2.4 In response to the challenge of declining production, the sector has set out its ‘Vision 2035’, a plan developed by the industry to add a generation of life into the UKCS whilst doubling the supply chain’s global footprint.

2.5 Oil and Gas UK (the industry trade body) argue that the strategy could deliver “billions” of additional revenue by 2035, “a substantial proportion of which will benefit companies and the workforce in Scotland”.¹

Figure 2: The sector’s revenue and turnover forecasts with and without Vision 2035



¹ [OGUK: Submission to Scottish Affairs Committee – Future of Oil & Gas](#)

2.6 While production on the UKCS is expected to continue for decades to come, the basin is mature and older fields are reaching the end of their economic lives and will require decommissioning. Over the next decade as decommissioning activity increases, the UK market is expected to become by far the largest decommissioning market globally.

2.7 According to the Oil & Gas UK's *Decommissioning Insight Report 2018*² the industry is estimated to spend £15 billion over the next decade on decommissioning on the UKCS.

2.8 This presents a significant opportunity to the Scottish supply chain, with industry aiming to position Scotland as a world-leading hub for decommissioning. In 2016, a joint oil and gas decommissioning action plan by Highlands and Islands Enterprise (HIE) and Scottish Enterprise (SE)³ estimated that the economic value of decommissioning could be significant – the current estimated GVA of decommissioning activity for Scotland over the next decade could be between £5.7 billion and £7.7 billion (2017 prices); supporting peak employment of 13,500 – 18,150.

3. Economic impact to Scotland (and UK)

3.1 The oil and gas sector is emerging from one of the most significant and challenging downturns, which saw the supply chain revenues fall by almost one-third between 2014-2017, and a reduction of 204,000 jobs supported by the industry across the UK and up to 108,000 in Scotland between 2014-2018, according to analysis by Oil and Gas UK.

3.2 Nevertheless, the oil and gas sector remains vital to both the UK and Scottish economies. The North Sea remains an attractive place to invest, with around £11.3 billion of operating and capital expenditure in 2018 alone.

3.3 In 2018, the sector was worth £16.2 billion in GVA to Scotland's economy, representing over 9% of total Scottish GDP, and contributed around £24 billion (1.2%) to UK GDP. The sector also remains a major employer, over 2,000 oil and gas companies supporting an estimated 105,000 jobs in Scotland in 2019 (including direct, indirect and induced jobs).

3.4 The sector also remains a major employer, with over 2,000 oil and gas companies supporting an estimated 105,000 jobs in Scotland in 2019 (including direct, indirect and induced jobs). According to the Annual Population Survey (2018), of the Scottish jobs in the sector:

- 16.1% are female, compared to 48.5% within the whole of Scotland's working population.
- 36.8% are aged between 16 and 34, while 35.6% are aged between 35 and 49, and 27.6% are aged 50 or above, compared to 35.1% (16-34), 32.2% (35-49) and 32.5 (50+) within the whole of Scotland's working population.
- 7.8% have non-UK nationalities, compared to 7.6% within the whole of Scotland's working population.

3.5 The Annual Survey of Hours and Earnings (2018) reports Median Gross annual earnings for the jobs in the sector as £52,206.

² [OGUK: Decommissioning Insight Report 2018](#)

³ [SE & HIE: Decommissioning Action Plan](#)

3.6 Much of the economic value in the sector is generated in the North-East Scotland, and Aberdeen in particular, which is considered a global hub and a centre for excellence for the industry.

3.7 The oil and gas sector is also a major source of tax revenues and has provided over £330 billion in revenues (2019 prices) to the UK Government from production taxation alone.

4. Oil and Gas in energy transition

4.1 The recent recommendation from the Committee on Climate Change (CCC), made in the report *Net Zero – The UK’s contribution to stopping global warming*⁴, outline that in a net-zero economy there will continue to be demand for oil and gas and the need for domestic production – albeit at a lower rate.

4.2 The CCC forecasts that the UK will still need to consume around 65 mtoe per year by 2050, just under half of current demand. Baseline forecasts suggest around 30% of this may be met by UK supply.

4.3 According to OGUK, delivering the UK’s net-zero ambition can be supported by the oil and gas industry with its skills, resources and expertise. The sector can continue to supply secure energy while contributing to climate goals by reducing emissions from its own production operations, helping to mitigate emissions from across the economy and advancing the development of low-carbon energy sources.

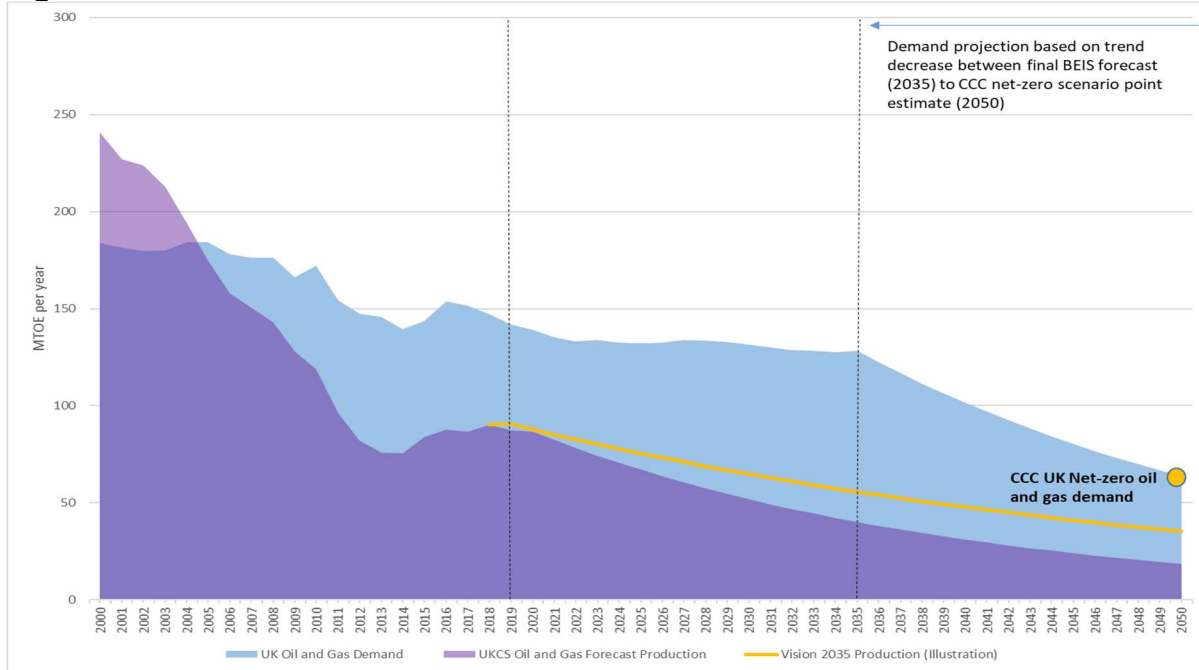
4.4 This is captured by the industry’s Roadmap 2035⁵, an evolution of Vision 2035, which outlines that by 2035 the industry will be on track to

- Become a net-zero GHG emissions basin by 2050
- Meet at least 50% of UK oil and gas demand from domestic production – thereby minimising imports
- Grow and diversify energy supply chain export revenues to £20 billion per year
- Secure at least 130,000 direct and indirect jobs
- Create over £10 billion in economic value through energy and innovation

⁴ [The CCC: Net Zero – The UK’s contribution to stopping global warming](#)

⁵ [OGUK: Economic Report 2019](#)

Figure 5: UK Oil and Gas Demand in CCC UK Net-zero scenario and forecast UK North Sea production



4.5 Alongside actions to reduce the emissions intensity of oil and gas production, the industry is well placed to support the reduction of emissions produced from the use of oil and gas – which constitute a much greater proportion of the emissions in the UK and Scotland. The industry has the technical and commercial capabilities, skills and resources to support the development and implementation of Carbon Capture, Usage, and Storage (CCUS) and hydrogen capacity at scale.

4.6 It is widely recognised that CCUS will be an important part of decarbonising and meeting our climate obligations, while still being able to extract and consume fossil fuels to a degree. According to the CCC “CCUS is a necessity, not an option”.

4.7 The UK is in a unique position to lead in the development of CCUS, owing to its geographic location, geological storage potential and experienced supply chain – it is estimated that the UKCS has a strategic national CO2 storage resource potential of around 78,000 million tonnes. Furthermore, oil and gas company assets, expertise and investment will be central in implementing this technology. Oil and gas companies have already supported the implementation of CCUS at 18 sites around the world, capturing many million tonnes of CO2.

4.8 The CCC expect Hydrogen will form a central element of the next phase of decarbonisation in the UK. The development of a hydrogen-based economy provides a number of advantages and opportunities for the oil and gas industry, and the wider economy. This includes the re-use of existing gas network infrastructure for domestic and industrial use.

4.9 Oil and gas companies can also make a significant direct contribution to the pace and success of the energy transition through investment and the provision of assets, services and expertise, in a wide range of alternative energy sources. Several companies continue to increase their footprint in a variety of future-facing energy solutions, such as solar, biofuels and wind. Not only will this help develop these technologies, but it will also ensure that valuable oil and gas skills (and jobs) are not lost in the transition towards a net-zero economy.

5. Oil and Gas Skills

5.1 Industry expertise are expected to play a significant part in the energy transition, with oil and gas supply chain capabilities required in hydrogen production and CCUS technology, both of which have been identified as key for the UK's energy transition.

5.2 OPITO⁶ has estimated that at least 40,000 people need to be recruited to the industry in the next 20 years to offset natural attrition and to deliver Vision 2035 and the broader energy diversification. The short term changes to the skills base are outlined below:

- By 2025 there will be approximately 4,500 new roles created that don't currently exist today. These new roles will require a different set of skills and competences which means the industry needs to look at ways of re-skilling the current workforce and consider how it competes with other industries for future talent.
- In the next 6 years the industry will see the introduction of new jobs in areas such 3D Printing, Materials Development, Augmented/Virtual Reality, Connected Worker Management and Data Specialists
- 80% of the current workforce will still be employed in 2025. Therefore, the focus should be to up-skill to allow people to do the same job, but more efficiently.

5.3 However, following the recovery of oil prices, skills shortages are firmly back on the agenda in 2019, with the issue reported by UK industry professionals as the greatest barrier to growth. Key factors contributing to skills shortages are the impact of economic cycles on job stability and a 'perception crisis' – i.e. concerns about the longevity of the industry and its perceived harmfulness to society, both acting as a disincentive to pursue a career in oil and gas.

5.4 If not addressed, skills shortages could reduce the attractiveness of UKCS to investors as the industry becomes less competitive globally, thus severely limiting the potential to deliver Vision 2035 and the broader energy diversification.

6. Scottish Government policy

6.1 Scottish Government is committed to achieving a net-zero economy in a way that is fair for all and to ensure a just transition. The oil and gas sector can and will play a positive role in this transition, helping to channel its resources and innovative supply chain to design the diverse energy system for the future.

6.2 The Scottish Government's Programme for Government 2019-20 is clear that our continued support for oil and gas exploration and production in the North Sea will be conditional upon a sustainable, secure and inclusive energy transition. This demonstrates our commitment to support net zero activity across the sector.

6.3 On 2 September 2019, we announced support in principle for the Oil and Gas Technology Centre's plans to establish a new Net Zero Solution Centre, enabling the North Sea to become the first net zero hydrocarbon basin in the world. This centre will support the development and

⁶ [OPITO: Workforce Dynamics – The Skills Landscape 2019-2025](#)

deployment of CCUS, hydrogen and renewables technologies that can be integrated with existing offshore oil and gas infrastructure.

6.4 As part of the Aberdeen City Region Deal (ACRD), we have committed £90 million over the next decade to support the Oil and Gas Technology Centre (OGTC).

- Alongside the ACRD Funding the Scottish Government also invested up to £254 million to support transport, housing and digital initiatives to support key infrastructure in the north-east which is crucial for driving future growth in Scotland.

6.5 We launched the Transition Training Fund (TTF) in February 2016 in response to the oil and gas downturn. This three year, £12 million fund focussed on supporting the highly skilled energy workforce in the North Sea region by offering grants to individuals to support their redeployment through retraining or further education. The fund also helped people with the costs of maintaining licenses they need to work in the sector, which enables the sector to retain talent. The fund closed to new entrants at the end of March 2019.

- The latest figures show that over 4,000 people were supported through the Fund – surpassing TTF’s initial aim of supporting over 1,000 participants each year.

6.6 The Decommissioning Challenge Fund (DCF), announced by the First Minister in February 2017, aligns with and supports cost reduction efforts related to retrieval and disposal activities, with the aim of improving the Scottish onshore decommissioning market. The DCF ran three successful application calls between 2017 and 2019 with grant offers totalling £10 million made to 28 projects and partnerships. The fourth round opened to new applications on 15 July 2019.

6.7 We have committed to investing in development of an ultra deep water port capable of handling the largest structures for decommissioning. Our published 2018 Ultra Deep Water Feasibility Study has identified Dales Voe in Shetland as the optimal location. We continue to work collaboratively with the UK Government, Lerwick Port Authority, and industry to create this facility and unlock the business opportunities that the port will provide

6.8 The Scottish Government in collaboration with Scottish Development International (SDI) and Opportunity North East (ONE), have supported the appointment of five new energy specialists in markets identified as having significant growth opportunities. Supporting the international growth of Scotland’s oil and gas industry and wider energy supply chain for the longer term, with its high-skill jobs and productivity, continues to be an economic priority.