



HM Government

Oil and Gas Workforce Plan

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1. Foreword

The UK oil and gas industry plays a vital role within the UK economy. The sector is a source of many rewarding careers, encompassing a range of jobs – from roles in engineering through to jobs in project management, IT, finance and logistics.

The industry is currently facing an unprecedented period of difficulty in the face of continuing low commodity prices. Much of the impact is felt in Aberdeen, though all parts of the UK are affected.

Maintaining a vibrant UK oil and gas industry is critical – the industry is a key contributor to GDP, to tax revenues, and an important source of exports. This is why both the UK Government and Scottish Government are working to support the sector. The UK Government has introduced a number of fiscal measures in the most recent Budget, including reductions to the headline rates of tax and targeted measures to encourage investment in exploration and late-life assets. We have also recently established the Oil and Gas Authority (OGA) which is proactively working with industry and Government to maximise economic recovery and ensure we make the most of our oil and gas resources. The Scottish Government established an Energy Jobs Taskforce in 2015 and also launched a Transition Training Fund to help people losing their jobs in the oil and gas sector transition into other industries, reflecting the devolved nature of skills in Scotland.

The future success of the industry will depend on retaining access to a skilled workforce. That is why we have worked with the oil and gas sector to develop this workforce plan. Understanding the long-term outlook for the industry and planning for the future is inherently difficult. The aim of this document is not to predict the future. The purpose of this plan is to put in place measures which will help industry deal with the cyclical nature of its workforce needs over the longer term.

At the time of writing, the oil and gas industry is reducing its workforce and the uncertainty created by the low oil price may cause both current and future engineers to seek employment in different areas, potentially losing this valuable skillset altogether. Meanwhile, other engineering sectors are concerned that skill shortages may curtail their growth. We need to deal with this situation, help identify where there are transferable skills, and plan for a future where the situation could be reversed. We want to enable people in the oil and gas sector to connect with other infrastructure sectors – those with similar skills needs. In this way, we can retain skilled engineers and other skilled workers as the level of demand for labour changes between different sectors.

Lastly in 2014 the oil and gas UK supply chain was worth around £41bn and earned around 40% of its turnover from exporting around the world. We are working with Industry and the OGA to strengthen and grow the capability of the UK supply chain to ensure that we continue to exploit opportunities both locally and globally so that we maintain our renowned world-wide reputation and anchor the sector in the UK for decades to come.



Anna Soubry

**Minister of State for Small Business,
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Andrea Leadsom

**Minister of State for Energy
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2. Executive Summary

In 2014, when investment levels in the UK Continental Shelf were at record levels, the Department for Business, Innovation and Skills (BIS), in partnership with industry, commissioned EY to undertake a study of the UK upstream oil and gas workforce. This was published under the title “Fuelling the next generation”. At that point it was estimated that industry supported some 375,000 jobs¹, 1 in every 80 UK jobs. 90% of these jobs were in the supply chain providing essential services to the sector, as well as providing services internationally from a UK base. While clearly concentrated around Aberdeen, the jobs were distributed across the UK with roughly equal numbers in England and Scotland. Sharp falls in global oil prices and the level of investment have since led to job losses, particularly in the North East of Scotland, though all parts of the UK are affected.

The purpose of producing a UK oil and gas workforce plan is to help deal with both short and long-term issues in the sector with industry and governments working together. In the short term, the focus is on what can be done to support individuals losing their jobs, and how governments and industry can help these skilled workers move into other sectors, including other infrastructure and engineering related sectors of the economy. In the longer term, we should aim to put in place sustainable measures which will help the industry and its workforce deal more effectively with the cyclical demands of the industry.

In addition to this plan, the Scottish Government has also taken action to respond to the low oil price and support the oil and gas sector. In January 2015 it created an Energy Jobs Taskforce comprising six key action areas and in February 2016 announced £12m funding for a Transition Training Fund. Action is also being taken across England through Local Enterprise Partnerships (LEPs); for example, the New Anglia Local Enterprise Partnership (NALEP) has created the East of England Oil and Gas Taskforce and is proactively supporting the sector.

This plan includes the following measures:

Talent Retention Solution

Whilst the oil and gas sector is currently contracting there are opportunities for oil and gas workers to make good use of their skills and alleviate skills shortages in other sectors. To make this redeployment easier we are expanding the Talent Retention Solution <https://talentretention.biz/> by creating a tailored portal for the oil and gas sector. This will help skilled individuals to seek out new roles in sectors which can use their existing skills and experience. This should help the individuals affected, potentially reducing unemployment. It should also help the UK maintain expertise in areas such as engineering. We want the platform to be an enduring one which, in the

¹ Given the complexity and cyclical nature of the industry, a precise measure of employment is inherently uncertain. In the report “Fuelling the next generation” (December 2014) EY estimated the number of direct & indirect jobs in the UK oil & gas sector at 281,000, with a further 94,000 induced jobs. Figures from ONS indicate that the current number of direct jobs is around 36,000.

longer term, helps deal with the cyclical nature of demand in infrastructure sectors such as oil and gas, enabling easier movement of labour between sectors and easing potential skill shortages.

Skills Connect

Skills Connect is a web-based tool originally designed when the Oil and Gas sector was experiencing skills shortages. Initially, its purpose was to help military personnel leaving the armed forces sector understand how their skills could be transferable to particular roles in the oil and gas sector. With the approval of industry, OPITO will look at ways in which this tool could be re-designed to support oil and gas workers understand which job roles in other sectors would be most appropriate to their skills, and think through the specific technical training that may help individuals to transfer into new sectors.

Training support

From May 2016, eligibility for Advanced Learner Loans will be widened to include those in England who are aged 19 years and over (loans are currently only available to those aged 24 and over) and to include courses up to Level 5. Advanced Learner Loans should be available for much of the training appropriate to employees in the oil and gas industry, including many of the types of training interventions identified through the Skill Connect process. However, as announced at Budget 2016, to promote retraining and prepare people for the future labour market, the Government is reviewing the gaps in support for lifetime learning, including for flexible and part-time study.

Better longer-term modelling

We will explore the development of a longer term modelling and planning capability for the UK oil and gas workforce. Better information to understand what the future workforce needs under different market condition scenarios will help Government and industry put in place more effective workforce strategies. This would include a better understanding of the likely skills and training needs in specific parts of the sector and allow us to consider the volume and range of skills required in different oil price scenarios, supporting both skills shortage and skills surplus work in future years.

The MER UK Forum established by the OGA to support delivery of MER UK and maximise UK value from the oil and gas industry as a whole, brings together government, industry and OGA providing strategic direction, oversight and support to create alignment, accountability and tripartite action on priorities. The MER UK Forum is supported by seven boards, one of which is focused on Supply Chain, Exports and Skills. This board will oversee and support delivery of the actions in this plan.

3. Current Challenges Facing the Oil and Gas Workforce

3.1 Current Context

The UK oil and gas industry is a great British industrial success story with a global reputation as a centre of excellence. It is also one of the UK's largest industrial investors. Since the first production of oil in the mid-1970s, the UK sector has paid more than £330bn in production tax and produced around 43bn boe (barrels of oil equivalent)². In 2014, the sector boosted the balance of payments by £25.2bn³ by reducing oil & gas imports and through exporting around the world. The UK supply chain alone earns approximately 40% of its turnover from export activity worth in the region of £16bn from £41 billion of sales in 2014⁴. Industry experts estimate that there are up to 20bn⁵ boe left.

However, the sector is currently going through one of the most challenging periods of its history. In response to the fall in oil price, exploration and production companies have been cutting costs for example through cost-efficiency campaigns, reducing capital expenditure, mothballing development projects and reducing headcount. This has had some success; unit operating costs have decreased by 28% in 2015 alone and production efficiency has increased⁶. The contraction in the workforce has particularly impacted the North East of Scotland but it is also having an impact on the rest of the UK.

The UK Government is playing its role to support the sector and has introduced fiscal changes to enhance the basin's competitiveness. It has fully implemented the Wood Review by establishing the new Oil and Gas Authority (OGA) with the strategic objective to maximize economic recovery from the UKCS. The UK Government has also funded work on exploration and committed to co-funding up to £250m in the Aberdeen City Region Deal with the Scottish Government.

3.2 Oil and Gas Labour Market Workforce

In 2014, BIS in partnership with industry (Oil and Gas UK and OPITO) commissioned EY to undertake a study of the UK upstream oil and gas workforce - "Fuelling the next generation" published in December 2014⁷. At that point, during a period of record investment, it was estimated that industry supported approximately 375,000 jobs (1 in every 80 jobs in the UK) and with 66% of these in technical disciplines. 90% of the jobs were in the supply chain which provides essential goods and services to the domestic and export markets from a UK base. Whilst this study was

² Oil and Gas UK, Economic Report, 2015

³ Ibid

⁴ Ibid

⁵ Ibid

⁶ Oil and Gas UK, Activity Survey, 2016

⁷ Fuelling the next generation: A study of the UK upstream oil and gas workforce, 2014.

undertaken at a different stage of the economic cycle, where skills shortages were evident, the analysis of the workforce remains broadly relevant.

The total workforce number of 375,000 breaks down into 281,000⁸ jobs across Tier 1 and supply chain companies; a sizeable proportion (26%) of these jobs support overseas projects with the UK serving as one of the global hubs for the oil and gas supply chain. A further 94,000 jobs are induced as a result of local activity generated by Tier 1 and supply chain companies. Average salaries are estimated to be two and a half times the national average. The study also found that there are around 57,000 contract personnel, i.e. personnel working through personal service companies or agencies, representing approximately 20% of the workforce.

The UK has oil and gas industry hubs, most notably in and around Aberdeen but also in areas such as the South East, East and North East of England. The jobs are distributed roughly equally across England and Scotland. Whilst nearly half (44%) of employment onshore was located in North East Scotland, the remainder was spread more widely with concentrations of 25% in North East of England and 14% in the South East of England (including London⁹). There is also some employment in South Wales.

It has been difficult to provide an accurate and comprehensive picture of job losses. The majority of losses have been in Aberdeen. However, many other parts of the UK have been affected particularly in the East and North East of England. Initially, staff redundancies were mainly onshore focused, and from anecdotal evidence were more heavily focused on “support” functions (administration, HR, Finance, IT etc.). However, the prolonged depression in the oil price is now leading to cuts in almost all areas, including offshore personnel.

Anecdotal evidence from a recent employer survey shows a significant fall in employment across all job categories (involving operational and back-office functions) with some respondents even citing all positions as being threatened over the coming year. The range of skills of people losing their jobs will, therefore, include the full suite of support functions (which are by nature more deployable outside of oil and gas but may be geographically challenged due to a concentration of these roles in the Aberdeen area) alongside an increasing number of technical roles in areas such as: Process Engineering; Mechanical Engineering & Rotating Equipment Engineering; Design Engineering (all disciplines); Subsurface / Geosciences; Subsea Design Engineering; Drilling / Well Engineering. There is also a risk that the UK’s highly-trained niche engineering and technical skilled workers, employed in areas such as research and development, migrate to other parts of the world where their skills are in demand.

⁸ See reference (1) above.

⁹ Upstream Oil and Gas Industry Labour Market Intelligence Summary, 2014, OPITO

3.3 Support for those losing their jobs

It is essential that the right support reaches those at risk of redundancy. The Department for Work and Pensions' (DWP) Rapid Response Service is delivered locally with partners. It tailors the support it delivers to the needs of individuals. The support provided includes:

- Information advice and guidance;
- Help with job searches, including CV writing, interview skills, where to find jobs and how to apply for them;
- Help to identify transferable skills and skills gaps;
- Training to update skills, learn new ones and gain industry recognised certification that will improve employability;
- Help to overcome barriers to attending training or securing a job or self-employment such as child care costs, necessary tools, work clothes and travel costs.

The DWP as a key partner in the PACE initiative, is working with the Scottish Government and Energy Jobs Taskforce to help deliver support to those affected.

3.4 What's happening across the UK?

Local communities and businesses are leading their own development and economic growth by being proactive and creative in responding to the challenges of the sustained low oil price.

East of England

The oil and gas industry in the East of England has been significantly impacted by the downturn. Some larger companies have been closing offices and concentrating their efforts from HQ premises. Between April to October 2015, 26 oil and gas supply chain companies in the East of England ceased to trade. Around 1,000¹⁰ oil and gas posts are estimated to have been lost in the East of England region.

The New Anglia Local Enterprise Partnership (NALEP) has created the East of England Oil and Gas Taskforce in response to the downturn. The taskforce is made up of representatives from Norfolk County Council, Suffolk County Council, Great Yarmouth Borough Council, and Waveney District Council, NALEP, East of England Energy Group (EEEGR), ECITB, Job Centre Plus, OGA, BIS and Norfolk and Suffolk Chambers of Commerce. Peter Aldous MP and Brandon Lewis MP are also members.

¹⁰ www.eeegr.com/news/taskforce-taking-action-to-support-oil-and-gas-industry-over-£300k-lep-and-local-authority-financial-support-3761.html

The taskforce has three main strands to support business in difficulty and redundant oil and gas workers:

- **Grant funding for specialist business consultancy services providing business advice and diagnosis through in-house advisors.** If a company is eligible for support, NALEP will provide grant funding to go towards specialist business consultancy services.
- **Working with training providers to drive down costs of training for redundant workers to keep them 'work ready'.** Petans, a training company in Norwich, offers a significant reduction in the price of offshore specific training for redundant or soon to be redundant workers. Lowestoft College also offers a significant reduction in the price of offshore technical courses for redundant or soon to be redundant workers.
- **The taskforce is also working with the local Job Centre Plus,** including its Energy Employment Advisor (EEA) to support businesses that are making staff redundant and help these staff find new roles across all industry.

Scottish Government

The First Minister established the Energy Jobs Taskforce in 2015 and both DECC and the OGA are members. It developed an action plan comprising six key action areas: Balanced Messages, Cost Efficiencies, Leadership for Changes, Shared Principles and Values, Supporting our People and Retaining Talent and Skills. It has delivered a wide range of initiatives from large scale job fairs to targeted initiatives to improve communication and make progress in areas such as HR and union forums.

The Scottish Government also published the refresh of its Oil and Gas Strategy 2016-2020, focusing on innovation and growing the supply chain. They have also recently announced £12m funding for a Transition Training Fund to help people losing their jobs in the oil and gas sector to transition into other energy industries and manufacturing employment. The fund offers grants to individuals to support their redeployment through retraining or further education and helps people with the costs of maintaining any licences they need to work in the sector.

4. A UK framework to retain skills and support workers

Engineering skills are crucial to the future of the UK economy. In recent years, there has been a shortage¹¹ of engineering skills in key areas. It is therefore critical that the UK seeks to retain the skills of people working in engineering sectors, while recognising that skills is a devolved matter and precise approaches may differ in England, Scotland, Wales and Northern Ireland.

Over time, it is inevitable that demand will fluctuate across different sectors of industry with some sectors contracting at the same time as others are experiencing growth. It makes sense for UK industry as a whole to retain its key engineering skills and to redeploy them where there is demand.

4.1 Talent Retention Solution (TRS)

The Talent Retention Solution (TRS) <https://talentretention.biz/> is a UK web-based platform which puts skilled individuals looking for work and companies searching for new employees in direct contact with each other. It actively supports redeployment and recruitment across sectors. The TRS, established by a group of senior industry leaders in 2011, was originally set up in response to expected job losses in the defence sector with the aim of retaining highly skilled engineering talent within advanced manufacturing, rather than them moving to non-engineering jobs. There are currently over 1000 companies such as Airbus, Rolls-Royce, Siemens, BAE Systems and EDF Energy using the platform.

As part of the Workforce Plan we are supporting the further development of TRS to include a specific portal for oil and gas workers. The portal will enable companies from other engineering sectors to have easy access to information about those being made redundant from the oil and gas sector, including the skills and experience of individuals.

In the short term, TRS will help companies and individuals in the oil and gas industry deal efficiently with the redeployment of their skills, potentially avoiding unnecessary periods of unemployment and maintaining levels of earnings for individuals. Over the longer term, having the oil and gas sector become part of the TRS platform should enable the sector to benefit from more efficient recruitment and training in the future, including at times when the demand for skilled labour in the sector is high.

4.2 Skills Connect

Skills Connect is a web-based tool which was designed when the oil and gas sector was experiencing skills shortages. Initially, its purpose was to help military personnel

¹¹ www.engineeringuk.com/EngineeringUK2015/EngUK_Report_2015_Interactive.pdf
www.imeche.org/news/news-article/manufacturers-report-skills-shortage-13071501

understand how their skills were transferable to job roles in the oil and gas sector. OPITO is looking to re-design this tool to help oil and gas workers understand more about which job roles in other sectors would be most appropriate to their skills. Skills Connect will help oil and gas workers understand the types of roles that they could do in other sectors, whilst TRS will help them find specific jobs.

4.3 Vocational Training

In addition to bespoke measures to help the oil and gas industry, in England, individuals will have access to existing support to improve their skills or help with transitional training needs. This includes Advanced Learner Loans which are currently available for Level 3 or Level 4 courses. Advanced Learner Loans only become repayable after the training is complete and the applicant is in work and earning at least £21,000 a year.

From May 2016, the scheme eligibility will be widened to include everyone in England aged 19 years and over (loans are currently only available to those aged 24 and over) and to include courses up to Level 5.

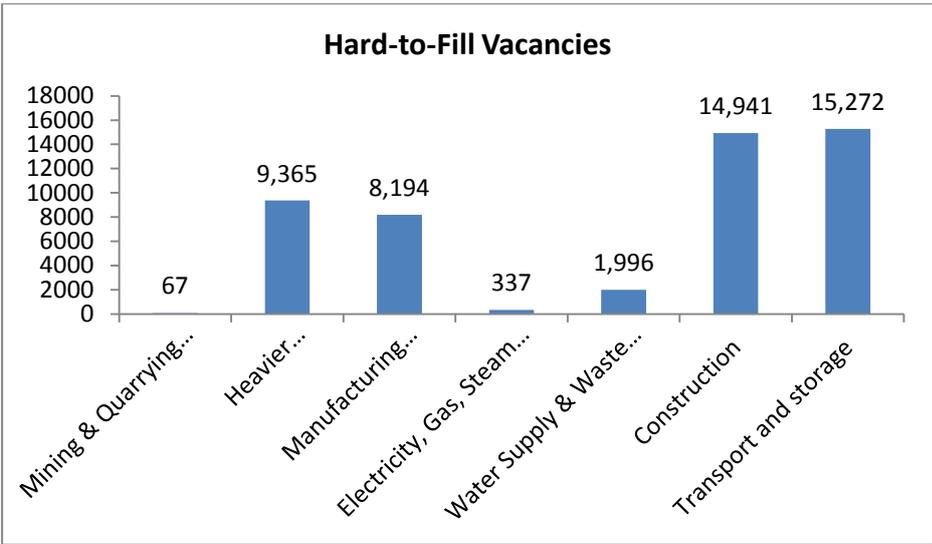
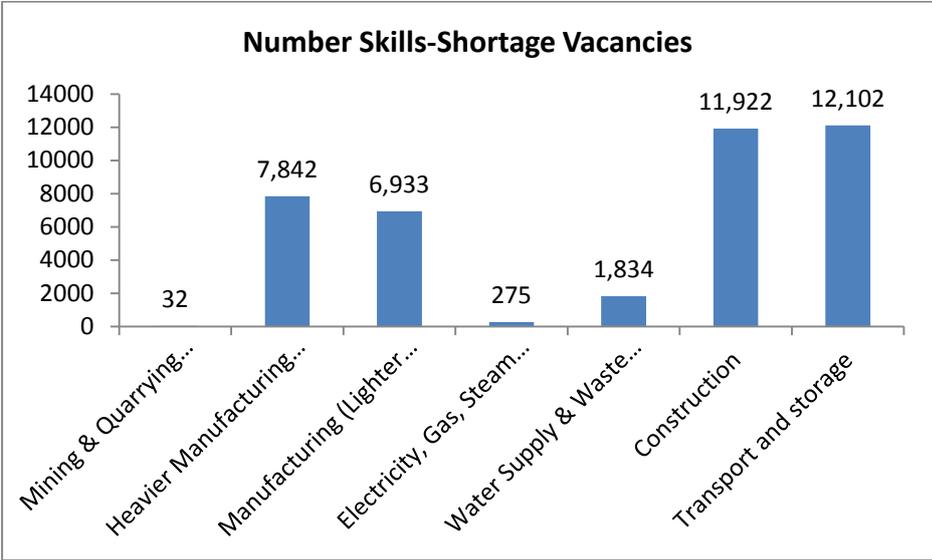
Advanced Learner Loans are available for courses which are run by any training providers which are approved by the Skills Funding Agency to offer loans. Therefore, loans should be available for the much of the training that employees in the oil and gas industry would choose to access in order to make the transition into other infrastructure or engineering sectors. However, we are keen to understand if there are areas of training which the workforce might wish to access, but which are not currently eligible for support. As announced at Budget 2016, the Government is reviewing the gaps in support for lifetime learning, including for flexible and part-time study. Apprenticeships are also an important way for companies to manage their skills needs as they provide a good opportunity for companies to develop the skills of new and existing members of staff to ensure that they reach full occupational competence. In England, employers have the opportunity to come together to design new apprenticeship standards to meet the needs of their businesses and occupations.

Action
Expand the Talent Retention Solution to create a tailored portal for the oil and gas sector
OPITO to look at re-designing the skills connect web tool to help individual oil and gas workers understand how their skills sets can be utilised in other sectors.
Vocational training – the Government is reviewing the gaps in support for lifetime learning including for flexible and part-time study.

5. Opportunities in Oil and Gas and other sectors

Oil and Gas workers have skills and experience which would be of huge benefit to other sectors of the economy. Experience of working on critical infrastructure projects in high safety environments, with multiple stakeholders and complex supply chains is highly transferable to other infrastructure areas. The following section shows where there are skills shortages and future skills demand in infrastructure sectors which are likely to be relevant to those who have been working in the oil and gas sector.

The graphs below show the number of skills shortage vacancies and hard to fill vacancies¹² across a number of sectors.



¹² Definitions of HTF and SSV vacancies at: <https://ukces.blog.gov.uk/2016/01/29/ukces-explains-skills-shortage-vacancies/>

	Mining & Quarrying (exc. oil and gas)	Heavier Manufacturing (metal, chemicals, wood, textiles etc)	Manufacturing (Lighter Forms)	Electricity, Gas, Steam and Aircon (not extraction)	Water Supply & Waste Processing	Construction	Transport and storage
Estimated total number of employees in sector	17,421	1,224,175	1,161,372	61,174	222,860	1,168,972	1,222,171
Total number of sector vacancies	222	23,471	25,928	855	5,085	34,782	31,941
Hard-to-Fill Vacancies	67	9,365	8,194	337	1,996	14,941	15,272
Number Skills-Shortage Vacancies	32	7,842	6,933	275	1,834	11,922	12,102

Source: UKCES

Table showing estimated number of employees, number of vacancies, hard to fill vacancies and skills shortage vacancies in a range of sectors.

5.1 Skills shortages in infrastructure

Infrastructure investment is growing and creating thousands of job opportunities throughout the country. The pipeline for planned public and private infrastructure to 2020 and beyond is £411 billion. This pipeline is creating a demand for over 250,000 construction and 150,000 engineering construction workers by 2020, driving a need to recruit and train nearly 100,000 additional workers by the end of the decade¹³.

Research conducted by UKCES in March 2015 showed that the substantial shortage of skills is the most important challenge currently facing the energy sector today. This affects all key occupations but predominantly engineers and technicians who are in limited supply despite high levels of demand¹⁴.

Between now and the early 2020s, the investment in UK electricity generation alone will create and support a substantive number of high-value jobs, including in engineering sectors. The National Infrastructure Plan for Skills¹⁵ highlights how investment in new infrastructure for electricity generation could support around an additional 30,000 jobs by 2019.

Electricity Generation Workforce

	Client and project leadership	Engineering and technical	Construction management	Skilled trade and labour
Current workforce	6,000	17,000	6,700	17,800
Peak workforce (2019)	8,800	23,500	10,600	36,400

Nuclear

New nuclear power is essential to meeting the Government’s objective of delivering a secure, sustainable and low-carbon energy future. Three consortia - EDF and CGN, Horizon Nuclear Power, and NuGen - have set out proposals to develop 18 gigawatts (GW) of new nuclear at six sites. This could support over 30,000 jobs across the nuclear supply chain at the peak of construction.

The size of the overall workforce is expected to peak in 2021 based on the existing new build schedule. Particularly high rates are predicted for Engineering and Trades – 4,120 and 1,940 respectively¹⁶. Skills shortages likely to be in Mechanical Engineering, Electrical Engineering, Construction and Decommissioning Trades,

¹³ “National Infrastructure Plan for Skills” HM Treasury, September 2015

¹⁴ Sector insights: skills and performance challenges in the energy sector. Evidence Report 90, UKCES, March 2015.

¹⁵ National Infrastructure Plan for Skills, HM Treasury, September 2015

¹⁶ Nuclear Workforce Assessment 2015, Nuclear Energy Skills Alliance, 2015

Control and Instrumentation, Project and Programme Management, Steel fixers, Concreters, Civil Engineering Operatives and Scaffolders.

For the Civil Service¹⁷, the nuclear skills at practitioner level including safety management are in particular demand. Overall the key skills areas include: Decommissioning & Disposal; Nuclear Systems & Infrastructure including Concept, Design & Assessment, Manufacturing, Testing, Commissioning & Acceptance and In Service Support; Nuclear Safety and Security and Nuclear emergency response. The peak for these skills will be reached in 2020.

Renewables

The wind and marine energy sector in 2013 directly employed nearly 18,500 FTE across the sector and had a turnover of £8.1bn. In 2013, 37% of employers had experienced hard to fill vacancies. Most employers reported that these were due to applicants lacking the skills, qualifications or experience to undertake the job¹⁸. There is a precedent of oil and gas workers transitioning into the Renewable sector with 28% of companies in the renewable sector making appointments from the oil and gas sector¹⁹. 40% of employees at the Greater Gabbard²⁰ Offshore Wind Farm transferred to renewables from Oil and Gas.

About 5GW of offshore wind will be built over the next 5 years - doubling the current capacity - and the Government has announced up to another 10GW in the 2020s if costs can be reduced. The Offshore Wind sector is geographically diverse with key clusters in the Humber, New Anglia (Norfolk and Suffolk) and Liverpool.

Oil and Gas Decommissioning

Whilst the oil and gas sector in the UK is currently contracting, the market for decommissioning in oil and gas is growing. The UK's experience of being one of the first major offshore production basins anywhere in the world to reach maturity and begin the transition towards decommissioning puts it in an ideal place to become a world leader in this subsector, creating skilled jobs and employment. Although decommissioning is very much in its infancy, the overall costs of decommissioning in the UK are expected to be around £45-50 billion. Between 2015 and 2024, expenditure is forecast to be around £16.9 billion with nearly two-thirds of this expected to occur post 2020.

Many of the skills needed for decommissioning are similar to those which have made the UKCS so successful. Increased decommissioning activity could lead to a growing demand in the supply chain disciplines such as Mechanical, Construction and Installation. International expansion is expected to increase demand for Drilling and

¹⁷ www.gov.uk/government/organisations/defence-equipment-and-support/about/recruitment

¹⁸ Working for a Green Britain & Northern Ireland 2013-23. Employment in the UK Wind & Marine Energy Industries, RenewableUK, September 2013

¹⁹ Renewables Training Network: Transition Training, RenewableUK, 2012.

²⁰ The Greater Gabbard offshore wind farm became operational in 2013 and is situated 23km off the coast of Lowestoft and is operated by SSE.

Marine/Naval²¹. The MER UK Decommissioning Board is working with Industry, DECC, HMT, BIS and the Scottish Government to ensure that the UK is well placed to exploit these skills and become a global leader in decommissioning.

Onshore Oil and Gas – Shale Gas

Development of UK shale gas could represent a £33bn opportunity for the supply chain over 2016-2032 and support in total 64,500 jobs during peak years (2024-26). This comprises direct, indirect and induced jobs. Around 6000 will be critical direct site development jobs and around 39,000 will be indirect supply chain related jobs. To help fill the skills gap the industry has sponsored, alongside BIS, the launch of the National College for Onshore Oil and Gas. Core skills required include Drilling (particularly horizontal drilling), Well completions, Hydraulic Fracturing, Reservoir and Petroleum Engineering and Geosciences. Supporting roles within Operations, Construction, Communications, Planning, Land and Environmental Permitting will also be in demand²².

The pace of the industry will be dictated by the pace of successful planning decisions, which has been slow to date. However, with the number of planning applications increasing and set to increase further later this year, more activity should be expected in 2017 and beyond.

Utilities

The utilities sector includes works for the transmission and distribution of gas and electricity, works for the regulated water sector, telecoms investment and energy efficiency through the smart meters programme. The total projected expenditure in the utilities sector from 2015/16 to 2020/21 is forecast at £101 billion. The sector is reporting the highest overall proportion of skills shortage vacancies at 36%. The density of skill-shortage vacancies is highest in skilled trades occupations (52%) and professional roles (38%)²³.

Energy and Efficiency Industrial Partnership predicts that the utilities sector will need to attract 208,000 new workers including 40,000 technical staff²⁴. The water sector alone commands 55,000 on average, with a peak of 65,000 in 2018²⁵. Current 'pinch points' include overhead line operatives, welders, high pressure pipe joiners and controls engineering²⁶. Demand for new entrants is expected to rise in reaction to the ageing workforce profile, especially in technical and engineering roles within electricity, gas and water.

²¹ Fuelling the next generation: A study of the UK upstream oil and gas workforce, 2014.

²² Getting ready for UK Shale Gas, 2014, EY

²³ UK Employment and Skills Survey 2015 (UKESS)

²⁴ Op cit, p51

²⁵ Ibid

²⁶ Ibid

Rail

The UK railway sector has seen unprecedented growth over the last two decades. It currently provides more than 3 billion passenger journeys and moves 22 billion tonne kilometres of freight per year. The industry employed 235,000 in 2015, with 120,000 in the immediate supply chain, and National Skills Academy Rail (NSAR) estimates the direct value of goods and services in the industry to be £12.4 billion GVA (although the economic enabling role that rail performs suggests the wider economic impact to be more²⁷). However, the current cost of skills shortages and gaps to rail industry employers is £206m per year. This could increase to £316m per year by 2024²⁸. Over the next 5 years more than 3,000 new rail engineering level 3 graduates will be required to maintain current skills levels. At least 7,000 more level 4 advanced technicians will be required across the sector. HS2 will require 600 advanced rail engineering technicians each year from 2019 onwards²⁹. Wider skills shortages are predicted, with a shortfall of more than 55,000 in transport infrastructure by 2020³⁰.

The rail sector is struggling to fill critical roles such as systems engineers, signal designers, project managers, commercial managers and trainers. Main focus areas are London (24%), East Midlands (18%), North East of England (15%) and Scotland (10%).

NSAR has forecast key skills shortages between 2014 to 2019 in signalling and telecommunications, electrification, plant and track, and rolling stock of 10,000 jobs³¹. In some cases these are linked to an ageing workforce – there is a rising profile in railway engineering, with traction and rolling stock showing workforce where 40% are aged 50+ and 22% are 55+. Of the 10,000 skills shortages identified, approximately 40% will be caused by people retiring.

Roads

Within the roads sector, there is predicted to be an estimated shortage of 4,500 people for engineering/technical roles, 2,800 in construction management, with an overall peak of 7,000 skilled tradespeople required by around 2020. Wider skills shortages are predicted, with a shortfall of more than 55,000 in transport infrastructure by 2020. The peak workforce will be around 62,000 by 2020, with a move towards a broader range of engineering and technical skills rather than traditional construction skills³².

²⁷ The cost of not addressing skills issues in the Rail Sector, NSAR/Atkins, October 2015

²⁸ Fast Track to the Future: A strategy for productivity and growth in the UK rail supply chain. Rail Supply Chain Group. Department for Business, Innovation and Skills and Department for Transport. February 2016

²⁹ Fast Track to the Future: A strategy for productivity and growth in the UK rail supply chain. Rail Supply Chain Group. Department for Business, Innovation and Skills and Department for Transport. February 2016.

³⁰ Transport Infrastructure Skills Strategy: building sustainable skills. Department for Transport, 2016,

³¹ The cost of not addressing skills issues in the Rail Sector, NSAR/Atkins, October 2015.

³² UK Employment and Skills Survey, 2015

Construction

The number of skills shortage vacancies in the construction sector has more than doubled since 2013; from 5,000 to 11,900³³. There are emerging shortages in skilled trades (including carpenters, joiners, plumbers, heating and ventilation engineers). There is also strong demand for various professionals, including project managers, engineers, procurement specialists, and architectural and building technicians.

In total CITB estimates a further 230,000 construction workers will be required by 2020³⁴. Over 40% of these roles will be in professional roles, including non-construction professionals.

While estimates indicate strong demand for skilled trades, particularly carpenters (4,320 annual recruitment requirement), bricklayers (2,870), building envelope specialists (2,510), and electrical trades (2,030), forecasts also demonstrate a growing need for building professionals (5,430) and non-construction professionals (9,400), particularly as Building Information Modelling and Management (BIM) and offsite manufacturing are both set to play a pivotal role in future industry growth.

Defence

The traditional trend of redundancies amongst Armed Services personnel through previous defence cuts has been reversed following the recent Strategic Defence and Security Review and defence capability requirements stipulated increasing the demand for skills in some areas. Currently, skills requirements are particularly acute in the maritime sector at specialist technician (Eng. Tech.) and middle management (Incorporated Eng.) levels. For the Royal Navy (RN), transition can either be through lateral entry or re-join processes. The Lateral Entry process takes account of existing professional engineering/technical qualifications and experience with training tailored accordingly. This process is currently targeted at marine engineering technicians for surface warships. The re-join (2-5yrs absence from the service) process applies across technical trades³⁵. Re-join opportunities also available in the electro-mechanical, electronic, infrastructure and geospatial fields in the Army³⁶ and RAF³⁷. In IT in particular, there is sustained demand in the Army for communications engineers and electricians.

³³ Employer Skills Survey 2015: UK results, UKCES, January 2016

³⁴ www.citb.co.uk/research/construction-skills-network/uk/

³⁵ www.royalnavy.mod.uk/engineers

³⁶ www.army.mod.uk/join/

³⁷ www.raf.mod.uk/recruitment/

Automotive

In 2015, we built over 1.6 million vehicles and 2.4 million engines, exporting almost 80% of our production. However, the sector has lost 100,000 jobs in the last 15 years following a period of falling output and strong productivity growth, with the result that it has become increasingly difficult to secure suitably qualified people as the business environment has improved³⁸.

Employers have highlighted some 2,500 ‘difficult to fill’ vacancies across 57 roles within the Automotive Industry Job Framework (AIJF). Of these vacancies, some 70% fall within the top ten and future priority jobs, all of which are engineering positions, and 40% of immediate vacancies being for design and production engineering³⁹. These are set out below:

Rank	Critical Now	Rank	Future Ongoing
	Impacting business output/Vacancy open 3+ months		Starting to impact the business in the next 3-12 months/Ongoing future recruitment need
1	Design Engineer	1	Design Engineer
2	Production Engineer	2	Production Engineer
3	Buyer	3	Maintenance Technician
4	Senior Design Engineer/Lead	4	<i>Manufacturing Technician/ Senior Op</i>
5	Maintenance Technician	5	<i>Tool Maker</i>
6	Programme Manager	6	Manufacturing Team Leader
7	Quality Operations Engineer	7	<i>Maintenance Engineer</i>
8	Manufacturing Team Leader	8	<i>Supply Quality Engineer</i>
9	Programme Engineer	9	<i>Design and Development Technician</i>
10	Quality Operations Technician	10	Buyer

Note: Job vacancies shown in italics are the differences between the Critical Now and Future Ongoing

³⁸ Employers’ Views of the Jobs and Skills Required for the Automotive Industry, Automotive Council UK, February 2016.

³⁹ Employers’ Views of the Jobs and Skills Required for the Automotive Industry, Automotive Council UK, February 2016.

The principle reasons for the challenge to recruiting are:

- Business growth
- Technological advancement
- Lack of experience, skill and expertise available
- Competition in the UK labour market
- Not enough young people taking STEM subjects
- Age demographic

Examples of Oil and Gas Roles where skills are applicable in other industries⁴⁰

Role	Examples of how it applies to other sectors
Engineering Design & Consultancy	Experience in designing and manufacturing support structures, especially in challenging deep water sites can apply to offshore wind.
Component Manufacture	Experience in the manufacture of high integrity components such as pumps and valves will be relevant to companies supplying the nuclear industry
Project Management	Managing major construction projects from concept to production will be relevant to all infrastructure industries particularly construction and offshore wind. IT project management also key skills in construction industries.
Electrical Engineer	Similar skills can be applied to installation of WindTurbines. Opportunities for cable jointing required for both onshore/offshore wind farms and solar farms. Electrical engineers with programming skills (e.g Matlab, Fortran, C++) relevant for the operation of remote telemetry systems and turbine control for both onshore and offshore wind farms. Experience of working at heights and safety qualification from oil and gas are also useful to Offshore Wind.
Mechanical Engineer	Prevalent across energy infrastructure and transport sectors. Particular opportunities include nuclear new build in turbine installation and maintenance. Mechanical and Electrical engineers are also transferable to rolling stock engineers in Rail.
Civil Engineer	Commons skills in using CAD, building information modelling (BIM), site safety and reading plans applicable to construction. Knowledge of CAD platform and structural design also relevant to rail.
Welding / fabrication	Opportunities in construction are linked to large-scale infrastructure projects, particularly where high integrity welds and dissimilar material welds are required (i.e. alloys or superalloys such as Inconel and Hastelloy). Fabrication capability also includes pipelines, subsea structures, process modules, ancillary equipment and components relevant for the production of deep-water jackets, tripods and powers used in offshore/onshore wind and nuclear manufacturing.

⁴⁰ This list is not exhaustive

Role	Examples of how it applies to other sectors
Crane Operators	Experience widely applicable in areas such as general construction, nuclear new build and decommissioning, road, rail and offshore/onshore wind. Experience gained in oil and gas of current lifting operations regulations is useful.
Logistics and transport	Construction sites need mechanics, plant operators and people to organise equipment going on and off the site. Experience gained in oil and gas of working in high risk heavy engineering environments where safety is critical is of benefit to a range of sectors including offshore wind.
Electrical Technicians	Skills in operating or working with heavy plant and machinery, lifting and rigging, welding, pipefitting are relevant for Wind Turbine Technicians
Business support (HR, Finance, IT)	These types of roles are transferable across all sectors and working in an oil and gas environment is beneficial.

6. Longer-term Workforce Planning

The UK oil and gas sector is a UK industrial success story with more than five decades of production and an unrivalled and experienced supply chain that exports around the world. Whilst it is currently facing unprecedented challenges, the sector has shown its resilience and ability to adapt, evolve and modernize to sustain an industry with a long term future. Remaining UKCS reserves are estimated to be up to 20 billion boe. To fully support the development of these reserves and exploit the full export potential of the sector, the sector needs to ensure that it has the necessary skills and workforce.

Government and industry stakeholders will explore how to take forward work to develop a longer-term modelling and planning capability for the UK oil and gas workforce. This will look at the industry skills needs under different oil price scenarios and enable Government and industry to work together to plan for the future, develop and attract talent and ensure we have a workforce fully equipped for the future.

Action
Government and industry will explore the development of a modelling approach and data collection on the oil and gas workforce.
Government and industry will undertake work to investigate the skills needs for decommissioning.

7. Actions

Action
Expand the Talent Retention Solution to create a tailored portal for the Oil and Gas sector
OPITO to look at re-designing the Skills Connect web tool to help individual oil and gas workers understand how their skills sets can be utilised in other sectors.
Vocational training – the Government is reviewing the gaps in support for lifetime learning including for flexible and part-time study.
Government and industry will explore the development of a modelling approach and data collection on the oil and gas workforce.
Government and industry will undertake work to investigate the skills needs for decommissioning.

8. Glossary

Term	Definition
Construction Industry Training Board (CITB)	The CITB is the Industry Training Board and a partner in the Sector Skills Council for the construction industry in England, Scotland and Wales.
East of England Energy Group (EEEGR)	EEEGR is the East of England Energy Group, the industry and skills association for energy producers and their Supply Chain in the East of England, representing over 300 members across the sector.
Energy Jobs Taskforce	Scotland's Energy Jobs Taskforce is a partnership of industry, public sector and trade union representatives which formed early 2015 to help tackle the immediate challenges facing the energy sector.
Engineering Construction Industry Training Board (ECITB)	The ECITB is the statutory skills body for the engineering construction industry in Great Britain.
Level 3	Examples of Level 3 qualifications include: AS and A level; International Baccalaureate; Key Skills level 3; NVQ level 3; BTEC award, certificate and diploma level 3; and BTEC National.
Level 4	Examples of Level 4 qualifications include: Certificate of higher education; Key Skills level 4; NVQ level 4; BTEC Professional award, certificate and diploma level 4; Certificate of higher education; and HNC.
Level 5	Examples of Level 5 qualifications include: HND; NVQ Level 4; Foundation degree; BTEC Professional awards, certificate and diploma Level 5; and Diploma of further/higher education.

Term	Definition
Local Enterprise Partnership (LEP)	LEPs are local business-led partnerships between local authorities and businesses and play a central role in determining local economic priorities and undertaking activities to drive economic growth and the creation of local jobs. There are 39 Local Enterprise Partnerships across England.
MER UK Forum	The MER UK Forum works across government, industry and the Oil and Gas Authority (OGA) with the aim of maximising economic recovery of our oil and gas resources. Members include senior leaders from government, industry and the OGA.
National Skills Academy for Nuclear (NSAN)	NSAN was established in 2008 by nuclear employers and Government to address the key skills challenges facing the nuclear programme.
National Skills Academy for Rail (NSAR)	NSAR Ltd was established in 2011 to help tackle current and future skills needs within the railway engineering industry.
Oil and Gas Authority (OGA)	The OGA works with government and industry to ensure that the UK gets the maximum economic benefit from its oil and gas reserves. It is responsible for regulating offshore and onshore oil and gas operations in the UK.
Oil & Gas UK	Oil & Gas UK is the leading representative trade association for the UK offshore oil and gas industry.
OPITO	OPITO is industry and trade union owned and as the skills organisation for the oil and gas industry, it supports the sector to build a sustainable, competent and safe workforce. OPITO is the custodian of industry standards in emergency response, and industry training and competence.

Term	Definition
Partnership Action for Continuing Employment (PACE)	PACE is the Scottish Government's national strategic partnership framework for responding to redundancy situations.
Skills Funding Agency (SFA)	The SFA is an executive agency, sponsored by the Department for Business, Innovation and Skills. It funds skills training for further education (FE) in England and supports over 1,000 colleges, private training organisations, and employers with £3.7 billion of funding each year.
Skills gap	A 'skills gap' describes the difference between the skills that employers want, as shown by their job advertisements, and those who are available from workers looking for a job.
Skills shortage	A 'skills shortage' occurs where there is a mismatch between available skilled people and the current and emerging skills needs of industry.
Supply Chain Exports Board	Works with industry, government and trade bodies to promote and strengthen the supply chain and exports, improving sustainability, local and global competitiveness while anchoring activities in the UK.
UK Commission for Employment and Skills (UKCES)	The UK Commission for Employment and Skills (UKCES) is a publicly funded, industry-led organisation that offers guidance on skills and employment issues in the UK.
UKCS	United Kingdom Continental Shelf.



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