

Sectoral Skills Assessment

Energy

October 2024



Sectoral Skills Assessments

First launched in 2017, Sectoral Skills Assessments (SSAs) provide a robust and consistent evidence base to support partners in strategic skills investment planning. Skills Development Scotland (SDS) has worked with key partners and stakeholders in the production of SSAs to ensure an inclusive approach to their development, dissemination and utilisation.

SSAs include published data sets. Inevitably, when using published data there is a time lag, but the data contained is the most up-to-date available at the time of writing. SSAs also include forecast data that has been commissioned through Oxford Economics. The Technical Note¹ provides full detail on the caveats that must be applied when using forecast data, but broadly, it should be noted that:

- Forecasts are based on what we know now and include past and present trends projected into the future.
- The more disaggregated they become, especially at smaller geographical units, the less reliable they are likely to be.
- Their value is in identifying likely directions of travel rather than predicting exact figures.
- The forecasts do not account for national or sectoral activities, initiatives or investments that are planned.

Industries and occupations used in the SSAs are defined by standard industrial classifications (SIC)² and standard occupational classifications (SOC).³

This SSA report is for the Energy Sector. This contains the following SIC 2007 codes:

- **05:** Mining of coal and lignite
- **06:** Extraction of Crude petroleum and natural gas
- **09:** Mining support service activities
- **19:** Manufacture of coke and refined petroleum products
- **20.14:** Manufacture of other organic basic chemicals
- **35:** Electricity, gas, steam and air conditioning supply
- **36:** Water collection, treatment and supply
- **38.22:** Treatment and disposal of hazardous waste
- **71.12/2:** Engineering related scientific and technical consulting activities
- **74.90/1:** Environmental consulting activities

Definition of the Energy Sector

The renewable energy industry does not have a SIC code for statistical reporting purposes and as such is not fully included in the figures presented here. While a portion of renewables employment and output will be captured in this SSA, the industry's activities may be also classified as construction, business services, engineering or manufacturing. We are looking for ways to capture the sub-sectors that are important for ensuring a Just Transition to Net-Zero emissions.

The SSAs are part of a suite of Labour Market Insight publications by SDS. Other products in the suite include:



Economy, People and Skills report which provides succinct and up-to-date evidence on Scotland's economy, businesses and people. It is updated monthly.



Regional Skills Assessments provide a coherent, consistent evidence base to inform future investment in skills, built up from existing datasets and forecasts for Regional Outcome Agreement areas, Rural Scotland and all City and Growth Deals regions. They are updated annually.



The **Data Matrix** is an interactive tool, offering more detailed data from a variety of sources in a visually engaging format. It is updated frequently.

Alongside the suite of Labour Market Insight publications, SDS also produces a wide range of reports such as statistics on Modern Apprenticeships and the Annual Participation measure for 16-19 year olds. This includes a wide range of data related to equalities. Further information can be found on the [Publications and Statistics](#) section of the SDS website.

We value user feedback on the Sectoral Skills Assessments.

If you would like to provide feedback, please do so [here](#). For any further information or queries on the SSAs or any of our other products, please contact: RSA@sds.co.uk

1. SSA Technical Note (2024).

2. Office for National Statistics UK Standard Industrial Classification (SIC) 2007.

3. Office for National Statistics UK Standard Occupational Classification (SOC) 2010.

The Context for Scotland's Labour Market

Within the last 10 years, the economy has faced significant disruption due to events such as the pandemic, Brexit, the war in Ukraine, and the cost-of-living crisis. In addition, megatrends around demography, technology, and the environment have continued shaping Scotland's economy and labour market, many of which are interdependent. Below is an overview of the drivers expected to have the greatest influence on Scotland's labour market outlook in the near term, based on a comprehensive analysis of structural and cyclical factors.



The Economy

The economic outlook for Scotland has improved, but growth is still expected to be modest in 2024, after annual GDP figures estimated the Scottish economy (like that of the UK) remained broadly flat throughout 2023. While inflation rates have eased from their peak in October 2022, the effects of rising prices and high interest rates continue to impact Scottish households and businesses. Scotland has experienced a tight labour market in recent years, but there have been signs of this loosening in 2024.



Demographic Change

Scotland has an ageing population. In 2022, around 20 per cent of Scotland's population was aged 65 years or over, and around 15 per cent were aged under 15 years old. Population growth is also expected to slow in the next decade, and it is anticipated that the country is likely to rely on in-migration for population growth. These demographic changes in Scotland have important implications for the labour market and economy.



Inclusive Growth and Equality

Scotland continues to experience inequality, which can impact individuals' access to labour market opportunities. Cost-of-living pressures have affected different groups disproportionately, particularly in lower-income households. Geographical inequalities also exist across Scottish regions that can affect individuals' access to opportunities. There have been some advances in improving diversity within the workforce and reducing inequality, but challenges remain.



Technology and Automation

Scotland has a strong technology sector, with specific strengths in digital technology, life sciences and financial technology (fintech). The current makeup of the technology sector suggests AI will likely be the most important technological advance for the foreseeable future. It is estimated that 60 per cent of jobs in developed countries will be affected by AI. This could be disruptive within the labour market, creating challenges and opportunities for job roles and businesses.



Climate Change

The Scottish and UK governments have committed to meeting targets for Net Zero carbon emissions. The transition to Net Zero will directly impact jobs, with potential for job growth in Scotland. Upskilling and reskilling will be vital to equip Scotland's workforce with the skills needed to meet the transition. Scotland is well placed to take a lead in the development of new green technologies building on its significant natural resources and strengths in key sectors.



A fuller report on Scotland's Labour Market Drivers can be found [here](#).

Sectoral Insight¹

The previous page provided an overview of the key drivers expected to have the greatest influence on Scotland's labour market. Below, we explore how some of these drivers, and others, may influence the sector.

A well-aligned policy environment and strategic investment are crucial for developing a skilled workforce for Net Zero. Scotland's National Strategy for Economic Transformation (NSET) and the wider perspective on the future whole energy system presented within the [Draft Energy Strategy Just Transition Plan](#) and [Green Industrial Strategy](#) emphasise the job potential of renewables.

Scotland's energy workforce is transitioning, with increased mobility and service diversification. Significant job growth is forecast from 2025 onwards, with the [Offshore Wind Industry Council \(OWIC\)](#) and [North Sea Transition Deal Integrated People and Skills Strategy](#) projecting over 211,000 UK offshore energy jobs by 2030 and 350,000 by 2050. The sector workforce is ageing and is highly qualified with a concentration in higher-level occupations.

New technologies will require greater training infrastructure to meet the demand for skilled workers. Insight suggests that employers have existing challenges in accessing enough training capacity in Scotland. As new technologies develop further, the demand for skills and supply chain requirements will also need to be assessed.

The transition to Net Zero offers significant economic opportunities, but aligned policy investment and a skilled workforce will be needed to support these changes.

- Green investments with known scale total just under £90 billion and are happening now or due to take place over the next three years, spread across every region in Scotland.
- Energy transition has the highest levels of known investment with nearly £60bn (65% of all known green investment).²
- This investment will drive skills demand, including in Offshore wind, Onshore wind, Solar, Hydrogen, Carbon Capture Utilisation and Storage and Freeports.

Growing investment and innovation in the energy sector are expected to result in increased demand for labour and skills, with rising pressure for adapted and new skills at all levels. OWIC's [Skills Intelligence Report 2023](#) shows that there is already competition (and shortages) for high-demand skilled trades in roles such as Electricians, Engineers (across disciplines), Operations and Maintenance technicians, Fabrication and Welding, and Construction and Plumbing. This is likely to be exacerbated as the transition to Net Zero progresses.

Skills will have to keep up with significant technological transformations, including adopting automation, digitalisation, and data analytics. The volume of demand and rural locations associated with Scotwind adds to the complexity. The sector is an important source of opportunities in these regional labour markets, but sectoral

skills challenges could be more profound in those regions. The future extent of the Carbon Capture and Storage and Hydrogen Economy is not yet fully known. Education and training providers are seeking clarification on future job numbers and the skills required in these areas, along with safety standards.

The oil and gas sector especially in North East Scotland, faces several challenges related to the shortage of skilled labour. The industry downturn has also led to job losses, project cancellations, and a decrease in investment – affecting the attractiveness of careers in the oil and gas sector and reducing the number of skilled workers available. Many experienced professionals in areas such as engineering and project management are nearing retirement age, creating a skills shortage that is challenging to address as fewer young people are entering fields such as petroleum engineering, geosciences, and offshore operations.

It is important to note that the forecasts used in this Sectoral Skills Assessment are policy and investment neutral.



This means the figures present a baseline outlook that takes into account historical trends and external economic conditions, but the figures do not reflect investment or policy that is unconfirmed or at planning/development stage. Therefore, the forecasts should be used in conjunction with other sources, and readers are encouraged to overlay these with their own local and sectoral knowledge.

1. Insight from the sector gathered via Skills Development Scotland (2024).

2. SDS (2023). [An Evidence Based Approach to Supporting the Transition to Net Zero](#).

Gross Value Added (GVA, £m) (2014-2034)²



In 2024, GVA in the Energy sector was estimated to be £5,569m, generating 3.8% of Scotland's total economic output. Between 2014 and 2024, GVA in the sector was estimated to have declined by 2.6% on average each year, compared to growth of 0.5% across Scotland over the same period.

Output in the Energy sector has been impacted by the decline of oil and gas over the last decade, and the sector was also scarred by the global pandemic. It was estimated that GVA in the sector would continue to contract by 0.3% in 2024.

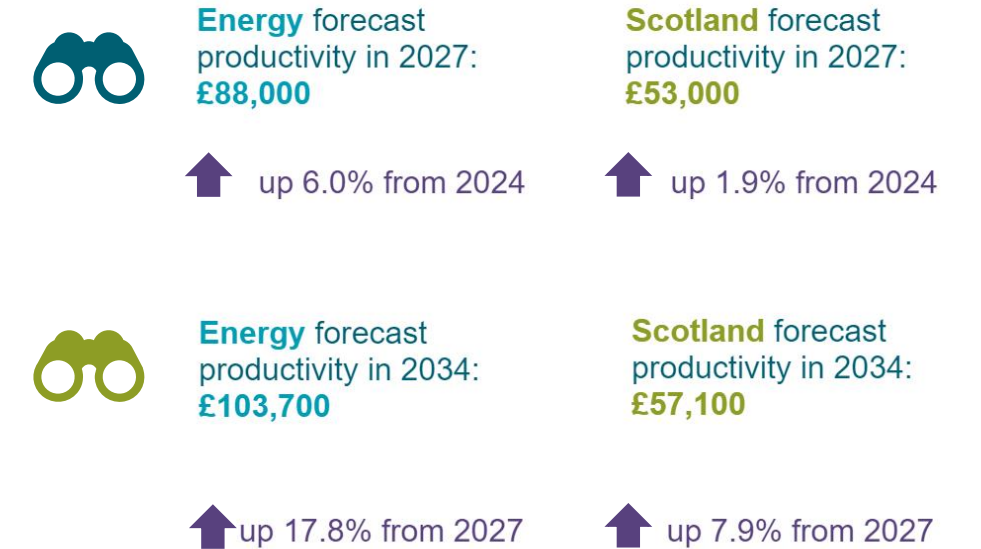
Looking ahead, GVA in the Energy sector is forecast to return to growth, rising at an average of 1.3% each year between 2024 and 2034, the same as Scotland's average. In 2034, the Energy sector is forecast to account for 3.8% of Scotland's total economic output.



Productivity (GVA per job)³

In this report, we have used Oxford Economics' measure of productivity, which is calculated by dividing total sectoral GVA by total sectoral employment (measured by jobs). Please note, there are different ways of calculating productivity, and caution is needed when interpreting productivity data presented in this report. It must be considered in the context of other data and insight.

In 2024, productivity in the Energy sector was estimated to be **£83,000**. In comparison, the Scottish average was £52,000.



1. SDS (2024). Oxford Economics Forecasts.
2. GVA is the measure of the value of goods and services produced within the economy and is an indicator of the sector's health. GVA in constant 2019 prices.
3. Productivity is the measure of goods and services produced per unit of labour input. The Oxford Economics forecasts of productivity shown here

have been calculated by dividing total sector GVA by total sector employment (measured by jobs).

Current Demand¹



Workforce size 2024: **88,900** people

The sector's workforce was estimated to have **increased** by **0.4%** or **400** people between 2014 and 2024.

This compares to a Scotland wide increase of **3.8%** or **97,300** people between 2014 and 2024.

The Energy sector definition does not fully capture the renewable energy industry (see page 2).

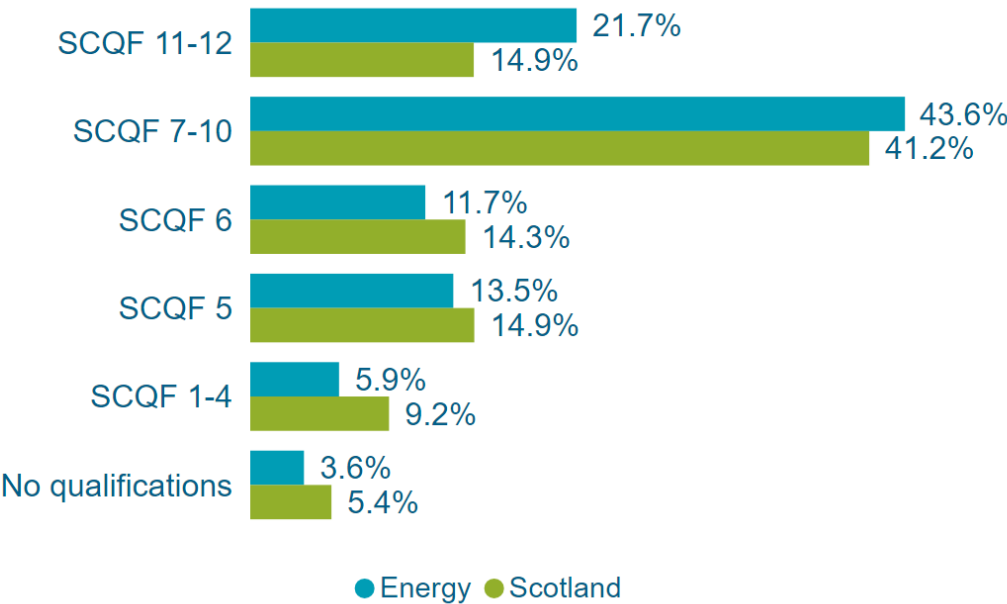
Employment by Region (people), 2024

The greatest number of people employed in **Energy** were estimated to be in:

Aberdeen City and Shire	Glasgow College Region *	Edinburgh, East and Midlothian	Highlands and Islands
42,900	8,700	7,600	7,100

Workforce Qualifications, 2024

It was estimated that workers in the **Energy** sector had higher qualifications than the Scottish average, with 65% qualified to SCQF Level 7 and above in 2024.²



Top 10 Employing Occupations (people), 2024



1. SDS (2024). Oxford Economics Forecasts.
2. See [SCQF Framework](#) for further information on SCQF qualification levels.

*Glasgow College Region covers East Dunbartonshire, East Renfrewshire and Glasgow City local authorities.



Spotlight on... Offshore Managers³

Between July 2023 and June 2024, there were **800 job postings**. Job postings were high in 2022, and as a result the number of job postings has decreased by 6.1% compared to the period between July 2022 and June 2023 (21% decline across all occupations comparatively). Despite the decline, the number of job postings remained above the pre-pandemic level for Offshore Managers.

Top Locations between July 2023 and June 2024:



Specialised skills and knowledge requested (July 2023 and June 2024) included:

- Environment Health And Safety
- Project Management
- Risk Analysis



Median real-time advertised salary:
£56,700



Spotlight on... Renewable Energy Managers⁴

Between July 2023 and June 2024, there were **320 job postings**. Job postings were high in 2023, and as a result the number of job postings has decreased by 16.2% compared to the period between July 2022 and June 2023 (21% decline across all occupations comparatively). Despite the decline, the number of job postings remained above the pre-pandemic level for Renewable Energy Managers.

Top Locations between July 2023 and June 2024:



Specialised skills and knowledge requested (July 2023 and June 2024) included:

- Project Management
- Business Development
- Land Tenure



Median real-time advertised salary:
£50,100



Spotlight on... Geotechnical Engineers⁵

Between July 2023 and June 2024, there were **300 job postings**. Job postings were high in 2023, as the number of job postings increased by 13.1% compared to the period between July 2022 and June 2023 (21% decline across all occupations comparatively). The number of job postings remains above the pre-pandemic level for Geotechnical Engineers.

Top Locations between July 2023 and June 2024:



Specialised skills and knowledge requested (July 2023 and June 2024) included:

- Geology and Geotechnical Engineering
- Civil Engineering
- Geotechnical Investigation



Median real-time advertised salary:
£31,000

1. Lightcast 2024. Online job postings data provides a useful barometer for the health of the jobs market. It is important to note that the data does not capture all activity, so it should be considered as an estimate of activity.
2. Job postings are rounded to the nearest 10.

3. Data is based on job titles for the whole of Scotland. Median salary based on 18% of job postings.
4. Data is based on job titles for the whole of Scotland. Median salary based on 43% of job postings.

5. Data is based on job titles for the whole of Scotland. Median salary based on 52% of job postings

In the mid-term (2024-2027), **the number of people in employment is forecast to decline by 1.1% (-1,000 people)** in the **Energy** sector. This is in contrast with the growth that is forecast overall across Scotland where employment is predicted to rise by 1.9% (49,800 people).

In 2027, the top employing regions in the sector are forecast to be **Aberdeen City and Shire** and **Glasgow College Region**, the same as in 2024. Similar to 2024, **the largest proportion of the workforce** is forecast to be educated to **SCQF 7-10**. The top employing occupation is forecast to be **Science and Technology Professionals**.

Forecasts for the mid-term (2024-2027) suggest there could be demand for **8,400 people in the sector**, as a result of the need to replace workers leaving the labour market.

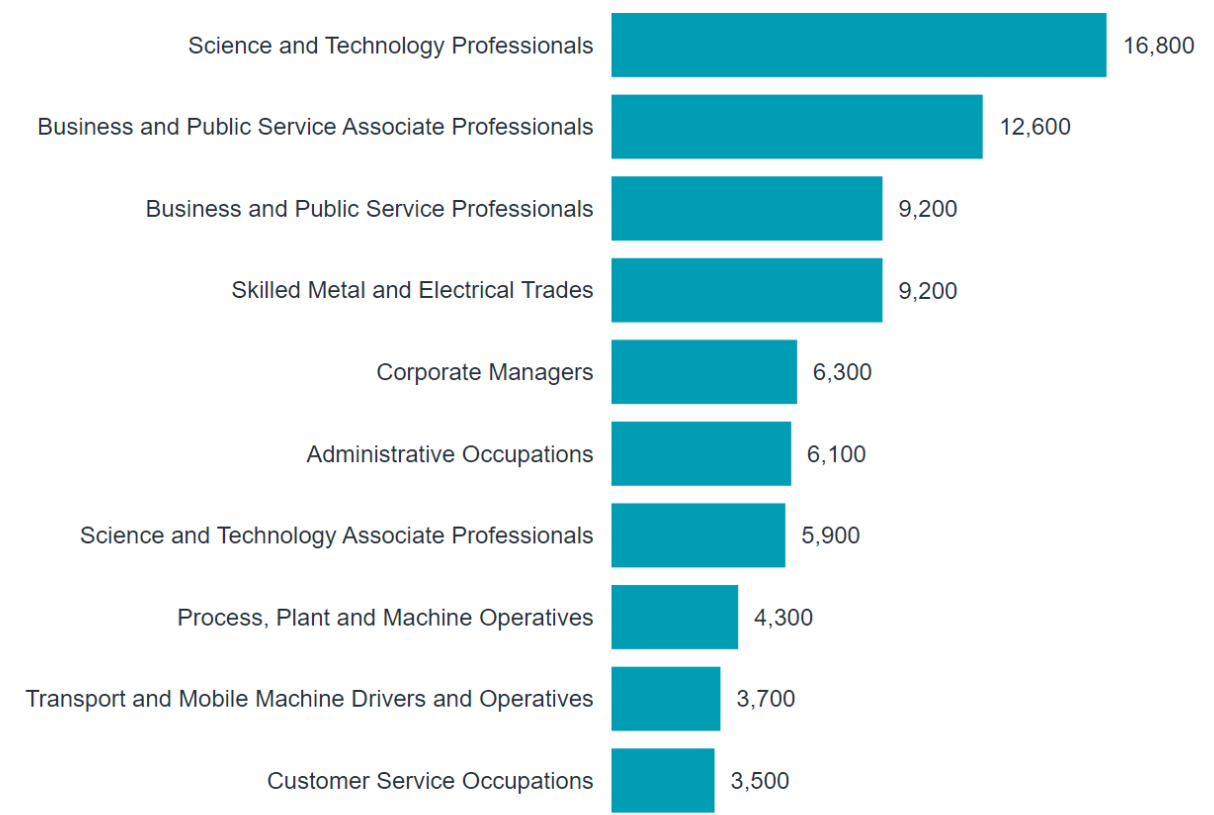
Workforce (people), 2027



Total Requirement*



Top 10 Employing Occupations (people), 2027



1. SDS (2024). Oxford Economics Forecasts.
* Total requirement for people is made up of expansion and replacement demand.
The expansion demand is the number of people required as a result of economic growth or contraction.

The replacement demand is the number of people required to replace workers leaving the labour market (i.e. those who retire, move away or change jobs). Please note, figures are rounded to the nearest 100 and as a result totals may not equal the sum of the constituent parts.

Employment contraction in the **Energy** sector is **forecast to continue, with a decline of 4.2% (-3,700 people)** in the long-term (2027-2034). This is in contrast with the growth that is forecast overall across Scotland where employment is predicted to rise by 1.2% (32,000 people).

In 2034, **Aberdeen City and Shire** and **Glasgow College Region** are forecast to remain the top-employing regions in the sector. The largest proportion of the workforce employed in the sector is **forecast to be educated to SCQF 7-10**, and **Science and Technology Professionals** is forecast to remain the most in-demand occupation within the sector.

Forecasts for the long-term (2027-2034) estimate that **17,500 people** could be required in the sector. This will be driven by **the need to replace workers** leaving the labour market.

Workforce (people), 2034



Workforce size 2034: **84,200** people



The sector's workforce is expected to **decline** by **-4.2%** or **-3,700** people between 2027 and 2034



Compared to a Scotland wide increase of **1.2%** or **32,000** people

Total Requirement*



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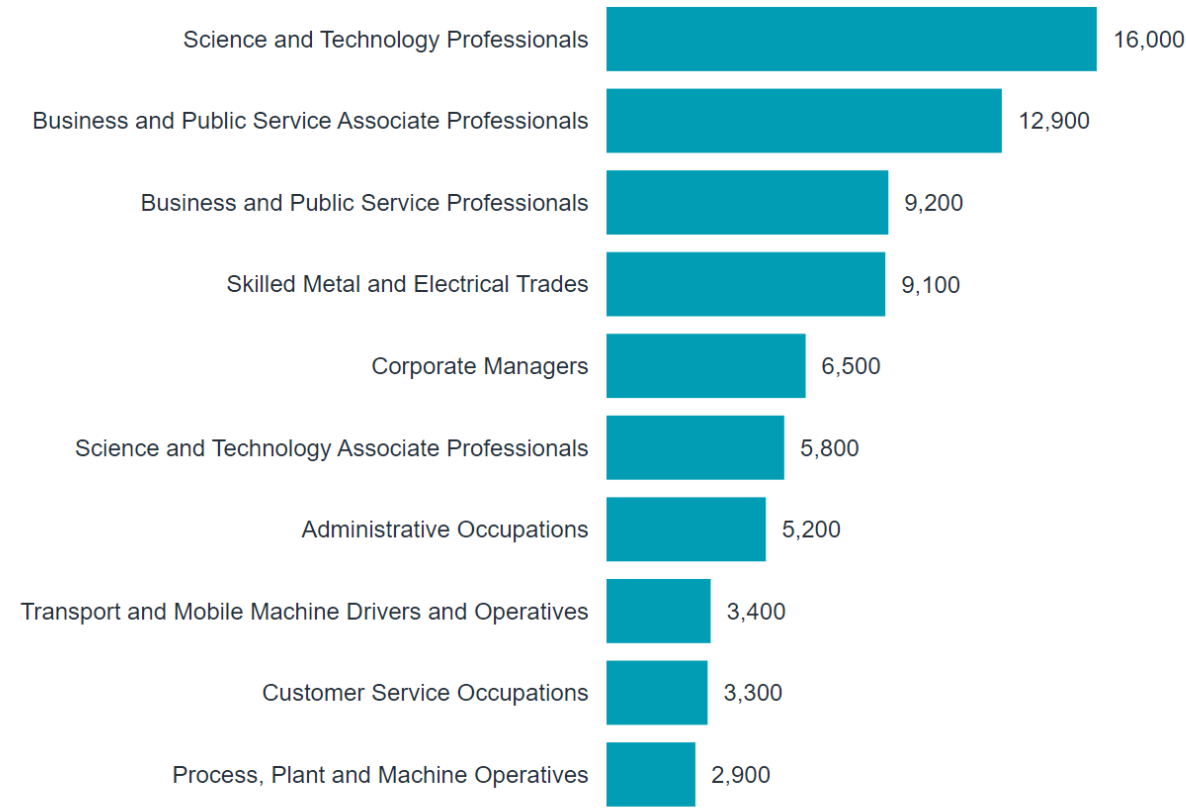
Total requirement:
17,500 people

Replacement demand:
21,200 people

Expansion demand:
-3,700 people

Energy is forecast to account for **2.2%** of Scotland's total requirement for people in the long-term (2027-2034)

Top 10 Employing Occupations (people), 2034



1. SDS (2024). Oxford Economics Forecasts.
* Total requirement for people is made up of expansion and replacement demand.
The expansion demand is the number of people required as a result of economic growth or contraction.

The replacement demand is the number of people required to replace workers leaving the labour market (i.e. those who retire, move away or change jobs). Please note, figures are rounded to the nearest 100 and as a result totals may not equal the sum of the constituent parts.

For further information or queries on the SSAs or any of our other products, please contact: [**RSA@sds.co.uk**](mailto:RSA@sds.co.uk)