DOUNREAY SOCIO-ECONOMIC REPORT (EXTERNAL)

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Version 4.0

mace

Accountability

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EXECUTIVE SUMMARY

Executive Summary

The Nuclear Decommissioning Authority (NDA) commissioned this report. It provides an update to previous reports in 2006, 2012, and 2016 on the social and economic importance of the Dounreay site within its local area of Caithness and North Sutherland. It also provides a review of the Caithness and North Sutherland Regeneration Partnership (CNSRP) which is the organisation established to promote economic growth in the area as the Dounreay site decommissions over the coming years.

It draws some conclusions on these matters.

The Dounreay site has been in its decommissioning state since 1994. The projected Interim End State (IES), when operational activity will cease has changed several times since then, the last review of the IES in 2016 projected it would be achieved by 2033. The next review of the Lifetime plan is due in 2023. This report provides an update to the 2016 report using the 2016 lifetime plan, where appropriate.

The main findings of this report are:

The Dounreay (DSRL) employee base

Employment at Dounreay is vital to the area. The site employs 1283 employees, of which about 1,232 live in Caithness and Sutherland. In addition, there are 700 supply chain workers at the site. Contrary to expectations in 2016 the number of employees is 15% higher than it was in 2016. Because of this growth, the site is actively hiring and taking on apprentices. Some 12% of the workforce is aged under 25, whilst the average age of employees is 43 years and 6 months.

Locally based employees represent about 11% of all Caithness and Sutherland employment and that rises to 15% if workers in the public sector are excluded. Workers at Dounreay earn approximately £10,000 above the Highland region average. As such their salaries represent about 15% of the payroll in Caithness and Sutherland.

This is not a decaying and ossified workforce. It remains the single largest contributor to payroll in Caithness, apart from public services such as health and education.

Given the relative youth of the workforce, most of the current workforce (62%) will not have reached retirement age by the time the current IES arrives in 2033.

Caithness and Sutherland have strong skills and expert knowledge in the nuclear industry and currently the nuclear decommissioning process. There are many transferable skills where that expertise can be used in other sectors and industries locally. Such skills are particularly suited to the wider nuclear decommissioning sector, emerging energy sector, and space sectors.

The Local Population

The population of the area (both Caithness and Caithness and Sutherland) has declined slightly since 2005. The current population is about 1-2% lower, and 2-3% below the peak in 2014. About 60% of the decline is due to natural population change (deaths exceeding births), implying the remainder is due to net out flows of migrants.

Data from the Highland area suggests the wider area is losing younger people. If this pattern holds for Caithness and Sutherland, then fewer young people today means fewer prospective first time parents in 5-10 years' time which, in turn, will reduce the birth rate even further. Young people are probably leaving to attend universities elsewhere in Scotland. Scotland has eight universities in the UK top 50 (compared to 9 for the North of England, which has three times the population). Five of the top 8 Scottish Universities naturally cluster around Glasgow and Edinburgh with other locations being in Dundee, Stirling, and Aberdeen.

These factors combined with increasing life expectancy for older people, results in the area having a changing population profile. There are fewer young people, fewer working age people and more old people. Whilst this broad trend is evident in both UK wide and Scotland wide data, it is much more pronounced in data for the HIE area in general, and Caithness and Sutherland in particular.

In 2001, 20% of the Highland area's population were aged 0-15 years. Today it is 14%. In 2001 working aged people (16 to 64) constituted 63% of the Highland population, today it is 62% and projected to be 56% in 2043. The proportion of older people was 17% in 2001, 24% in 2020 and projections expect it will be 29% in 2043.

The dependency ratio is therefore increasing. Whilst this ratio was only four points higher for Highland than Scotland in 2001, it will be 13 points higher by 2043. This will have implications for public services. School admissions will fall, whilst an aging population will put pressure on health and social care services.

Economic inactivity (people of working age not in employment, education, or training) rates in the Highland area are below the average for Scotland. In terms of claimant count this is 2.2% in Caithness and Sutherland. This rate is about half the UK rate (4.4%) and below the Scottish rate of 3.7%. Combined this means there is not a significant pool of workless adults who could re-enter/enter the workforce to offset the demographic challenges outlined above.

The Local Employment, Business Base and Economy

The population pressures probably explain why Caithness and Sutherland's employment base has fallen slightly since 2005. This fall is as much a consequence of demographic trends as employment trends. Companies can only hire if the workers are there to be hired.

The importance of Dounreay is evident when analysing the area's employment base. Caithness has a location quotient of 5.91 for mining, quarrying and utilities, indicating that people in the area are nearly 6 times more likely to be employed in this sector than the Scottish average. This only falls to 4.40 when looking at Caithness and Sutherland. These location quotients have grown since 2005 indicating both the continued importance of Dounreay and the growth in new jobs linked to offshore wind.

One of the fastest growing sectors in Caithness and Sutherland over the last 15 years has been in professional, technical, and scientific sectors. Employment in these areas has increased by 65% since 2005. The area clearly has an existing strength in utilities and an emerging strength in scientific and technical sectors. By contrast Caithness and Sutherland lost significant jobs in health (500), manufacturing (650) and business administration (940) since 2005. These reductions mean the area's employment base is more concentrated on its core strengths than it was in 2005.

While the employment base in the Caithness area has been falling, the business base is increasing, with a marked growth in scientific and technical organisations (which have almost doubled in 11 years). These trends mean that the average number of employees per business have fallen and suggest that more people are working in small start-up enterprises than 15 years ago.

Over the last 12 years in the Highland area, and more generally in Scotland, there has been higher wage growth when compared to the UK. Statistical evidence indicates that in 2010 wages in the Highland area were £50 per week lower than the UK average, in 2021 it was equal.

Dounreay has a dualist relationship with the local economy. While Dounreay is the anchor of the local economy, it is also competing against other companies and industrial sectors for staff. While Dounreay is attracting skilled people on higher wages, it crowds out other companies in hiring people. This may impact the growth prospects of local companies.

Economic analysis suggests that Dounreay has a GVA per employee of £55,900 per annum. This is almost double the Highland Council area figure and shows the importance of Dounreay to the local area. In total the economic data suggests Dounreay contributes £77.5m per annum to the local economy.

This suggests that when the decommissioning work ends the average wage level may drop, reducing spending power of the local population, unless similar high skilled opportunities are found for the decommissioning staff that are able to harness those skills and prevent them from leaving the area.

The percentage of high-tech businesses in Caithness has begun to increase. This is a positive development which perhaps reflects a “local bounce” related to the significant growth in that sector in other areas of Scotland. This welcome development provides an excellent platform for local leaders and the Caithness and North Sutherland Regeneration Partnership (CNSRP) to harness the workforce strengths, expertise, and natural geography of the locality.

Caithness and North Sutherland Regeneration Partnership (CNSRP)

Mace have analysed the strategic, governance and operations of the CNSRP.

It has been successful in attracting new industries to the area, such as the offshore wind farm and satellite launching facility and meeting the lower end of the job targets spectrum (as per the CNSRP programme manager update to the Dounreay Stakeholder Group (DSG) in October 2021).

However, the introduction of large major projects in the Dounreay area does not necessarily lead to a high number of skilled jobs for local people. For example, the area has been successful in bringing two highly innovative and notable projects to the area yet with limited job opportunities so far in Caithness.

- The BOWL offshore wind project has mainly created jobs in Germany (manufacture) and Hull (assembly). However, it is pleasing to note that around 90 people located in Wick are required for maintenance services. These are well paying jobs in an area which suffers from deprivation. In addition, these jobs will support further roles in the economy through indirect and induced effects. At the time of writing, the Crown Estate Scotland is in the process of letting new contracts for leases in the North Atlantic/North Sea area. These contracts will include local supply provisions, so the number of local jobs in Caithness in the offshore wind sector should increase significantly over the coming decade.

- The Space hub is well located in North Sutherland for the launch of low-earth-orbit observation satellites in polar and sun-synchronous orbits. This will create 40 jobs by 2024.The main launch vehicle provider is based in Forres (Moray) and is building a significant workforce at their factory there (potentially as many as 400 eventually). The space cluster investigations undertaken through the chamber and supported by Jacobs demonstrate significant potential job growth in the North Highlands and Moray (Space Cluster - CNSRP (cnsrp.org.uk).) Resourcing and developing the space cluster opportunities to be local is an important element of the CNSRP programme.

It is likely that this is due to both the demographic issues of the area coupled with the dominant effect of Dounreay in the area. The area does not have sufficient spare labour to capture more of the value created by these projects and its skilled labour is still drawn to the relative security of Dounreay. Solving this difficult problem will be key to securing the local economy (along with other issues such as transport and finding developable land) through the transition of Dounreay’s decommissioning and beyond.

The overall governance structure is effective and has the appropriate membership. All parties are engaged with the process. Attendance has improved (due to video conferencing), and perhaps this could be a permanent way for people to join future meetings.

The CNSRP is solely focussed on this part of the world, which enables it to apply all its efforts to the local communities without distraction from other areas outside the region. The partnership is also well chaired.

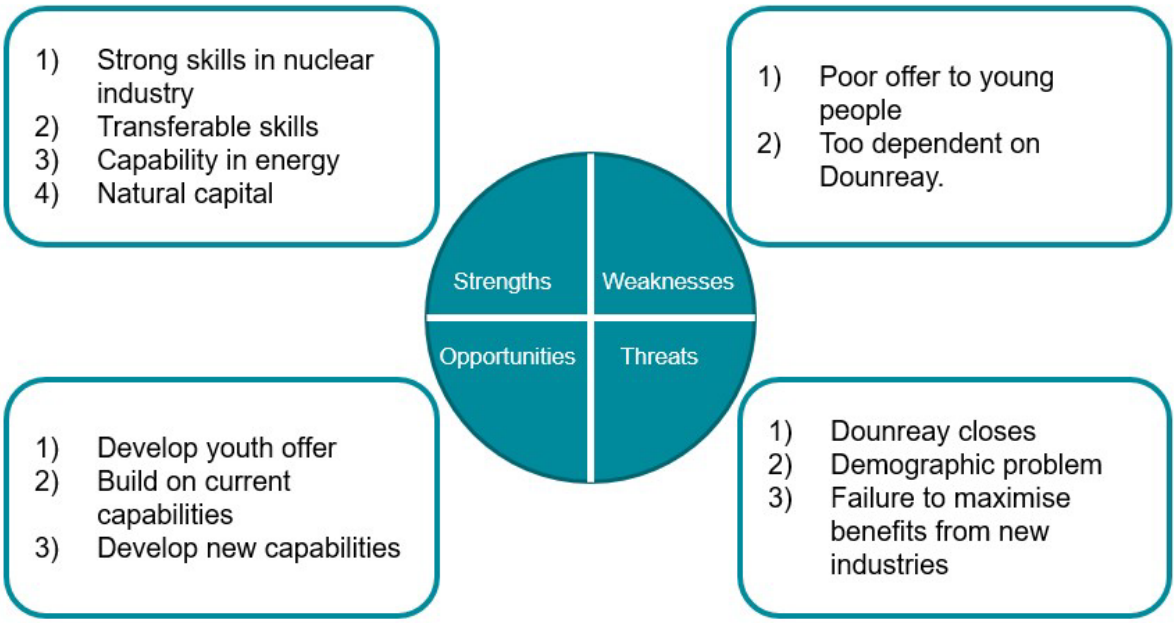
Some of the stakeholders interviewed indicated that addressing the wider socio-economic impact has not been fully embedded in DSRL’s decommissioning process. This would have the objective of maintaining

continuity of employment in the area. This will be a crucial factor in retaining the skilled people in the area (and their families) and making it less likely they will leave to pursue skilled opportunities elsewhere.

However, the demographic issues due to an increasing loss of younger people combined with a significantly ageing population also present an opportunity for the area.

A summary SWOT analysis is shown below:

Caithness and North Sutherland SWOT



Conclusion

Caithness and North Sutherland have benefited economically from the presence of Dounreay. It has anchored the local economy for decades. This has continued recently as employee numbers have grown since 2016 (contrary to the expectations of the 2016 projection on the IES).

However, the likely decline in employment numbers in the future as the IES approaches will create challenges for the local economy and the demographic issues will magnify these. The local population is both shrinking and aging due to increased life expectancy, a natural decline, and net outflows of young people. The worst-case scenario is that when Dounreay reaches its IES it accelerates these trends, resulting in a population structure which is more unbalanced than current predictions suggest.

This scenario is by no means inevitable. There is an opportunity to ensure the area has a positive future after Dounreay reaches its IES. It has a core skills base, with niche and high demand skills in the energy and utilities sector. These skills combined with its physical geographic advantages for space, wind, and tidal mean there is every chance Caithness and North Sutherland could have a bright future. In addition, the developments at Scrabster and Wick harbours show that with investment the area can continue to prosper.

Contents

SECTION 1
INTRODUCTION

1 Introduction

The Nuclear Decommissioning Authority (NDA) commissioned this study. Its purpose is to examine the socio-economic impact of the decommissioning activity at Dounreay. This report provides details of key socio-economic changes in the impact of the decommissioning of the Dounreay site since the last report produced in 2016.

1.1 Study context

Dounreay Nuclear Power Station was originally built as an experimental site, developing the UK's fast reactor technology programme, and was operational between 1955 and 1994. Since then, the site has focused on decommissioning, waste management, and site restoration.

The original activity for decommissioning and site restoration (Dounreay Site Restoration Programme – 2000) was forecast to take between 50-60 years at an anticipated cost of £4.3 billion. This was later re-forecast in 2004 (The Life Cycle Baseline) to 30 years at a cost of £2.9 billion. In 2004 the Interim End State (IES) was forecast to be between 2033 and 2036. In 2012, a further review accelerated this, aiming to achieve the IES by 2023. A 2016 review reset the IES to be between 2030 and 2033. The NDA will publish a new lifetime plan in 2023, which will reset the date for the IES. For clarity, this report is based on the 2016 lifetime plan.

The NDA was created in 2005 and has overall responsibility for decommissioning activity at 17 sites around the UK, and in 2012 it awarded Cavendish Dounreay Partnership the decommissioning contract relating to the site. In 2019 the NDA took Dounreay Site Restoration Ltd (DSRL) back in house.

In 2007, the Caithness and North Sutherland Regeneration Partnership (referred to as CNSRP or the Partnership) was formed as a public sector response to the decommissioning activity. The Partnership is tasked with addressing the long-term sustainability and diversity of the local economy considering decommissioning. Dounreay is a major employer in the Caithness and North Sutherland area, and it is crucial, therefore, that plans are in place to mitigate the negative impacts that closure will have on the local economy and communities. This study updates three previous exercises: Socio-Economic Study: Opportunities Arising from the Decommissioning of Dounreay completed by Reference Economic Consultants in 2006 (referred to as the Reference Report in the main body of this report and 2006 in the tables), The Socio-Economic Impacts of Dounreay Decommissioning carried out by Grangeston in 2012 (referred to as the Grangeston Report and 2012 in the tables) and Socio-Economic Impact of Dounreay Decommissioning, dated November 2016 produced by EKOS Limited.

The previous studies sought to examine the extent to which the Caithness and North Sutherland's economy is reliant on the Dounreay site and identify potential opportunities for diversification.

1.2 Study Objective

The study sought to "provide an economic impact analysis of the current direct, indirect, and induced economic impacts of the Dounreay site on the local area, region and the UK.

1.3 Study Method

The study comprised of four stages:

- Stage 1: inception meeting with the study Steering Group;
- Stage 2: desk research;
- Stage 3: fieldwork comprising of stakeholder consultations (7 responses); and
- Stage 4: analysis and reporting.

1.4 Report Structure

The remainder of the report is structured as follows:

- Chapter 2: reviews the history and planned activities at Dounreay;
- Chapter 3: details the socio-economic profile of Caithness and North Sutherland;
- Chapter 4: profiles the Dounreay workforce;
- Chapter 5: details the economic and wider impacts resulting from Dounreay;
- Chapter 6: summarises the CNSRP activities;
- Chapter 7: details feedback from key stakeholders on project activities and the effectiveness of the Partnership; and
- Chapter 8: synthesises the study findings into conclusions.

A suite of appendices is provided covering:

- Appendix 1: Employment base tables;
- Appendix 2: Location quotient tables;
- Appendix 3: Business Base tables; and
- Appendix 4: CNSRP jobs created.

SECTION 2
TIMELINE OF DOUNREAY ACTIVITIES

2 Timeline of Dounreay Activities

2.1 History of Dounreay

The Dounreay site was established in 1955, primarily to pursue the then UK Government policy of developing Fast Breeder Reactors (FBRs). The site was operated from the 1950s to 2005 by the United Kingdom Atomic Energy Authority (UKAEA). On 1 April 2005, the Nuclear Decommissioning Authority (NDA) became the owner of the site, with the UKAEA remaining as operator. A new company called Dounreay Site Restoration Ltd (DSRL) was formed as a subsidiary of the United Kingdom Atomic Energy Authority (UKAEA) to manage the decommissioning process.

Two FBRs were built on site: the Dounreay Fast Reactor (DFR) and the Prototype Fast Reactor (PFR). In addition, the Dounreay Materials Test reactor (DMTR) was constructed as a research reactor to test materials under neutron irradiation.

DFR achieved criticality on 14 November 1959, with an electrical output of 14 Megawatt (MWe). This power was exported to the National Grid from 14 October 1962 until the reactor was taken offline for decommissioning in 1977. DFR was cooled by a liquid metal alloy of sodium and potassium, known as NaK. It was initially fuelled with uranium metal fuel and was later used to test oxide fuels for PFR and provide support to overseas fast reactor fuel and materials development programmes.

Construction of PFR commenced in 1968 and went critical in 1974, with an output of 250 MWe. The reactor was taken offline in 1994.

PFR had the dual role of providing power to the national grid and offering research and development facilities, providing information for future design and operation of large commercial fast reactor stations.

The plutonium metal fuel was cooled by sodium liquid metal designed to remove heat from the reactor core. This heat was transferred via the primary and secondary sodium circuits to the steam raising plant which fed a conventional steam turbine with an electrical output.

Following closure of the reactor, it was de-fuelled and the 1,500 tonnes of bulk sodium that once flowed through the primary and secondary circuits removed. The world's largest liquid metal destruction plant was built at PFR to destroy this sodium, and destruction was completed in August 2008.

PFR's mission included research and development into reactor fuel. A shielded remote handling facility, known as the Irradiated Fuel Cave (IFC), was constructed to support this work. The IFC contained approximately 70 tonnes of liquid sodium in several storage tanks. This sodium has been drained and destroyed and the next step is to cleanse the residue from this area. The structure will be decommissioned after completing sodium clean-up.

DMTR was the first reactor to achieve criticality on site, in May 1958, and was the first operational reactor in Scotland. This reactor was used to test the performance of materials under intense neutron irradiation, particularly those intended for fuel cladding and other structural uses in a reactor core. DMTR was closed in 1969, when materials testing work was consolidated by UKAEA at its Harwell site.

The reactor was contained in a steel pressure containment vessel 21.2metre (m) in diameter and 22.7m in height. It had a thermal output of 25 Megawatt Thermal (MWth) (this was initially 10 MWth). The reactor was served by several ancillary buildings, including a cooling circuit and towers, a fuel pond, post-irradiation examination (PIE) cells, laboratories, an active handling bay and administrative offices.

The Dounreay site also undertook fuel fabrication, reprocessing, and contained facilities for waste storage and treatment. It also included analytical and research laboratories.

The site undertook reprocessing for overseas spent fuel, as well as its own FBR fuel. Under contracts signed by the UKAEA, both the reprocessed uranium and the higher activity waste products from reprocessing were returned to the originator.

Commercial reprocessing of spent fuel ceased in 1998 and the final shipment of waste to an overseas customer was completed in January 2015, with return of drummed and grouted waste to SCK/CEN of Belgium.

The Vulcan Naval Reactor Test Establishment (Vulcan/NRTE)

Vulcan is adjacent to DSRL and is the Ministry of Defence (MoD) establishment housing the prototype nuclear propulsion plants of the type operated by the Royal Navy in its submarine fleet.

For over 40 years Vulcan has been the cornerstone of the Royal Navy's nuclear propulsion programme, testing and proving the operation of four generations of reactor core and currently testing its fifth. Rolls-Royce, which designs and procures all the reactor plants for the Royal Navy from its Derby offices, operates Vulcan on behalf of the MoD and employs around 280 staff there, led by a small team of staff from the Royal Navy.

In 2011 the MoD stated that NRTE could be scaled down or closed after 2025 when the current series of tests ends. Computer modelling and confidence in new reactor designs meant testing would no longer be necessary. The cost of decommissioning NRTE facilities when they become redundant was estimated at £2.1 billion in 2005.

2.2 Decommissioning Plans

Plans for decommissioning the Dounreay site presented by UKAEA in 1998 proposed a timetable for completion of all work in 60 years, at a cost of £4.3 billion. The planned timetable and cost for decommissioning Dounreay has been revised several times.

In 2007, a decommissioning plan was agreed with the NDA, with a schedule of 25 years and a cost of £2.9 billion. A year later, the timetable was revised to 17 years at a cost of £2.6 billion.

As of 2013, the IES planned date had been brought forward to 2022-2025. During the development of this report, the IES date has changed again and is now expected to be 2030-2033.

As of 2022 The “interim end state” (IES) date for decommissioning is between 2030 and 2033.

Decommissioning Challenges

Apart from decommissioning the reactors, reprocessing plant and associated facilities, there are five main environmental issues to be dealt with.

These are:

- a 65-metre deep shaft, sunk during the construction of a liquid effluent waste-discharge pipe and later used for the disposal of intermediate level waste (ILW), is contaminating some groundwater, and is threatened by coastal erosion (over a timescale estimated to be around 300 years). Waste retrieval is underway;
- spent fuel particles have been identified in the coastal and marine environment in the vicinity of the site. A programme to locate and remove these particles is underway;
- 18,000 cubic metres of radiologically contaminated land, and 28,000 cubic metres of chemically contaminated land;
- 1,350 cubic metres of high and medium active liquors and 2,550 cubic metres of unconditioned intermediate level nuclear waste in store; and
- 1,500 tonnes (t) of sodium, 900t of which is radioactively contaminated.

New facilities have been built to process historical waste and to manage waste arising from the decommissioning of site. These include the cementation plant and the waste supercompaction plant, which will be decommissioned and demolished once their jobs are complete.

Defining the Interim End State

Completion of decommissioning work will leave the site in the “interim end state” (IES) – where the remaining nuclear fuel has been removed, all the redundant buildings have been cleaned out and the radioactive waste present on the site made safe for long-term storage or disposal.

After the IES is achieved, no further remediation activities will be required, although the site will continue to be managed, maintained, and monitored until the final end state (FES) is reached.

Key requirements at IES are:

- any residual radioactive contamination must meet the FES criteria by the Final End Point (FEP). The criteria are defined as '...any residual radioactivity, above the natural background, which can be satisfactorily demonstrated to pose a risk (of death) less than one in a million per year...'. That is, residual activity at the start of the IES may be above the state required for the FES, for example because radioactive decay will continue to reduce the level of activity. However, the prime concern is to ensure that the risk criterion is met;
- demonstration that all residual contamination (radioactive and non-radioactive) poses an acceptable risk to safety, health, or the environment (for the time between Interim and FEP and by implication beyond); and
- the demonstration of meeting IES criteria is via an Environmental Safety Case.

As noted above, a key requirement for achieving the IES is demonstration that the FES criteria will be met at FEP. Decommissioning and demolition will remove most hazards from the Dounreay site, with the subsequent remediation and restoration activities managing the remaining contaminants in the ground, along with subsurface structures and infrastructure. Restoration will also ensure that the site is left in a physically safe condition, for example holes will be backfilled and the surface landscaped where appropriate. To target remediation activities, a series of clean-up levels for the various contaminants of concern have been developed on the basis that the site will be available for unrestricted use at the FEP. Hence the FES is suitable for unrestricted use.

Continuing Roles at Dounreay

Employment at Dounreay as it progresses towards achieving the IES will be linked to the four key activities to be completed before the FEP:

- Decommissioning: removes most of the hazards associated with the plants and facilities on the Dounreay site. Decommissioning means that any residual contamination left in-situ, e.g., associated with floor slabs and sub-surface infrastructure, meets the IES criteria. Characterisation of each facility is undertaken to confirm what, if any, radiological contamination remains.

  Health physics and health and safety functions will be required as part of the decommissioning. These roles will likely be site-based. An interim senior health and safety manager position has recently been advertised through the supply chain. Tasks will include decontamination of structures and may include specialist activities such as scabbling of concrete to remove contaminated outer surfaces, use of cleaning agents containing complexants or abrasive treatment of surfaces. In addition, tasks will include monitoring (sampling, analysis, and evaluation), project management and waste management (potentially including finding markets for recycling of materials);

- Demolition. The process of demolition is defined as the removal of structures to their foundation plinth. Residual hazards associated with building structures will be removed at this time, e.g., asbestos cladding. Note that demolition does not necessarily extend to sub-surface structures. This may be dealt with in the remediation phase.

  Many of these tasks are specialist and will probably be carried out via the supply chain, managed through DSRL (either from the decommissioning project teams or from a demolition project team). As before, continued monitoring and characterisation of remaining structures and contamination will be required. Demolition will generate quantities of waste, much of which is likely to be below levels at which radioactive substances regulations will be applied (although other regulations will continue to apply). Waste management will continue and may include re-use or recycling of building rubble, for example to fill voids or to landscape areas. Interim storage of potentially useful waste and ILW on site may be required;

- Remediation. The primary purpose of remediation is to remove remaining contaminants from the ground, sub-surface structures and infrastructure, such that the average levels of any residual contamination meet the IES criteria.

  Where residual activity does not meet the IES criteria, a Remedial Action Plan will be developed. If no remediation is required within a specified area, an Interim End State Compliance Report will be submitted.

  The final step of remediation is to backfill the excavation. Backfill specifications will be required to ensure radiological compliance with the IES criteria, to ensure that any engineering specifications are met and to ensure that non-radiological properties of the materials do not adversely affect groundwater (e.g., due to pH or the presence of hazardous contaminants). Workforce requirements therefore include engineers as well as continued monitoring etc. as before; and

- Restoration: The final phase of works leading to the IES defines what the site will look like. Restoration will involve contouring the surface and soft landscaping. In practice, backfilling will be designed and implemented as part of the remediation of individual areas.

The surface of disturbed land is to be coated with topsoil and reseeded with native vegetation, to blend with the local environment. This surface will be contoured to be consistent with the drainage system on site. The supply chain will need to advise on (and implement) appropriate seeding/planting of the site. Floor slabs will be left. The interim ILW store will remain on-site beyond the IEP.

The final task will be to produce the Site Wide Environmental Safety Case. In practice, this document will be compiled in parallel with the Interim End State Compliance reports and Zone Closure reports prepared as each of the four phases proceed.

Throughout each of the phases leading to the IES, administrative functions will continue to be required relating to workforce employment, welfare, financial control etc. Site security will also be maintained throughout.

SECTION 3
SOCIO-ECONOMIC BASELINE

3. Socio-Economic Baseline

3.1 Introduction

This chapter presents the socio-economic baseline for the area surrounding Dounreay. It provides contextual information on the local economy in which Dounreay operates, identifies key trends over the past ten years, and highlights key areas of opportunity or need.

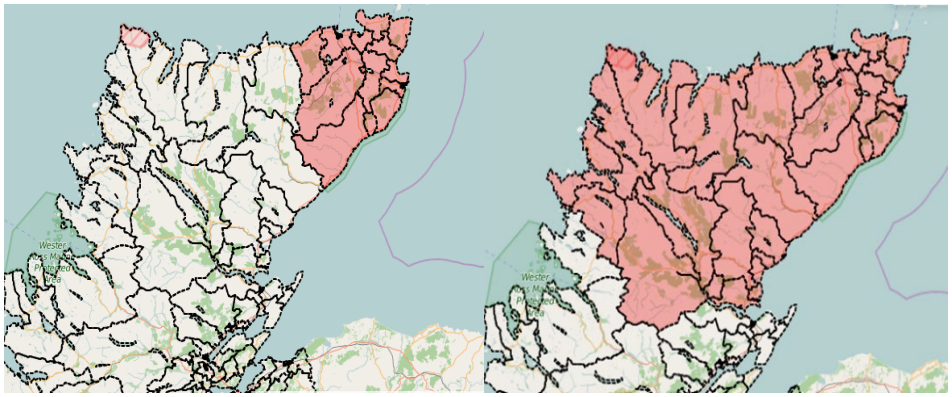
3.2 Area and Data

The baseline covers the following areas:

- Caithness – 2 wards of Highland Council and the data zones within them;
- Caithness and Sutherland – 4 wards of Highland Council and the data zones within them;
- Highland council area;
- The HIE area consists of the 6 councils of Highland, Moray, Argyll and Bute, Orkney Islands, Shetland Islands and Na h-Eileanan Siar. Mace uses the term “HIE area” to refer this area;
- Scotland; and
- UK.

To be consistent with previous studies and enable comparisons, Caithness and Caithness and Sutherland have been defined as a best fit of the Dounreay travel to work area used in the Grangeston Report. An analysis of the employees in section 4 though indicates that 96% live in Caithness with only 2% living in Sutherland.

Figure 3.1: Caithness **Figure 3.2: Caithness and Sutherland**



Data

In 2016 the Scottish Government reorganised the basis by which it compiles statistics. This had two major changes; firstly, it introduced new ward boundaries which reduced the number of Highland Council wards. Caithness, for example, lost one ward leaving two wards. In addition, the basis of secondary school data changed to be on a per school basis rather than a local government unit basis. These changes have meant that the Scottish Government is no longer updating some historic data sets, whilst it has introduced new data sets, based on the new units. Some of the tables and charts do not show data earlier than 2014 or 2015, as the Scottish Government has stopped updating the older data set. As such data on secondary school performance is only comparable on a like for like basis, since 2014.

3.3 Population characteristics

As seen in the table below, both Caithness and Caithness and Sutherland have had decreases in population since 2013. The drop in Caithness from 2013 to 2017, and from 2017 to 2020, was an almost

stable decrease of about 500 each time. Therefore, the demographic trend of gradual decline for Caithness and Sutherland is diverging from the growth trajectory of Scotland and the UK. A declining population generally presents challenges for an area, though the magnitude of these problems depends on the causes of the decline.

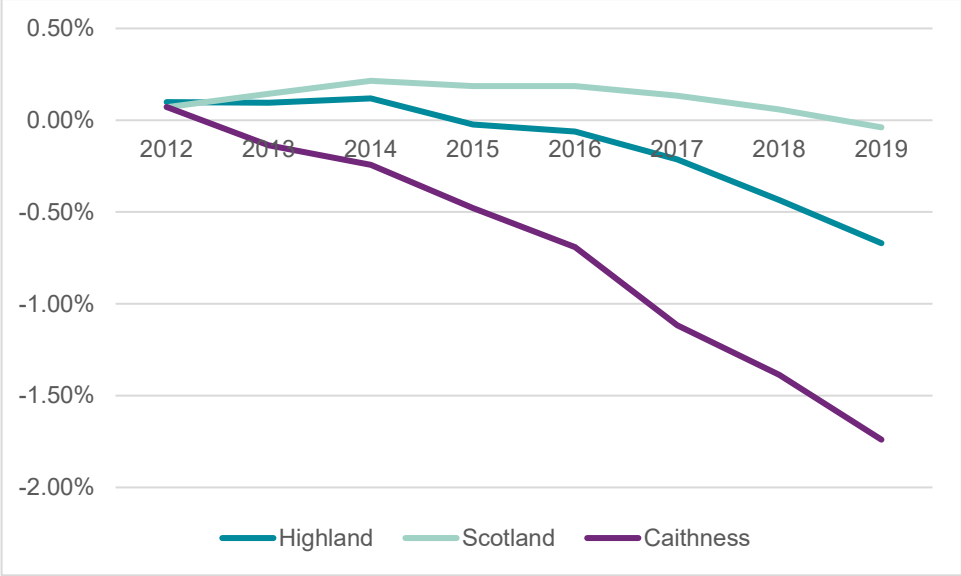
Table 3.3.1 Population Table

	2005	2010	2013	2017	2020	Change since 2005	% Change since 2005
Caithness	25,754	26,446	26,067	25,615	25,191	-563	-2.19%
C'ness & Sutherland	38,895	39,752	39,252	39,158	38,659	-236	-0.61%
HIE	467,750	484,920	487,500	489,800	488,340	20,590	4.40%
Scotland	5,110,200	5,262,200	5,327,700	5,424,800	5,466,000	355,800	6.96%
UK	60,413,300	62,759,500	64,105,700	65,648,054	67,886,011	7,472,711	12.36%

Source: Scottish Government Mid-Year Population Estimates via statistics.gov.scot and NOMIS for UK statistics

Part of this decline is due to natural population change Between 2012 and 2019 Caithness saw 458 more deaths than births. As figure 3.3.1 shows this represented a natural population decrease of 1.74% over the period. By contrast, the Highland area had a natural decline of 0.67% and Scotland saw a natural decline of 0.04%.

Figure 3.3.1 Cumulative natural population change in Caithness, Highland & Scotland: 2012 - 2019



This implies that the remaining decline in Caithness is likely due to net out migration. The discussion on migration patterns (section 3.5) supports this conclusion. By contrast Scotland's population growth since 2012 has been entirely due to net immigration.

Age Structure

Caithness, Caithness, and Sutherland and the HIE area have older populations than Scotland, with over 65 year olds accounting for circa 25% of the populations of these areas, compared to 19% in Scotland.

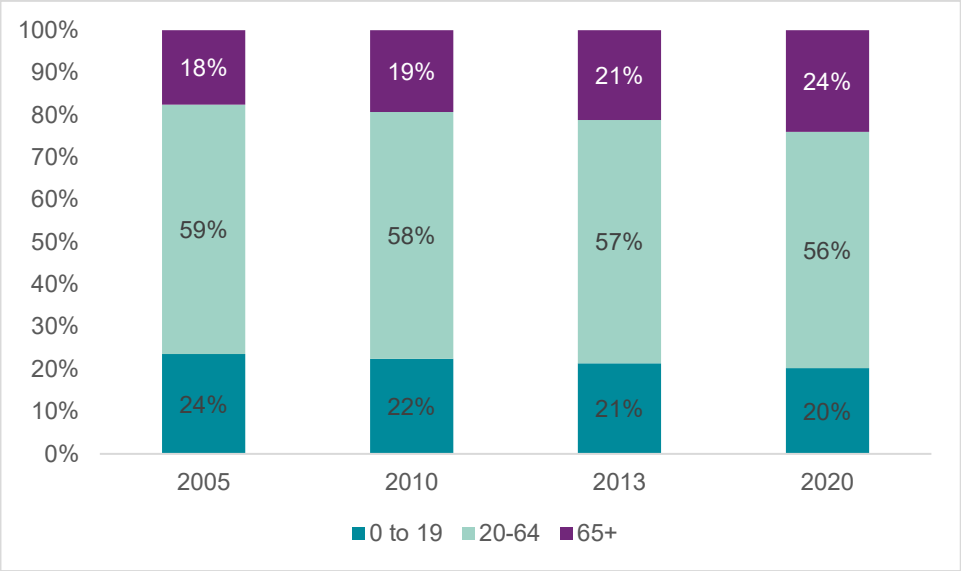
Table 3.3.2 Age Structure – 2020

	Caithness	Caithness & Sutherland	HIE Area	Scotland
0-15	16%	15%	14%	18%
16-64	60%	59%	62%	63%
65+	24%	26%	24%	19%

Source: Scottish Government Mid-Year Population Estimates via statistics.gov.scot

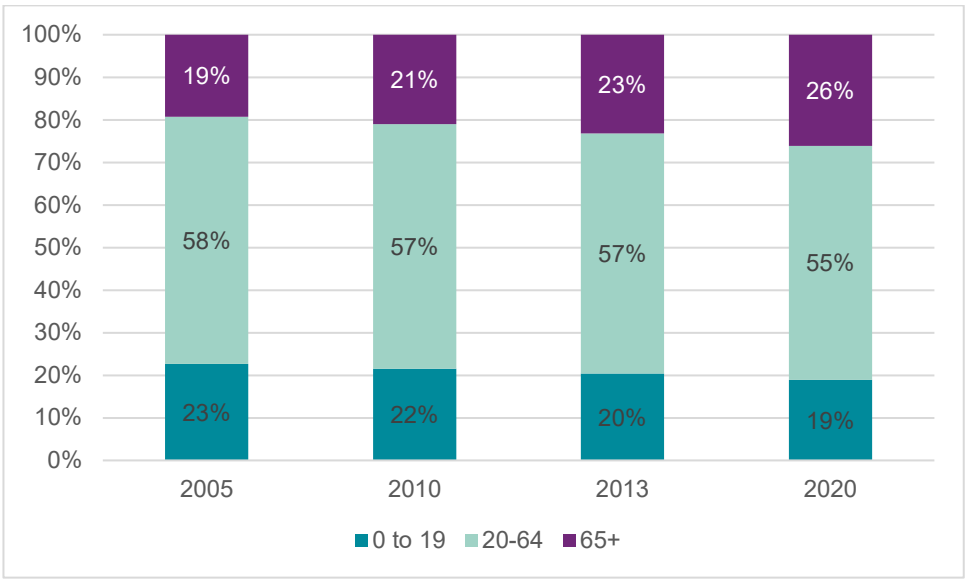
This structure has been an emerging trend for both Caithness and Caithness and Sutherland since 2005. The area has experienced proportionate falls in both the 0-19 and 20–64-year-old cohorts and rises in the over 65 population.

Figure 3.3.2 - Population Age Structure Caithness



Source: Scottish Government Mid-Year Population Estimates via statistics.gov.scot

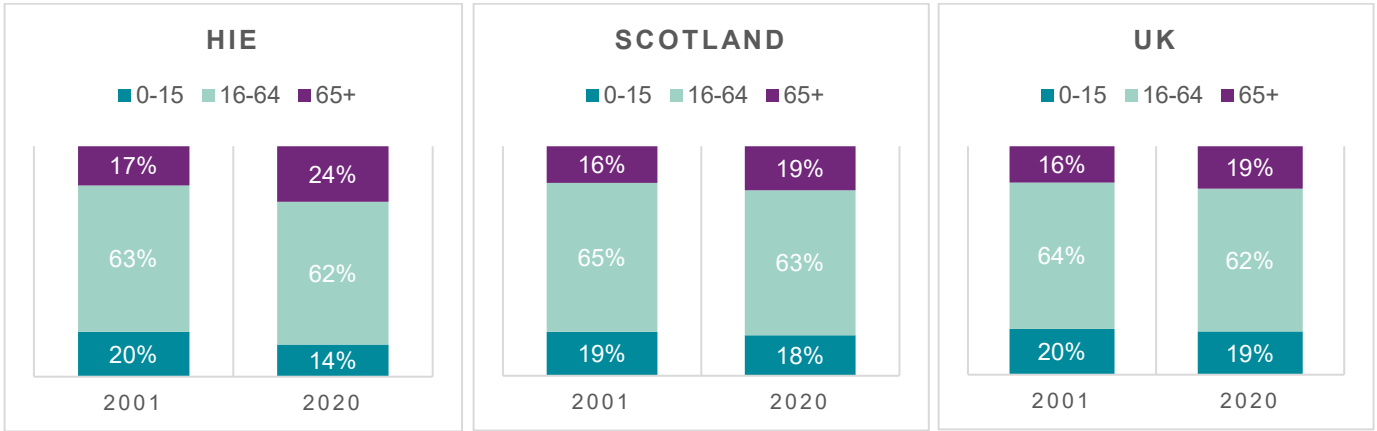
Figure 3.3.3: Population Age Structure Caithness & Sutherland



Source: Scottish Government Mid-Year Population Estimates via statistics.gov.scot

The HIE area population has also experienced a similar trend of an ageing population, and a decreasing proportion of young people. Both Scotland and the UK are also experiencing this aging trend, though it is noticeable that both are seeing their populations age at a much slower rate than the HIE area (and by extension Caithness and Sutherland). Whilst an aging population is a noticeable trend in all population geographies, it is much more important in the North of Scotland than for other areas, due to higher rates of natural population decline (see figure 3.3.1) and net migration outflows (see section 3.5 for discussion), rather than net inflows for Scotland as a whole.

Figure 3.3.4: Population Age Structure HIE Area, Scotland, and UK



Source: Scottish Government Mid-Year Population Estimates via statistics.gov.scot and NOMIS for UK statistics

The obvious result of these trends is the dependency ratio (defined here as the total of under 16s and over 65s as a proportion of 16–64-year-olds) has worsened in all geographies, but Caithness and Sutherland have a markedly worse score in 2020 than the UK average. A higher score here means an area has more dependents relative to its working age population than an area with a lower score.

Table 3.3.3 Dependency Ratio

	2001	2020
UK	0.56	0.60
Scotland	0.54	0.58
HIE	0.58	0.61
C&S	N/A	0.70

Source: Scottish Government Mid-Year Population Estimates via statistics.gov.scot and NOMIS for UK statistics.

3.4 Population Projections

The most recent Scottish Government population projections from 2018 show that in the period 2018-43 the Highland and HIE areas will experience a population decrease compared to an overall population growth in Scotland. Unfortunately, the Scottish government has only published its projections at council area level and not at ward level, so Mace is unable to present data for Caithness and Sutherland.

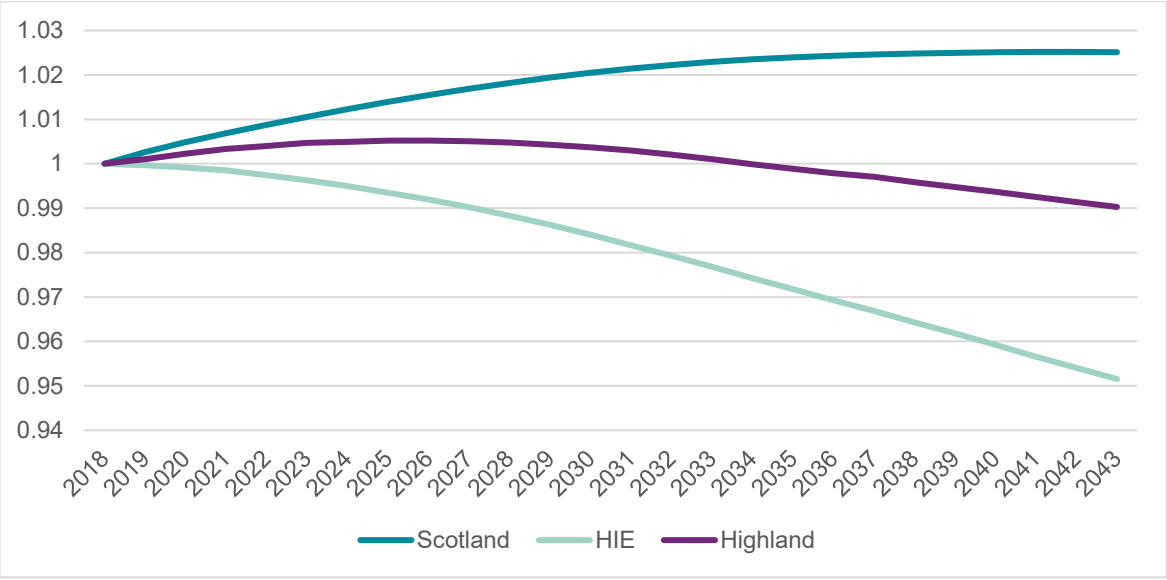
Table 3.4.1: The 2018 Scottish projection - key highlights

	2018	2023	2033	2043	Change	Ch %
Scotland	5,438,100	5,495,578	5,562,901	5,574,819	136,719	3%
HIE	489,330	487,524	477,974	465,617	-23,713	-5%
Highland	235,540	236,643	235,783	233,250	-2,290	-1%

Source: Scottish Government (www.statistics.gov.scot)

This projection shows the demographic challenge facing the North of Scotland as its population shrinks against a wider picture of general population growth in Scotland as a whole.

Figure 3.4.1: Change in population between 2018 and 2043 (2018 =1)



Source: Scottish Government (www.statistics.gov.scot)

The 2018 projections also changed compared to the previous projections compiled in 2012 (and the basis of the 2016 report's commentary). For both the HIE area and Scotland, the 2018 projections predict lower populations at comparative dates against the 2012 projections.

Table 3.4.2: Comparison of the 2012 and 2018 projections

	HIE area		Scotland	
	2024	**2037**	**2024**	**2037**
2012 projection	488,362	482,032	5,563,670	5,780,371
2018 projection	486,884	473,128	5,504,866	5,571,993
change	-1,478	-8,904	-58,804	-208,378
% change	-0.3%	-1.8%	-1.1%	-3.6%

Source: Scottish Government (www.statistics.gov.scot)

In 2010 the Highland council published data projections to 2035 by ward. This was used in the 2016 report for Caithness and Sutherland projections. It is reasonable to expect that an updated projection for the area would show a decline like that seen between the Scottish Government 2012 and 2018 projections. This suggests that the 2010 projection for 2035 for Caithness and Sutherland will decline from 39,269 to a range between 37,853 and 38,544 as the table below shows.

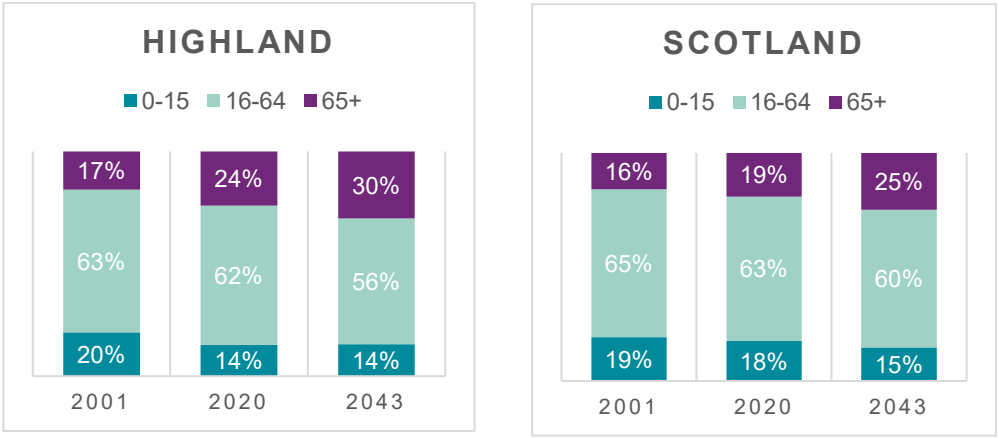
Table 3.4.3: Potential impact on the Caithness and Sutherland population of the revised projection

Caithness and Sutherland		
	2035	**2035**
Reduction used	HIE	Scotland
2010 forecast	39,269	39,269
Reduction %	-1.8%	-3.6%
Revised figures	38,544	37,853
Reduction	-725	-1,416

Several interviewees also noted that the demographic picture varied across the Highland area. There was a strong perception that Inverness and settlements on the Moray Firth were growing in population, which probably offset even larger falls in other parts of the Highland area to produce the small net falls highlighted above. For example, Scottish Government statistics show that the population of Inverness (as defined by the 5 council wards using Inverness in their name) has grown by over 26% between 2001 and 2020. If this is true, it suggests that the overall Scotland decline may be more accurate for Caithness and Sutherland compared to the smaller decline for the HIE area shown above.

The 2018 projections continue the recent pattern that populations are aging markedly. Again, the projections show that this pattern is more pronounced in the Highland area than in Scotland as a whole.

Figure 3.4.2: Projected Age structure for Highland and Scotland 2018-43

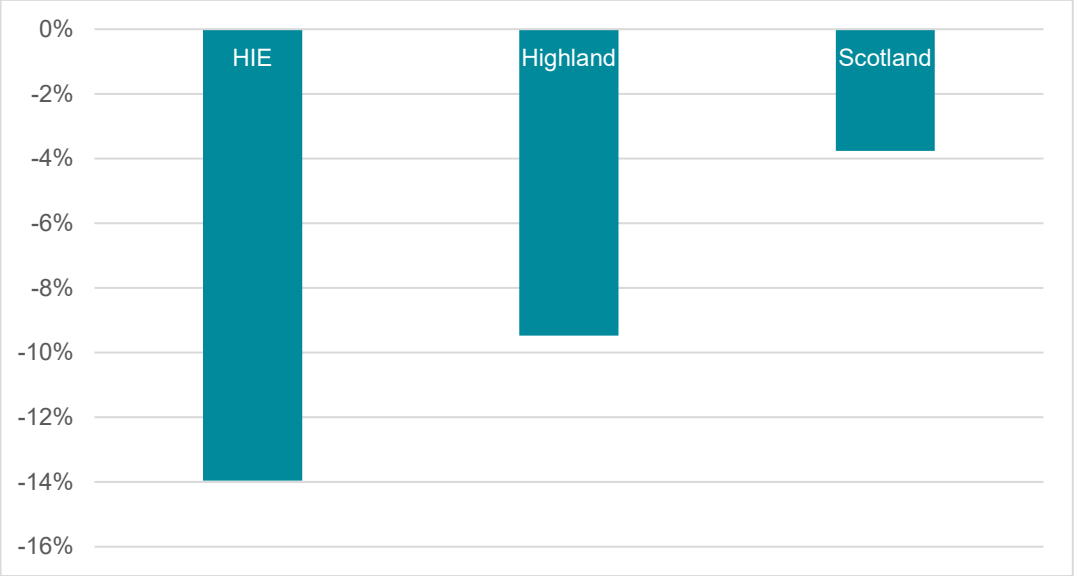


Source: Scottish Government (www.statistics.gov.scot)

In 2001 the Highland area had 1 percentage point more over 65s than Scotland as a whole (17% compared to 16%). By 2043 the gap will be 5 percentage points (30% compared to 25%). This pronounced age structure in the Highland area will put unique pressures on public services focused at both the younger and older age groups. The 2018 projection predicts that Highland will have over 6,000 fewer young people in 2043 compared to 2018. This may have implications for the education services within the area in the context of an overall declining population, the number of over 65s in the Highland region is projected to grow by about 33% or by over 17,000 people. This will mean that the demand for health and social care services is likely to grow despite an overall declining population.

The combination of a marked rise in older people and the overall decline in populations means that the 2018 projections expect declines in the working age cohort across all areas.

Figure 3.4.3: Changes to the working age (16-64) population by areas 2018-43



Source: Scottish Government (www.statistics.gov.scot)

These population trends inevitably result in a worsening dependency ratio for all areas. However, as expected, the situation in the Highland area is more acute and worsening than in Scotland in general. Scotland's dependency ratio in 2043 is only marginally worse than the Highland's was in 2018.

Table 3.4.3: Dependency ratio between 2018 and 2043 for Highland and Scotland

	Highland		Scotland	
	2018	2043	2018	2043
0-15	39,335	33,273	919,502	823,165
65+	51,996	69,429	1,026,114	1,390,653
Total	**91,331**	**102,702**	**1,945,616**	**2,213,818**
16-64	144,209	130,548	3,492,484	3,361,001
Ratio	0.63	0.79	0.56	0.66
Change		24%		18%

Source: Scottish Government (www.statistics.gov.scot)

3.5 Migration

Scottish migration statistics are only held at council area level. They have, however, been calculated on a similar basis since 2002, which provides a long period to analyse the data, as the charts below show.

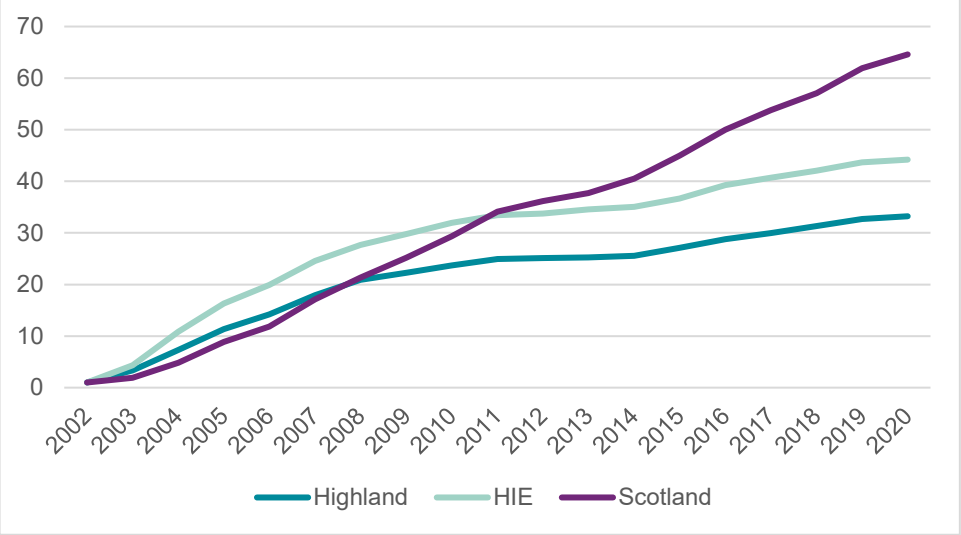
Figure 3.5.1: Annual net migration for the Highland and Scotland: 2002-2020

Source: Scottish Government (www.statistics.gov.scot)

The charts show that both Highland and Scotland had strong net migration at the start of the century. The Highland area's net migration went into serious decline from 2007 to a low point in 2013. Whilst it has recovered since, it is still only at about 33% of its earlier peak. By contrast, Scotland's net migration flows remained relatively strong throughout this period except for a small decline in 2007-08 and a larger decline in 2012-14, though it recovered quickly from both depressions. Both Highland and Scotland have shown declines in net migration in 2020 which is probably due to the Covid-19 pandemic.

Over time these patterns produce a marked cumulative difference in total net migration since 2002 between the Highland area and Scotland.

Figure 3.5.2: Cumulative net migration for the Highland, HIE area and Scotland for 2002-2020.



Source: Scottish Government (www.statistics.gov.scot)

If Highland's net migration had kept pace with Scotland's since 2002, there would now be another 46,000 people in the area.

One interviewee highlighted that the HIE area had traditionally lost young people who left the area to attend Universities elsewhere. The age profile of migration trends certainly supports this view. These statistics have been compiled using 0-25 years as a definition of "young people". This better captures decisions made by undergraduate and post graduate students, than the more traditional definition of young people which is 0-15 years.

Table 3.5.1: Highland net migration over time by age band.

Highland	2002-2005	2006-2010	2011-2015	2016-2020	TOTAL	% of total
0-25	(65)	586	(1,092)	(575)	(1,146)	-5%
25-64	7,227	7,709	3,665	5,240	23,841	101%
65+	922	527	(110)	(314)	1,025	4%
TOTAL	8,084	8,822	2,463	4,351	23,720	100%

Source: Scottish Government (www.statistics.gov.scot)

The Highland area witnessed an overall outflow of young people over the period and saw a net outflow in 3 out of 4 time periods under consideration. These outflows partly explain why Highland's population is aging at a faster rate than Scotland's. As the table below shows Scotland is good at attracting young people.

Table 3.5.2: Scotland net migration over time by age band.

	2002-2005	2006-2010	2011-2015	2016-2020	TOTAL	% of total
0-25	31,515	74,468	63,829	72,363	242,175	59%
25-64	20,245	52,105	34,641	49,308	156,299	38%
65+	4,108	5,650	(8)	1,905	11,655	3%
TOTAL	**55,868**	**132,223**	**98,462**	**123,576**	**410,129**	**100%**

Source: Scottish Government (www.statistics.gov.scot)

Scotland's success at attracting young people is probably due in part to its vibrant university sector. According to the complete university guide (www.thecompleteuniversityguide.co.uk/league-tables/rankings) Scotland has 8 of the top 50 universities in the UK (St Andrews, Edinburgh, Glasgow, Dundee, Aberdeen, Heriot Watt, Strathclyde and Stirling). By contrast the North of England, with a total population that is nearly 3 times that of Scotland, has 9 universities in the top 50.

Population Key Messages.

- Caithness and Sutherland, Highland and the HIE area have a population that is not only aging but is also aging more rapidly than Scotland in general.
- In 2001 the area's age structure was broadly like Scotland. By 2043 it will have a significantly older population.
- In 2001 the Highland area had 0.57 dependents (children and older people) for every working age person. That ratio was 0.63 in 2018 and is forecast to increase to 0.79 by 2043. This figure puts the Highland Area above the UN's projection for Europe by 2050 (0.74). The UN predicts that Europe will have comfortably the highest ratio by 2050 compared to other continents.
- The changing nature of the population structure presents its own questions for public policy.

  - School numbers will be under continuing pressure as the number of children falls.
  - The increase in older people will increase the demand for health and social care services, even in the context of an overall decline in local population numbers. This will raise important questions for local NHS management.
  - The rise in the dependency ratio also begs questions of where to deploy scarce labour – in wealth generating sectors to raise tax revenues or to provide key public services. Policies that promote economic activity in the over 65s and promote general labour productivity can certainly help here.

- Net migration levels into the Highland area have been consistently lower proportionately than for Scotland as a whole.
- The Highland area has generally seen net outflows of young people, which has been balanced by inflows of older working age people.
- The age profile of Scotland's net migration is markedly different to the Highland area. It is a net importer of young people, probably due to its vibrant University sector.

3.6 Employment

Caithness and Sutherland have seen a 6% fall in overall employment between 2005 and 2020. This contraction contrasts with increases in employment in the HIE area and Scotland.

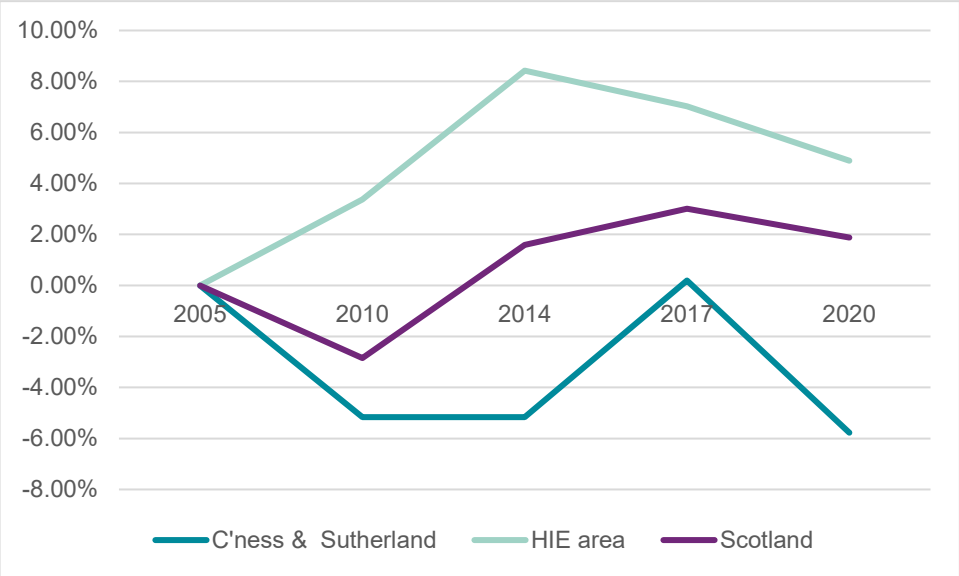
The fall in all areas between 2017 and 2020 is probably due to the Covid-19 pandemic. Future reviews will no doubt comment on whether this was a permanent decline or a temporary feature. Until 2019 however Caithness and Sutherland had performed noticeably worse than both the HIE area and Scotland. The weak demographic base of the area probably has a complex relationship with this employment picture. Whilst there is a clear correlation between falling population numbers and falling employment numbers, it is not certain which decline is causing the other. Put simply, is the area losing people as it is losing jobs or is it losing jobs as it has fewer people to fill them?

Table 3.6.1: Caithness and Sutherland, HIE and Scotland Employment totals

	2005	2010	2014	2017	2020	Change from 2005	% Change from 2005
C'ness & Sutherland	15,500	14,700	14,700	15,530	14,605	-895	-5.8%
HIE area	189,900	196,300	205,900	203,250	199,200	9,300	4.9%
Scotland	2,398,800	2,330,500	2,437,100	2,471,000	2,444,000	45,200	1.9%

Source: NOMIS

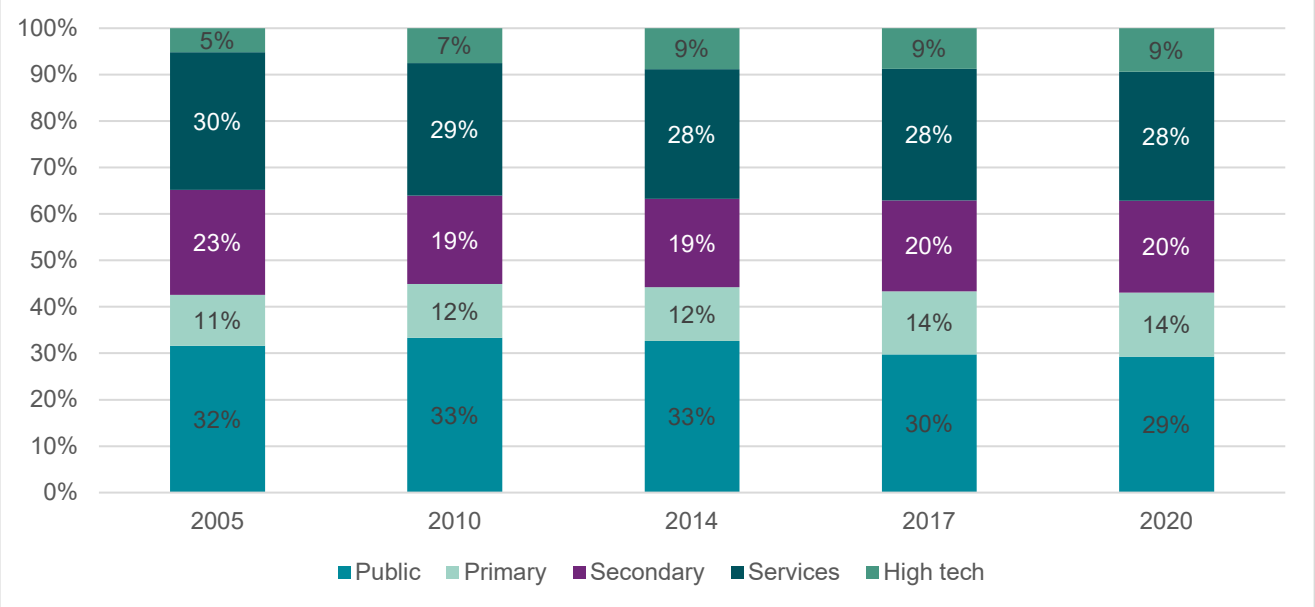
Figure 3.6.1: Caithness and Sutherland, HIE and Scotland Employment change (base = 2005)



Source: NOMIS

Caithness and Sutherland have witnessed several changes in the employment sectors that people work in. The employment mix has shifted over time towards primary and high technology sectors and away from other sectors. This probably reflects the influence of Dounreay and new offshore wind projects. It is worth noting that the area has lost 500 jobs in the health sector and 100 jobs in education between 2005 and 2020.

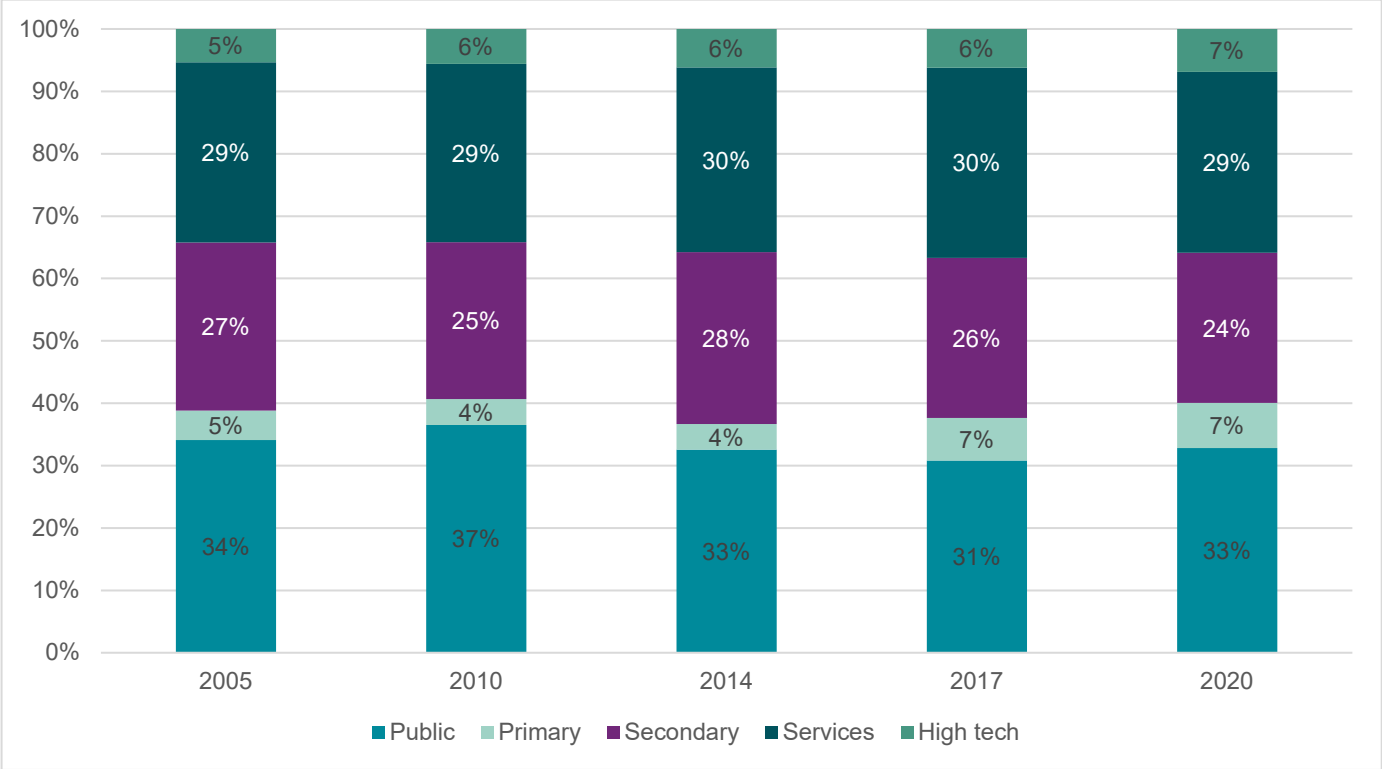
Figure 3.6.2: Caithness and Sutherland employment mix over time



Source: NOMIS – Using broad category numbers: 1,2 – Primary, 3,4 – Secondary, 15,16,17 – Public, 13,10 – High Tech. All others - services

The employment mix for the HIE area looks noticeably different than for Caithness and Sutherland. Overall, it is more stable, has more public sector jobs, and fewer primary and high tech sector jobs.

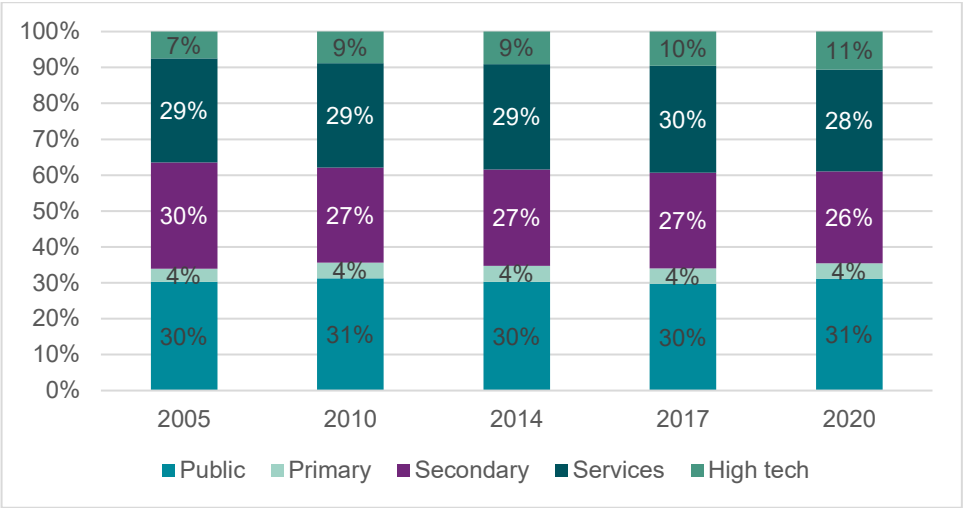
Figure 3.6.3: HIE area employment mix over time



Source: NOMIS – Using broad category numbers: 1,2 – Primary, 3,4 – Secondary, 15,16,17 – Public, 13,10 – High Tech. All others - services

Scotland's employment mix is quite interesting. There has been a noticeable move out of secondary sector jobs and into high tech jobs. This again will reflect Scotland's emerging strength in STEM graduates from its high quality universities.

Figure 3.6.4: Scotland area employment mix over time



Source: NOMIS – Using broad category numbers: 1,2 – Primary, 3,4 – Secondary, 15,16,17 – Public, 13,10 – High Tech. All others - services

Location Quotients

Location quotients for Caithness and Sutherland compare the concentration of the local employment base against Scotland's overall employment basis. A score of more than 1 means that sector is more important to the area than to Scotland as a whole (a score of less than 1 means the opposite).

Caithness and Sutherland show strong concentrations in certain key sectors. Not surprisingly employment in mining, quarries, and utilities (which include Dounreay) is much more important in the area than in Scotland as a whole. One interesting trend is that since 2005, Caithness and Sutherland's economy has tended to become more concentrated in its key sectors. Additionally, sectors that were weak in 2005 have generally become even weaker since. This means that the area is increasingly concentrating on its historic strengths. The full table is in the appendices.

Table 3.6.4: Location Quotients – Caithness and Sutherland

Location Quotient for areas. Measured against the Scottish average distribution	Caithness	Caithness & Sutherland	Caithness	Caithness & Sutherland
	2020	2020	ch since 2005	ch since 2005
KEY SECTORS				
2: Mining, quarrying & utilities	5.91	4.40	0.58	0.31
7: Retail	1.21	1.13	0.44	0.39
9: Accommodation & food services	1.01	1.45	0.01	0.04
LEAST IMPORTANT SECTORS				
11: Financial & insurance	0.31	0.22	0.11	-0.06
14: Business admin & support services	0.33	0.31	-1.33	-0.97
12: Property	0.52	0.88	-1.33	-0.87

Source: ABI and BRE

When comparing Caithness and Sutherland to the HIE region, Caithness and Sutherland's dependence on mining, quarries and utilities is stark.

Table 3.6.5: Location Quotients C&S compared to HIE

2020 LQ differences	Caithness & Sutherland	HIE Area	Difference
1: Agriculture, forestry & fishing	1.18	2.91	1.73
2: Mining, quarrying & utilities	4.40	0.95	3.45
5: Motor trades	0.57	0.98	0.41
3: Manufacturing	0.62	1.00	0.37
14: Business admin & support services	0.31	0.64	0.33

Source: ABI and BRES

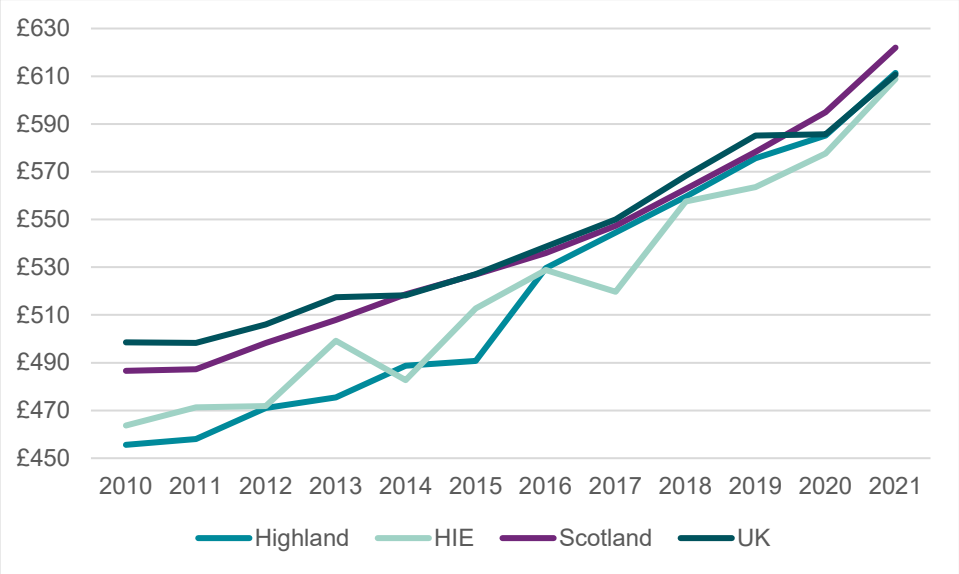
Wages

Data for wages are unavailable below the local authority level. The wider areas of Highland, the HIE region, Scotland and the UK have been compared for reference.

Gross weekly wage levels in all areas have seen a steady increase since 2010. A noticeable feature has been the robust performance of the Highland area, the HIE area and Scotland relative to the UK. In 2010,

for example the Highland area's average wage was 8% below the UK's; by 2020 it was basically level. Scotland has moved from having lower average wages than the UK in 2010 to having higher average wages in 2020.

Table 3.6.2: Gross Weekly Wages for Full time Workers



Source: Annual Survey of Hours and Earnings, HIE Figure provided by Highlands and Islands Enterprise
Note: Wages are given in nominal prices for each year rather than at constant prices

Key messages:

- Caithness and Sutherland have a highly concentrated employment base, which specialises in mining, quarrying and utilities. This is mainly due to Dounreay and increasing offshore wind.
- This concentration has increased over the past 15 years due to continuing strong employment at Dounreay, the growth in offshore wind employment at Wick Harbour and a small overall reduction in employment generally.
- The Highland area, the HIE area and Scotland have seen wages increase strongly since 2010. The Highland area has closed the gap on the UK average to virtually nothing, whilst Scotland has overtaken it. There is no data for wages below the Highland area, and so it is unclear whether this improved picture refers to all districts of the Highland area or whether some areas (probably Inverness) have seen much stronger performance than other areas.

3.7 Business Base

The UK Government's NOMIS data base presents data on business numbers by 18 sectors. Relevant tables are reproduced in full in the appendices. This section is focussed on the top 7 sectors for each geography.

Between 2010 and 2021 Caithness has seen its registered business base increase by 11%. Professional, scientific, and technical businesses accounted for 44% of this increase, with construction accounting for a further 16%. The biggest faller was the retail sector, which probably reflects the UK wide decline in retail as online shopping grows. One interviewee commented that older business owners are increasingly just shutting up shop when they retire rather than passing on the business to a younger family member.

The 7 largest sectors account for about 82% of businesses in Caithness in 2021.

Table 3.7.1: Caithness Business Base

Broad Business Group (in order of priority)	2010	2015	2017	2021	Cum. share
1: Agriculture, forestry & fishing (A)	450	460	455	455	35.4%
4: Construction (F)	135	140	145	155	47.5%
13: Professional, scientific & technical (M)	90	175	175	145	58.8%
7: Retail (Part G)	115	110	110	90	65.8%
9: Accommodation & food services (I)	70	75	80	75	71.6%
14: Business administration & support services (N)	60	65	85	75	77.4%
3: Manufacturing (C)	65	80	80	65	82.5%
Other sectors	175	235	210	225	100.0%
TOTAL	**1,160**	**1,340**	**1,340**	**1,285**	

Source: Nomis – sector number refers to the numbering scheme on the NOMIS database.

The wider Caithness and Sutherland business base is very similar to the Caithness business base.

Table 3.7.2: Caithness and Sutherland business base

Broad Business Groups	2010	2015	2017	2021	Cum share
1: Agriculture, forestry & fishing (A)	750	795	780	805	35.9%
4: Construction (F)	245	240	245	270	47.9%
13: Professional, scientific & technical (M)	125	260	260	210	57.2%
9: Accommodation & food services (I)	150	165	165	175	65.0%
7: Retail (Part G)	185	180	185	150	71.7%
14: Business administration & support services (N)	105	120	140	130	77.5%
3: Manufacturing (C)	105	120	125	110	82.4%
Other sectors	335	445	380	395	100.0%
TOTAL	**2,000**	**2,325**	**2,280**	**2,245**	

Source: Nomis

The trends are similar in that the biggest growth in the business base was in professional, scientific, and technical businesses, whilst the biggest decline was in retail. The main notable difference was that the Caithness and Sutherland business base for agriculture, forestry and fishing increased by 7% over the period compared to only 1% across Caithness on its own. Adding in Sutherland produces a slightly more concentrated business base compared to Caithness, with the 7 largest sectors accounting for 80-83% of businesses over the period.

The wider HIE area business base has also grown by 11% over the period. Its key trends (growth in agriculture, forestry and fishing, and professional, scientific, and technical businesses offset partially by a decline in retail) are like Caithness and Sutherland. Its concentration figure for its 7 largest sectors is though lower at about 70%, indicating the more diverse business base of the larger area.

Table 3.7.3: HIE area business base

Broad Industrial Groups	2010	2015	2017	2021	2021 Cum Share
1: Agriculture, forestry & fishing (A)	5,015	5,185	5,190	5,315	22.2%
4: Construction (F)	2,545	2,580	2,670	2,830	34.0%
13: Professional, scientific & technical (M)	1,695	2,560	2,560	2,310	43.7%
9: Accommodation & food services (I)	1,860	2,045	2,055	2,155	52.7%
7: Retail (Part G)	1,825	1,735	1,665	1,495	58.9%
14: Business administration & support services (N)	980	1,290	1,375	1,350	64.6%
18: Arts, entertainment, recreation & other services (R, S, T and U)	1,220	1,360	1,330	1,290	69.9%
Other Sectors	6,620	7,015	7,112	7,196	100.0%
TOTAL	**21,760**	**23,770**	**23,957**	**23,941**	

Source: Nomis

Overall Scotland's business base has grown noticeably faster than the areas discussed so far. It has grown by 21% in the 2010-21 period. However, some trends such as a growth in professional, scientific, and technical businesses and a decline in retail businesses are still prominent at a national level. Scotland's top 7 sector concentration score of 68% is similar to the HIE area.

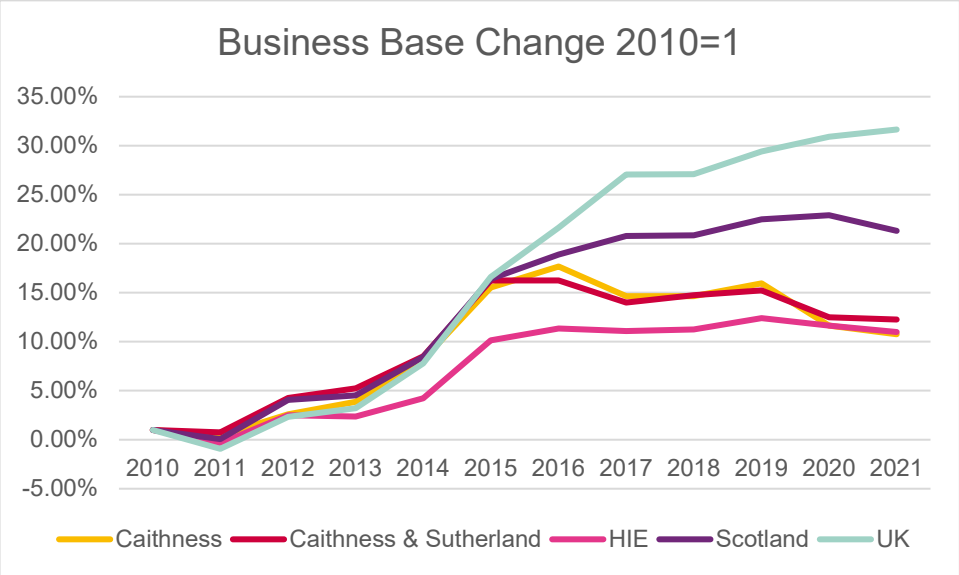
Table 3.7.4: Scotland business base

Broad Industrial Groups	2010	2015	2017	2021	2021 Cum share
13: Professional, scientific & technical (M)	21,280	31,585	32,450	28,785	16.2%
4: Construction (F)	18,015	18,420	19,790	21,055	28.1%
1: Agriculture, forestry & fishing (A)	16,840	17,205	17,195	17,245	37.8%
9: Accommodation & food services (I)	12,075	13,380	13,585	14,405	45.9%
7: Retail (Part G)	14,155	13,975	13,460	13,595	53.6%
14: Business administration & support services (N)	8,520	11,300	12,420	13,085	61.0%
18: Arts, entertainment, recreation & other services (R, S, T and U)	10,625	12,405	12,455	12,645	68.1%
Other sectors	45,070	52,020	55,292	56,601	100.0%
TOTAL	**146,580**	**170,290**	**176,647**	**177,416**	

Source: Nomis

As the chart below highlights, Caithness and Caithness and Sutherland's relatively poor performance in increasing their business bases compared to Scotland is a relatively recent development. Until 2015 the areas broadly kept pace with growth in the Scottish economy.

Figure 3.7.1: Growth in the business base since 2010 (2010=1)



Source: Nomis

The table below shows the trend in changes to employment levels and the business base levels between 2015 and 2020.

Table 3.7.5: Changes to employment and the business base between 2010 and 2020

	Employment	Business Base
Caithness	-3.93%	1.13%
Caithness & Sutherland	-2.74%	0.43%
HIE Area	-2.45%	1.31%
Scotland	-0.78%	5.60%
UK	2.68%	12.26%

Source: Nomis

Caithness and Caithness and Sutherland suffered employment falls compared to increases for the HIE region and Scotland. The rise in businesses in Caithness and Sutherland implies that established firms are reducing employment which is only partially offset by employment in new businesses.

The Caithness figures have resulted in a marked change to the average size of business in the area. The average number of employees has declined by 11.4% between 2010 and 2020. The wider area of Caithness and Sutherland has seen a similar change. By contrast both the HIE area and Scotland have seen a small increase in average employees per business over the period.

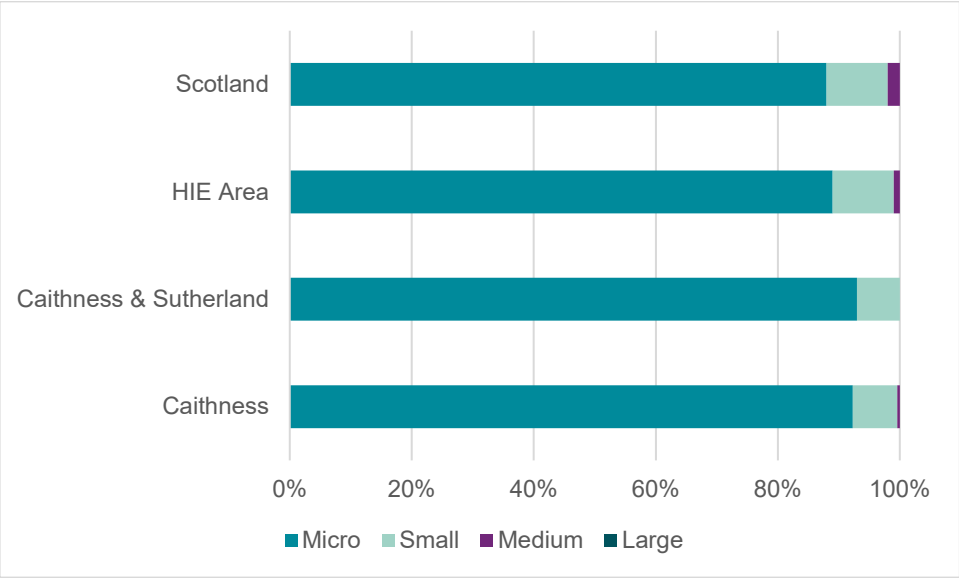
Table 3.7.6: Changes to average employment numbers per business between 2010 and 2020

	2010	2020	Reduction
Caithness	9.22	8.17	-11.4%
Caithness & Sutherland	7.35	6.51	-11.5%
HIE	9.04	9.09	0.6%
Scotland	13.85	13.93	0.6%

Source: Nomis

These trends result in Caithness and Caithness and Sutherland having a different business base by employment size compared to both the HIE area and Scotland. The employment base is more weighted towards micro businesses and less weighted towards medium and large businesses, as the following figure suggests.

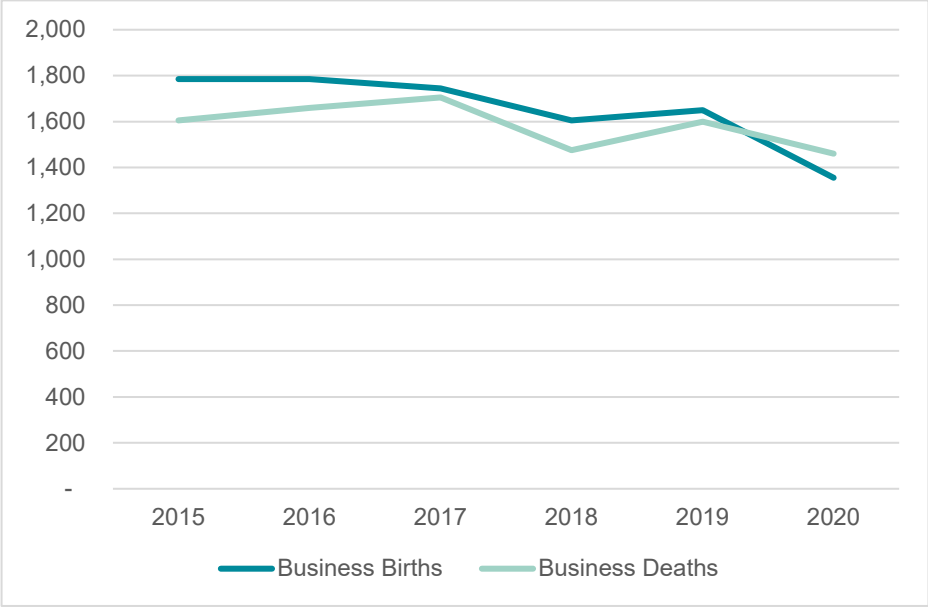
Figure 3.7.2: Business base mix by size (2020)



Source: Nomis:
Note: Micro – 0-9 employees; Small – 10-49 employees; medium – 50-249 employees; Large – more than 249 employees

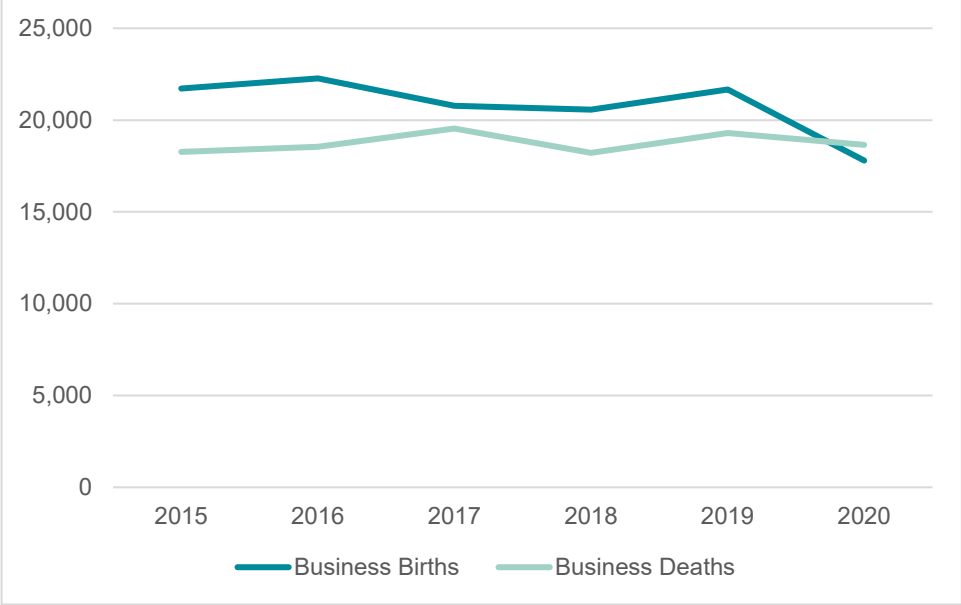
Examining business birth and business deaths, in both the HIE area and Scotland from 2015 to 2020, business births were always higher than business deaths until 2019. These trends reversed in 2020 with business deaths exceeding business births. This reversal is probably due to the Covid-19 pandemic.

Figure 3.7.3: Business Births and Business Deaths in the HIE Area: 2005-20



Source: NOMIS

Figure 3.7.4: Business Births and Business Deaths in the Scotland: 2005-20



Source: NOMIS

Key Messages

The key messages regarding the business base are:

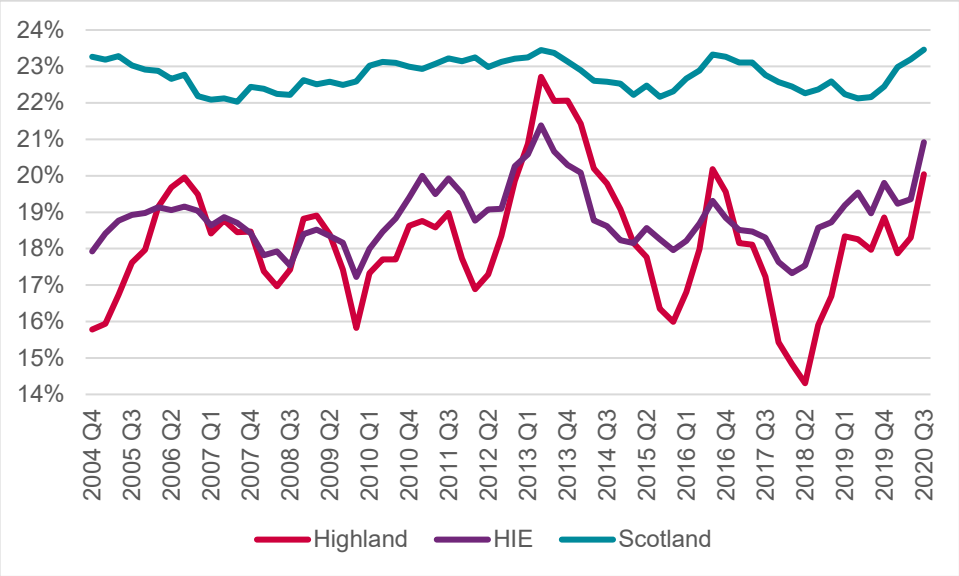
- there are a total of 1,285 registered businesses operating in Caithness and 2,245 businesses trading in Caithness and Sutherland.
- Whilst business numbers are comfortably up in the area between 2010 and 2021, employment levels have fallen. The inevitable consequence of this is that average employees per business has fallen markedly.

- Caithness and Sutherland's employment is more weighted towards micro businesses (9 or fewer employees) than either the wider HIE area or Scotland in general.
- The business base in Caithness and Sutherland tends be more concentrated than in the HIE or Scotland around its core sectors. The top 7 sectors account for about 80% of all businesses in Caithness and Sutherland, whilst for the HIE area and Scotland the figure is about 70%.
- The major developments in the business base between 2010 and 2020 have been the growth in professional, scientific, and technical professions, offset to some extent by the decline in retail businesses. Over the last 5 years the decline in retail businesses has been a noticeable trend across all geographical areas.
- Caithness and Caithness and Sutherland are more dependent upon micro-businesses than the HIE area and Scotland.

3.8 Economic Activity and benefits

As the chart below shows, inactivity rates for Highland and the HIE area have been lower and more unstable than for Scotland as a whole.

Figure 3.8.1: Economic inactivity rates for 2004-20 for named areas.



Source: Scottish Government – www.statistics.gov.soct

Over the period Scottish rates have averaged 22.8% with a standard deviation of 0.4%, Highland rates have averaged 18.2%, with a standard deviation of 1.7%.

This low rate of inactivity reflects in the claimant count for the areas. This uses DWP sources, and Mace can extract data for Caithness and Sutherland for this measure. The DWP alternative claimant count method groups together all benefits paid to people who are unemployed.

Figure 3.8.1: Claimant count – November 2015 to November 2021

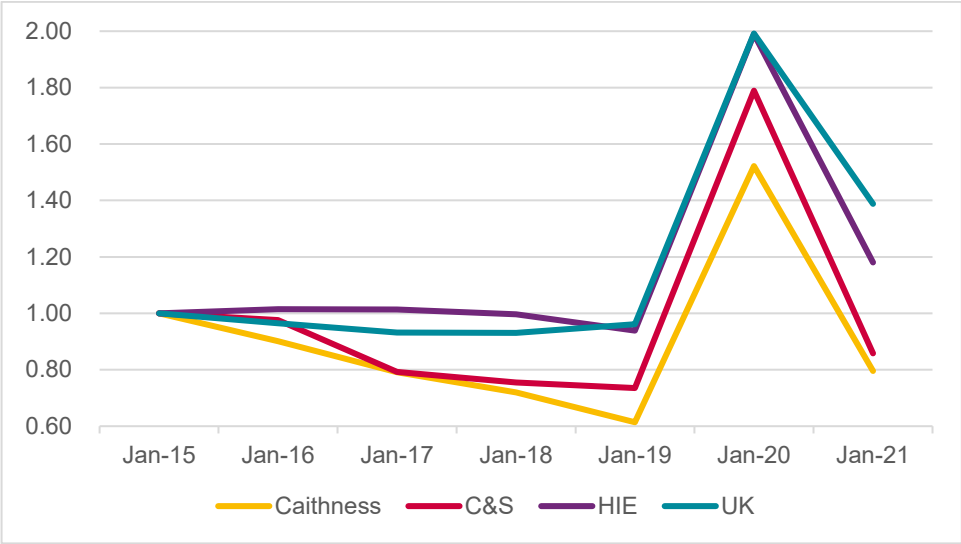
	Nov-15	Nov-16	Nov-17	Nov-18	Nov-19	Nov-20	Nov-21	Claimant rate
Caithness	456	411	361	328	280	694	363	2.4%
C&S	593	579	470	448	436	1,061	509	2.2%
Highland	3,335	3,306	3,443	3,319	2,976	6,806	3,915	1.3%
HIE	6,913	7,014	7,005	6,889	6,490	13,754	8,157	2.8%
Scotland	116,643	114,595	110,594	108,656	106,947	204,832	130,829	3.7%
UK	1,322,622	1,275,878	1,232,873	1,231,060	1,271,013	2,634,440	1,836,408	4.4%

Source: DWP

The claimant rate simply divides the claimant count for November 2021 by the working age population for December 2021 for the relevant areas. It enables comparison across areas.

The general picture shows that the claimant count for Caithness and Sutherland has declined over the period (compared to growth for all other areas) and that the claimant rate is below every other geographical unit except Highland. The claimant rate for Caithness and Sutherland is about half of that for the UK in general. The following chart highlights the robust performance on the claimant count relative to other areas for Caithness and Sutherland.

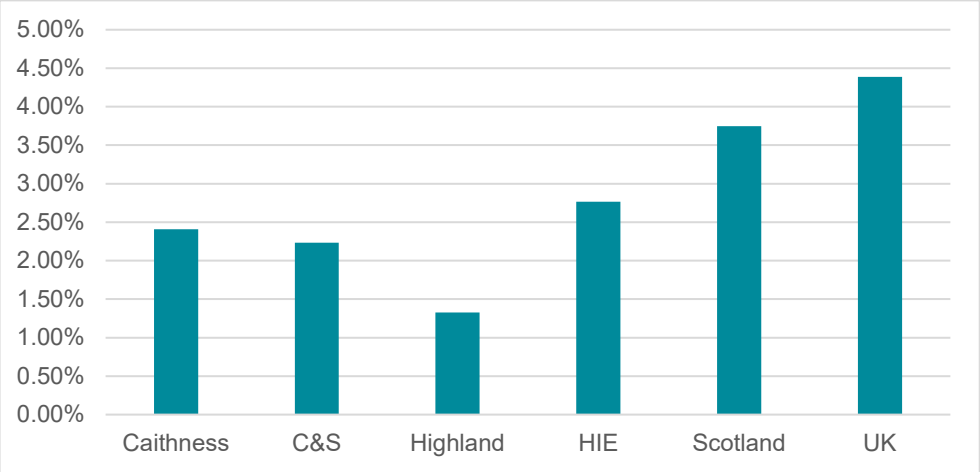
Figure 3.8.2: Movement in the claimant count between 2015 and 2020 (2015 =1)



Source: DWP

The data for youth unemployment for November 2021 presents a similarly strong picture for Caithness and Sutherland with local rates significantly below the UK average.

Figure 3.8.3: Claimant count rate for 18-24 year-old people for November 2021.



Source: DWP

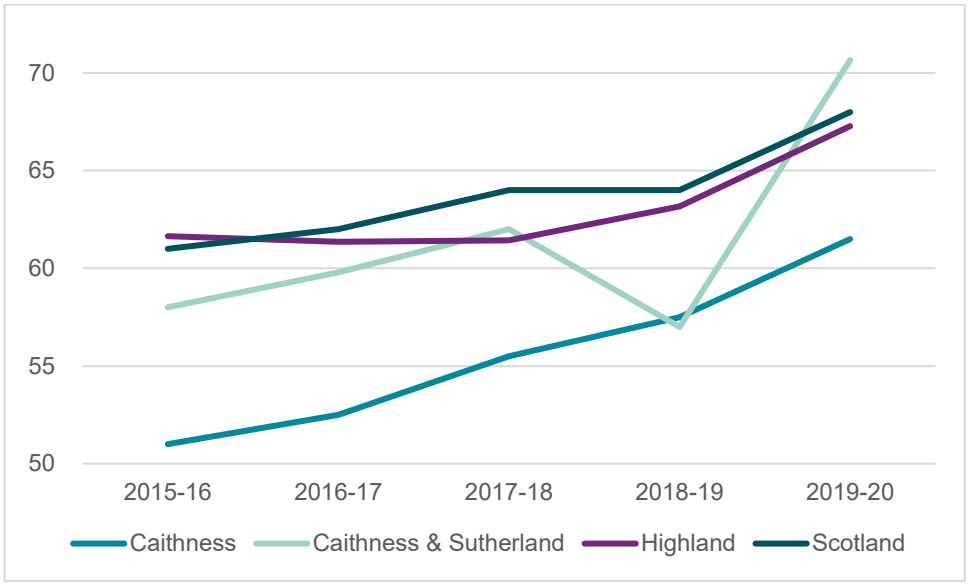
Using the claimant and inactivity analysis, with the population projection and the employment rate presents an interesting picture of the working age population for Caithness and Sutherland. The overall working age population has declined recently. This coupled with low inactivity rates and low claimant rates has resulted in a decline in employment in the area. There is a real possibility that the decline in the employment rate is equally due to long term demographic decline in the working age population as any economic factors, which may exist.

3.9 Skills

A key education measure is the number of pupils at senior level 4 (S4) that achieve 5 or more awards at Scottish Credit and Qualifications Framework (SCQF) level 5. Most pupils take these examinations in the school year they become 16 years old, and they are taken at the same time as GSCEs in the rest of the UK. S4 attainment in the Highlands, Caithness and Sutherland and Scotland has been relatively similar, steadily increasing an average of 7% between 2015-16 and 2019-20, apart from a dip in 2018-19 for Caithness and Sutherland. Comparatively, S4 attainment in Caithness has been consistently below this level, on average 8% lower than Scottish level.

There has been improvement in all areas in recent years, particularly in Caithness & Sutherland where attainment in 2019-20 now exceeds that of the Highland area.

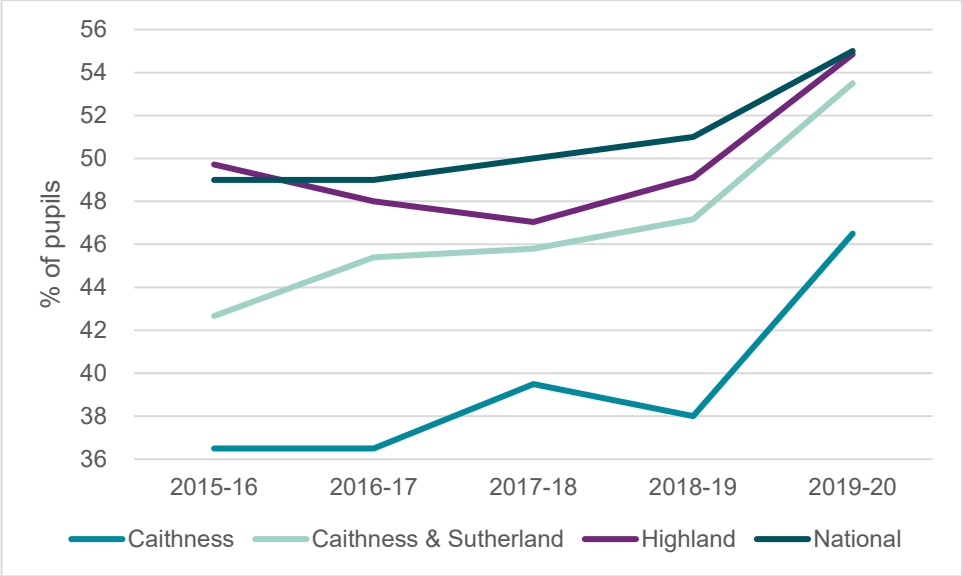
Figure 3.9.1: % S4 Pupils Achieving 5+ Awards at SCQF Level 5



Source: Scottish Government

There is a similar picture with regards to S6 attainment, which is poor in Caithness compared to the Highlands, Scotland, and Caithness & Sutherland but there has been a notable improvement in 2019-20.

Figure 3.9.2: % Pupils Achieving 3+ Awards at SCQF Level 6

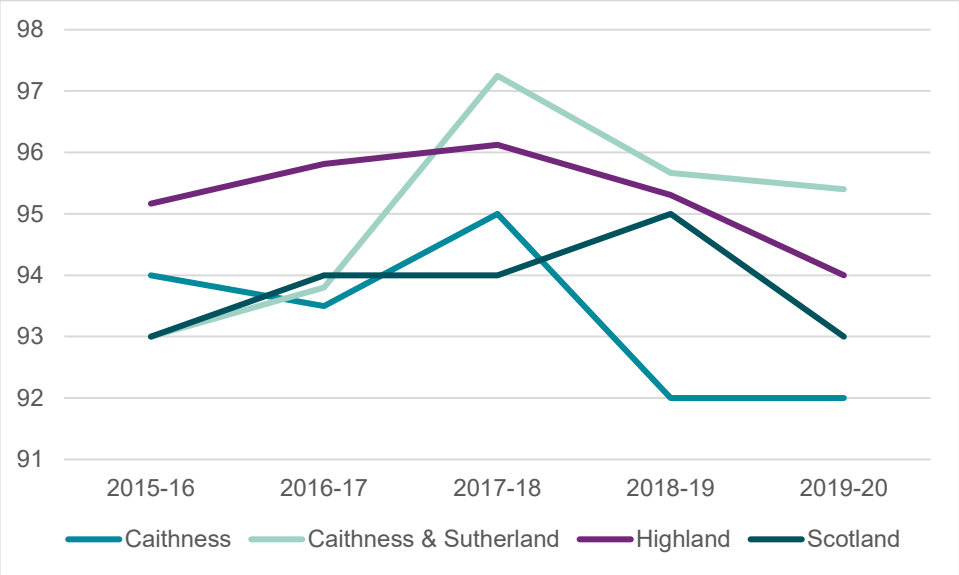


Source: Scottish Government

The percentage of school leavers going onto a positive destination (defined as an apprenticeship, a full time job or a place at a university or college) in Caithness and Caithness and Sutherland has been broadly similar to the Scottish level. Notably, Caithness and Sutherland have seen a higher percentage of pupils entering a positive destination than the Scottish average across 2015-2020, apart from 2016-17.

The destinations of school leavers are broadly similar across all areas except for the HIE area, where leavers are much more likely to go straight into employment and are less likely to enter further education or unemployment.

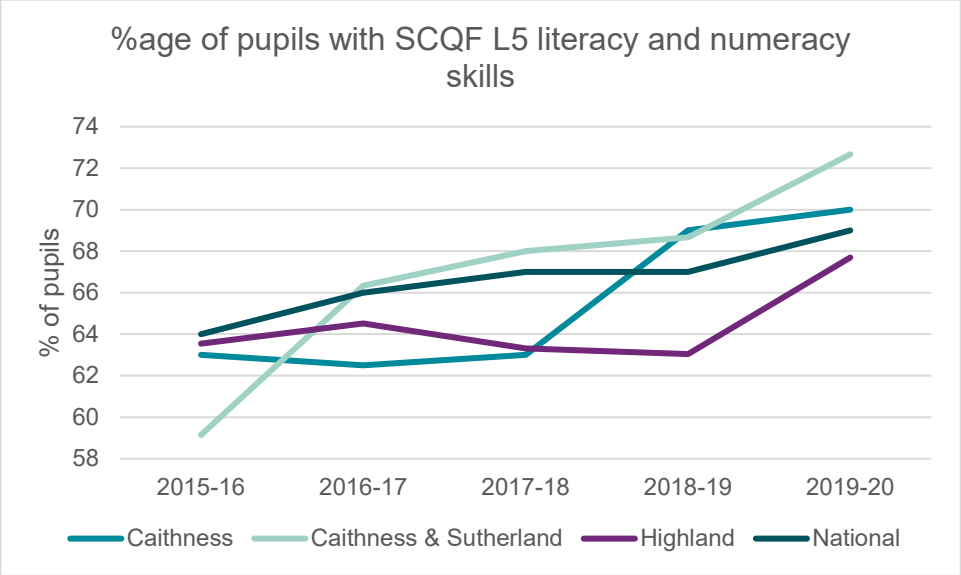
Figure 3.9.3: School Leavers Entering a Positive Destination



Source: Scottish Government

Core literacy skills for Caithness, Caithness and Sutherland, Highland and Scotland have improved since 2015-16. Both Caithness and Caithness and Sutherland have seen a larger improvement though. In 2015-16 they were behind the scores for Highland and Scotland; by 2019/20 there were ahead. The small school roll in the area makes these scores susceptible to big changes as factors which do not show at a national level (such as the quality of a year group or changes to the teacher population) can have a marked effect at school level.

Figure 3.9.4: Percentage of pupils with literacy and numeracy skills at level 5

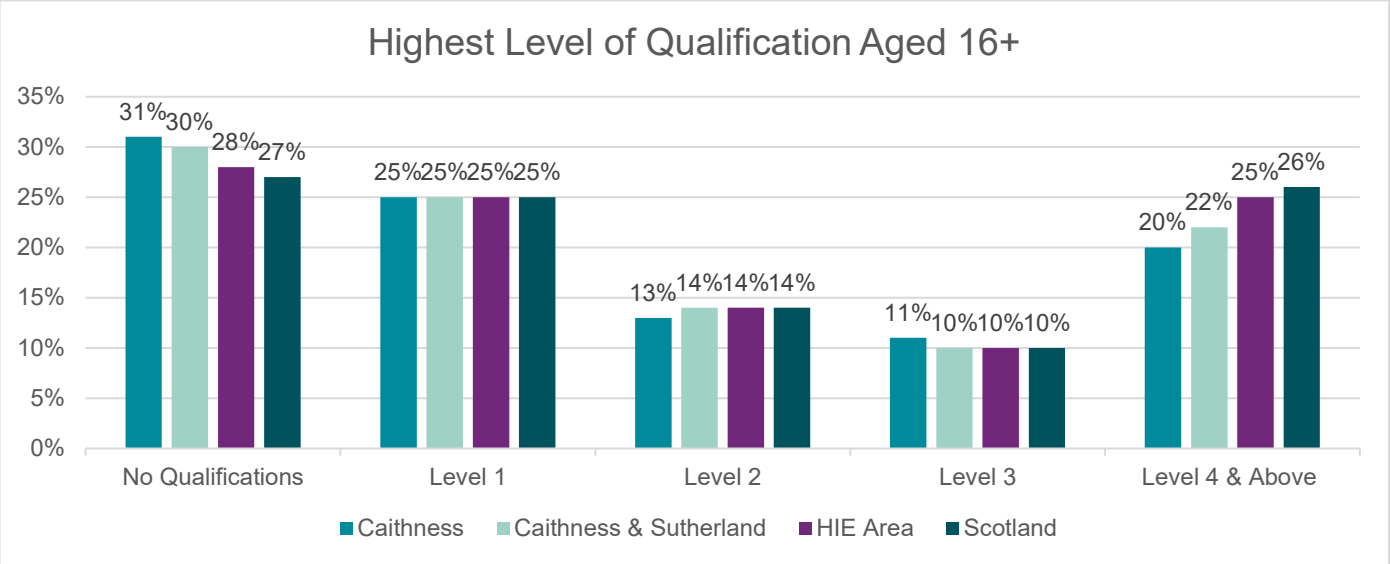


Source: Scottish Government

Over 16s in Caithness and Caithness & Sutherland are more likely to have no qualifications and less likely to have a degree level qualification than those in the HIE area and Scotland. This is, perhaps, an unexpected result due to the high number of skilled jobs in and around Dounreay.

It may be that several skilled contractors were not registered in the area for census purposes or that a greater number of older people have few qualifications due to the lack of higher education options in the region.

Figure 3.9.5: Highest Level of Qualification Aged 16+



Source: Census 2011

There has been a large expansion of Modern Apprenticeships in the Highland and wider HIE area, with the numbers increasing year on year from 2013 to 2020. However, because of the pandemic, all areas have seen a large decrease in Modern Apprenticeships starts in the year 2020.

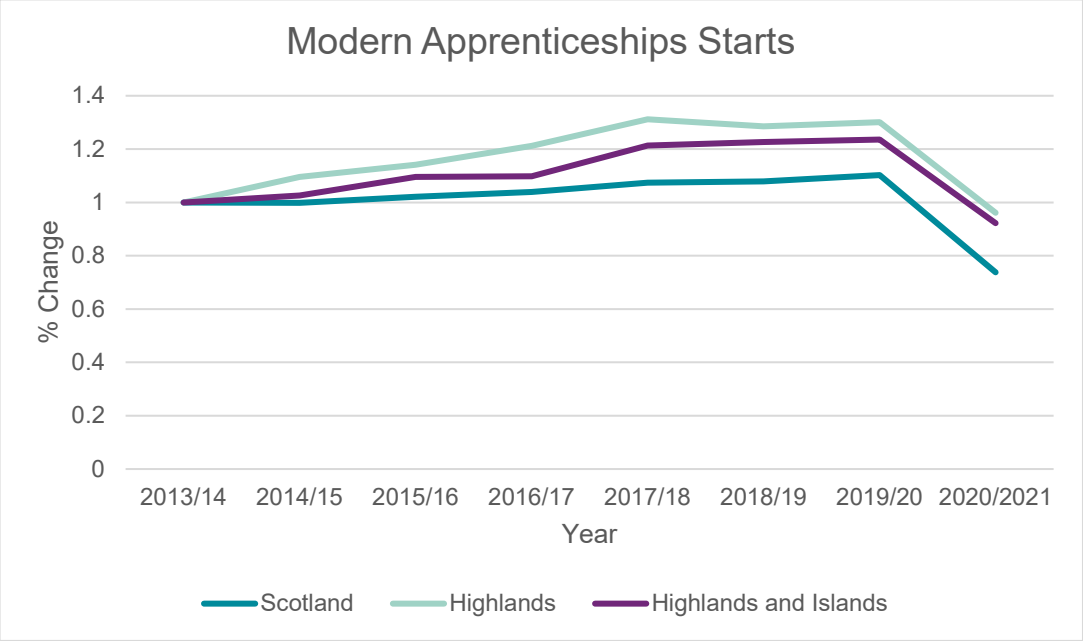
Table 3.9.1: Modern Apprenticeships Starts

	2013/14	2015/16	2017/18	2019/20	2020/2021
Scotland	25,284	25,818	27,145	27,875	18,655
Highlands	11,58	1,321	1,519	1,507	1,113
HIE Area	2,274	2,492	2,758	2,810	2,097

Source: Skills Development Scotland

When examining the yearly trend, there was an increase of 30% and 21% in apprenticeships starts in the Highlands and HIE area comparatively from 2013-14 to 2017-18. Notably this is substantially higher than the 10% change seen in Scotland over the same period. Because of the pandemic, all areas have seen a dramatic decrease in starts between the years 2019-20 to 2020-21.

Figure 3.24: Modern Apprenticeships Starts 2013-14 = 1



Source: Skills Development Scotland

Key Messages

The key messages regarding skills are:

- pupils in Caithness have generally achieved poorer educational outcomes than the Highland area and nationally, however, attainment has been improving in recent years - in particular, during 2019-20 both S4 and S6 attainment increased significantly, approaching the national average.
- school leaver destinations are broadly similar across all areas, however those in the HIE area are more likely to go straight into employment and less likely to enter unemployment.
- over 16s in Caithness and Caithness and Sutherland are more likely to have no qualifications and less likely to have degree level qualifications than in other areas.
- Modern Apprenticeships are increasingly becoming available in the HIE area compared to Scotland.
- Covid-19 has seen a dramatic fall in Modern Apprenticeships starts for years 2020-2021 across all areas.

3.10 Housing

In 2020 there were 13,860 houses in Caithness, an increase of 925 since 2008. This represents an increase of 7%. There is a smaller increase when Sutherland is included. By contrast the HIE area has seen a 12% increase, whilst Scotland saw an increase of 8%.

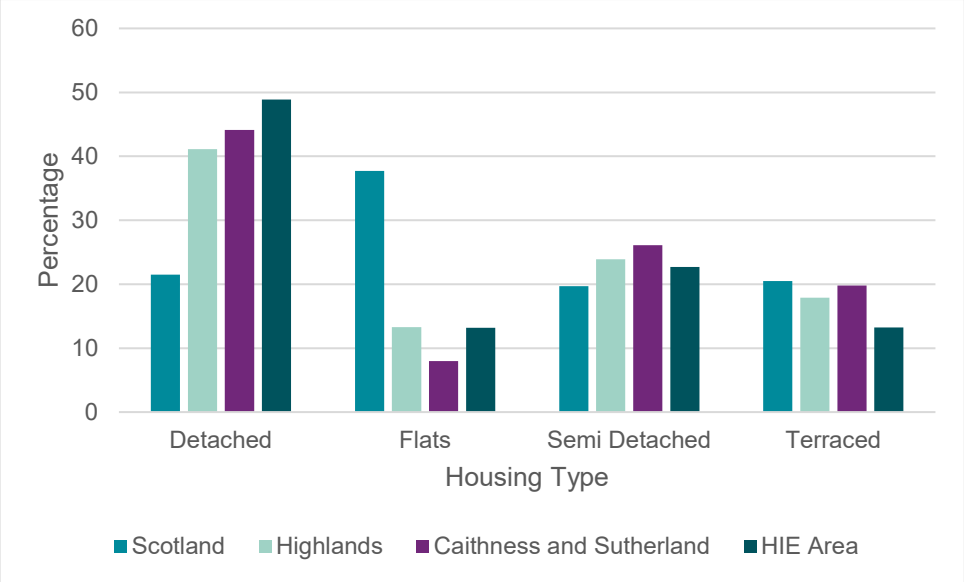
Table 3.10.1: Housing Numbers

	2008	2013	2020	Change	% Change
Caithness	12,935	13,268	13,860	925	7%
Caithness & Sutherland	20,276	20,829	21,334	1,058	5%
HIE Area	223,957	233,595	251,482	23,134	12%
Scotland	2,465,998	2,532,119	2,653,725	187,727	8%

Source: Scottish Government

As predominately rural areas, Caithness and Sutherland, the Highland area and the HIE area have a greater proportion of detached houses and a lower proportion of flats compared to Scotland.

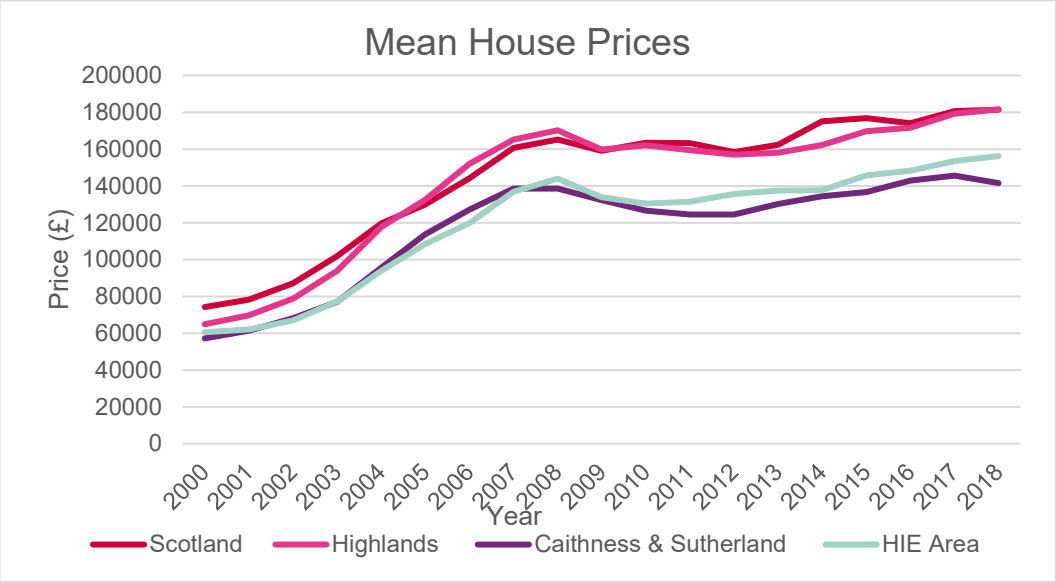
Figure 3.10.1: Dwelling types (2017)



Source: Scottish Government

House prices have been on a similar trajectory across all areas, increasing until 2008 and then levelling off. However, prices in Caithness and Caithness and Sutherland have been consistently below those of the Highland area and Scotland.

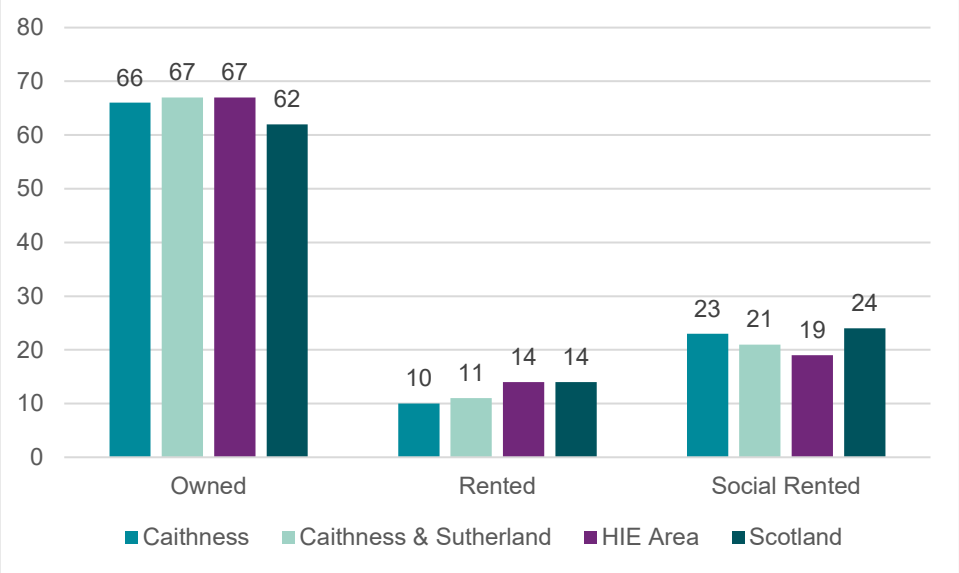
Figure 3.10.2: Mean house prices



Source: Scottish Government

Caithness and Caithness and Sutherland have higher rates of owner-occupation, and lower rates of private rent than in Scotland.

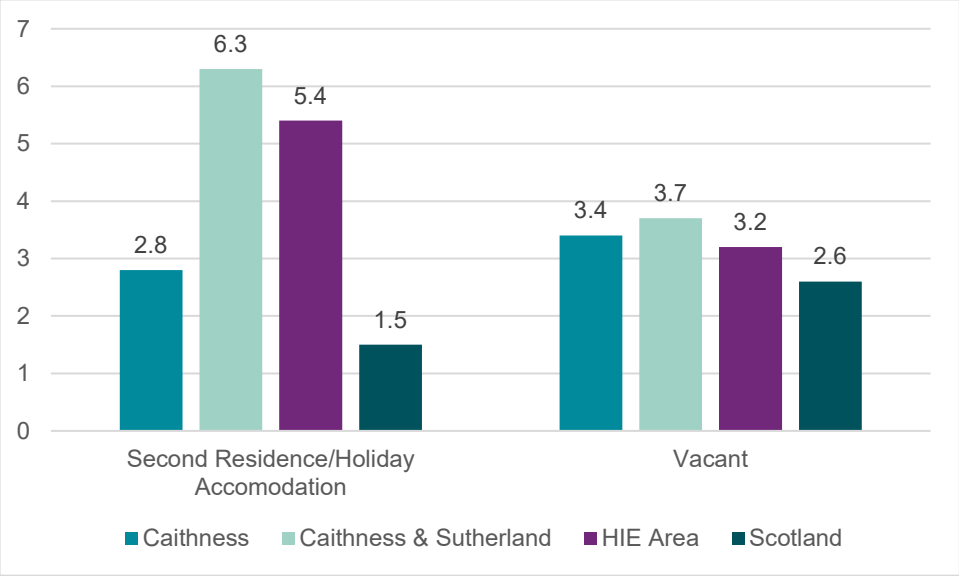
Figure 3.10.3: Tenure types



Source: Census 2011

Caithness, Caithness, and Sutherland and the HIE area all have higher proportions of unoccupied houses than Scotland. Whilst all three areas have slightly more vacant houses, Caithness and Sutherland and the HIE area have particularly high proportions of Second Residences/Holiday Accommodation.

Figure 3.10.4: unoccupied properties



Source: Census 2011

Key messages

With the large number of subcontracted staff employed at Dounreay over the years, access to affordable accommodation has played an important role. The key messages regarding housing are:

- the number of houses in Caithness & Sutherland have increased by around 5% from 2008 to 2020, which is below both Scotland (8%) and the HIE area (12%);
- in 2018 the mean average house price in Caithness & Sutherland (c. £140k) were considerably below the prices in Scotland and the Highland area (c. £180k);
- properties in Caithness, Caithness & Sutherland and the HIE area are more likely to be owner occupied than in Scotland and are also more likely to be second homes/holiday accommodation; and
- houses are much less likely to be flats and more likely to be detached in Caithness, Caithness, and Sutherland and the HIE area than Scotland. This is typical for rural areas.

SECTION 4
DOUNREAY WORKFORCE

4 Analysis of the workforce

4.1 Introduction

The 2016 report made extensive use of a 2016 employee survey to report on employees' skills, qualifications, family situations, involvement in the community and possible plans should they lose their job at Dounreay. There have been no subsequent employee surveys since 2016, though one is due in 2022. Given this, this report does not contain any survey data or analysis as it would be simply reprinting the 2016 report.

Instead. this report concentrates on answering 2 questions.

- Who works at Dounreay in 2022?
- What is their economic impact on Caithness and Sutherland?

4.2 Dounreay employees

As at 18 January 2022, Dounreay directly employed 1,283 employees with a Full Time Equivalent count of 1,250.4 FTEs. This reprents a noticeable increase from 2016, when the previous report stated Dounreay employed 1,115 employees with an FTE score of 1,080. This represents an increase of 15% in 6 years. Several interviewees commented on how employment figures were increasing, rather than decreasing. Table 4.2.1 shows the split of this workforce by gender and by full/part time status.

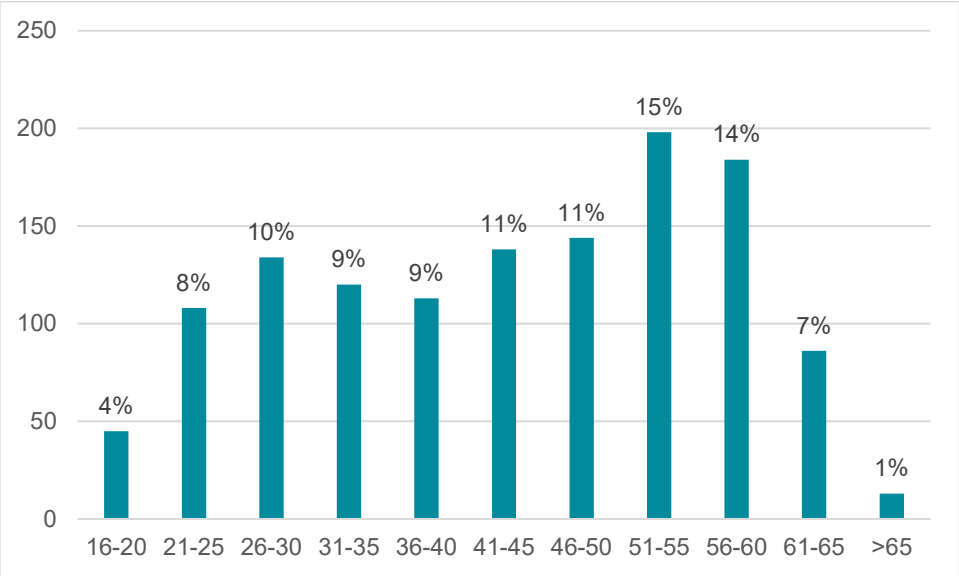
Table 4.2.1: Employee numbers

	Total	split	Full time	Part time	FT%	PT%
Male	866	67%	852	14	98%	2%
Female	417	33%	324	93	78%	22%
Total	**1283**	**100%**	**1176**	**107**	**92%**	**8%**

The gender mix has changed slightly from the 70/30 male to female mix in 2016. Similar to 2016, a greater proportion of female workers are part time compared to male workers.

The average age of employees is just under 43 years and 6 months old. The following chart shows the age distribution of staff.

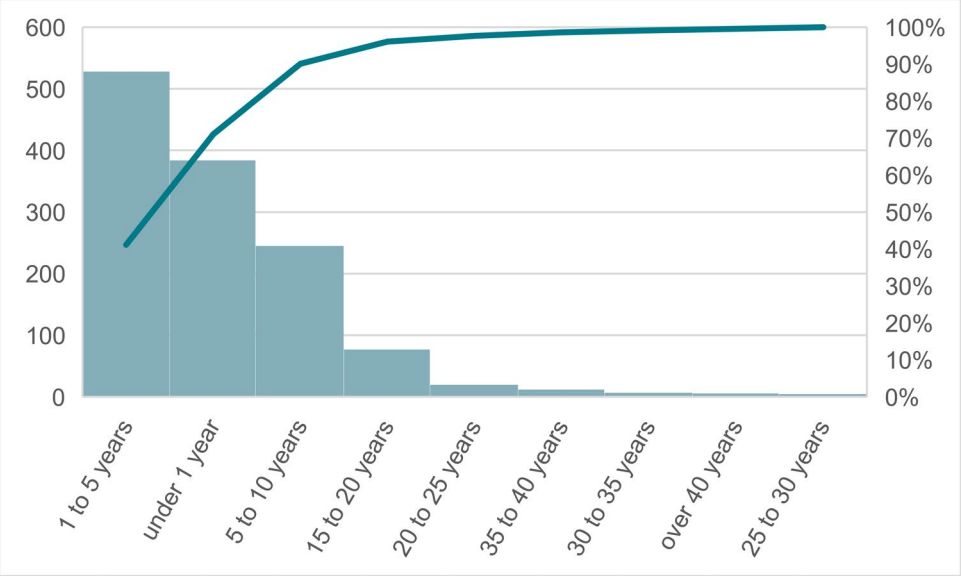
Figure 4.2.1: Employee age cohorts



This is not the age profile of a decaying and ossified employee base. Dounreay has had relatively stable (and recently growing) employee numbers for a long time. As such, it has hired staff regularly to replace leavers and to fill new positions. If Dounreay was running down its employee numbers, a much older age profile would be expected as the site would not need to recruit as existing workers either left or retired.

Most people in the youngest age cohort are apprentices who started work at Dounreay in 2021. The average length of remaining in post for Dounreay employees is just under 5 years. The following table shows the length of remaining in post (by cohort groups) for Dounreay employees.

Figure 4.2.2: Length of remaining in post by cohort groups



The table below shows the lowest, mean, median highest salaries paid at Dounreay.

Table 4.2.2: Salary details

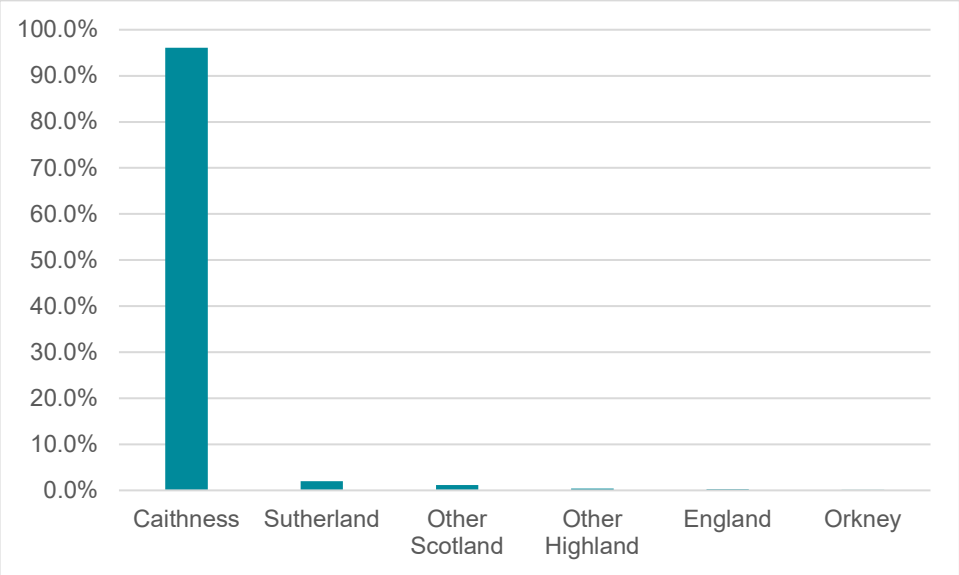
Low	Mean	Median	High
15,993	41,550	40,904	73,523

The closeness of the mean and median salaries suggests that there is not a group of unusually low or highly paid employees distorting the mean. The low salary figure is generally paid to apprentices.

4.3 Impact of Dounreay employees on the local area

Post codes are available for 1,197 employees. This should be representative of the actual employee population of 1,283. As the table below shows, 96% of employees live in Caithness. In addition, 2% live in Sutherland, with others living everywhere from the Orkney Islands to Bristol in Southern England. Presumably, employees living outside of Caithness and Sutherland reside near Dounreay whilst they are at work and then travel home for weekends and holidays.

Figure 4.3.1: Where employees live



This implies that 1,232 employees live in Caithness. According to the latest NOMIS report, Caithness has 9,700 employees. The table below shows the importance of Dounreay to the local employment base.

Table 4.3.1: Importance of Dounreay's employees to the Caithness employee base

Of Mining, quarrying & utilities employees	Of all private sector employees	Of all employees
77%	18%	13%

Dounreay's importance for the local economy is probably even greater than this table suggests. Its average salary is about £10,000 higher than the average salary for the Highland area. Assuming Caithness's average salary is in line with the Highland average, then it implies that the average non Dounreay salary is £29,500 per annum. As the table below shows, this suggests that Dounreay represents 17% of the Caithness salary base.

Table 4.3.2: Importance of Dounreay's employees to the Caithness salary base

	Non Dounreay Employees	Dounreay employees	Total
Employees	8,468	1232	9,700
Salary (£k)	£29.5	£41.5	£31.0
Salary base (£k)	£249,511	£51,189	£300,700
Split	83.0%	17.0%	

The Vulcan Naval Reactor Test Establishment (Vulcan/NRTE)

Vulcan is adjacent to DSRL and is the Ministry of Defence (MoD) establishment housing the prototype nuclear propulsion plants of the type operated by the Royal Navy in its submarine fleet.

For nearly 50 years Vulcan has been the cornerstone of the Royal Navy's nuclear propulsion programme, testing and proving the operation of four generations of reactor core and currently testing its fifth. Rolls-Royce, which designs and procures all the reactor plants for the Royal Navy from its Derby offices, operates Vulcan on behalf of the MoD and employs around 280 staff there, led by a small team of staff from the Royal Navy. Generally, about 50% of the staff are Rolls Royce staff based at Rolls Royce sites who work on secondment at Dounreay, and the remaining 50% are based in the local area near Dounreay.

In 2011 the MoD stated that NRTE could be scaled down or closed after 2015 when the current series of tests ends. Computer modelling and confidence in new reactor designs meant testing would no longer be necessary. The cost of decommissioning NRTE facilities when they become redundant was estimated at £2.1 billion in 2005.

In June 2021, the minister for defence stated in the House of Commons that Vulcan is due to close operationally by the end of 2025.

SECTION 5
ECONOMIC IMPACT ASSESSMENT AND WIDER IMPACTS

5 Economic Impact Assessment and Wider Impacts

5.1 Introduction

This Chapter presents an assessment of the economic impacts generated through the operations of the Dounreay site. Impacts are considered at different spatial levels from local to national, namely: Caithness and Sutherland, the HIE area, Scotland, and the UK.

The analysis is based on the same approach used in the previous (2016) report to enable direct comparisons to be made. The main differences are that the baseline has been updated from 2016 to 2020 (all numbers now presented in 2022 prices rather than 2016 prices before)[1]; new input data used where available; and an expanded spatial analysis to include the UK level.

As per the previous (2016) report, the two main impact indicators used are employment and GVA covering direct, indirect (supply chain) and induced (consumer spending) impacts. All employment and GVA impact estimates are essentially impacts on aggregate *demand* in the economy. Levels of 'net additionality' are likely to be high locally, which means demand impacts will translate into actual impacts on the local economy but less so at higher i.e., Scotland and UK spatial levels.

The key new input data used for this latest analysis are:

- Direct DSRL employment (i.e., those employed on site);
- Agency and subcontracted staff; and
- DSRL expenditure on goods and services

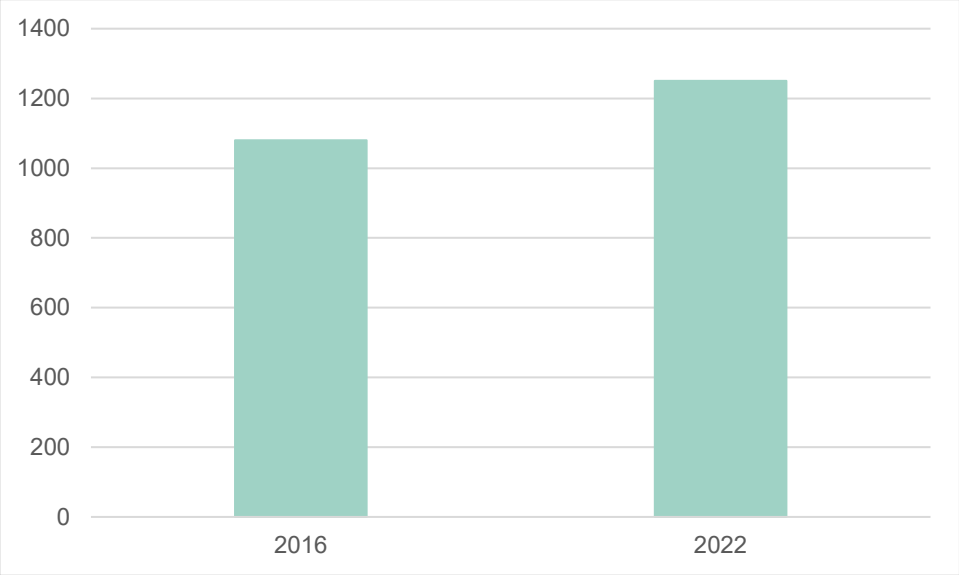
The new input data used has been supplied by DSRL and combined with other updated data including official statistics. Where new input data was not received, input data from the previous (2016) report was used. The analysis relies on the current direct employee numbers (1,283).

[1] Other changes include new assumptions, such as multipliers from national statistics

5.2 Direct impacts

The chart below shows direct DSRL employment in January 2022 and compares it the equivalent figure in the 2016 report.

Figure 1. UK Direct DSRL employment impacts, 2016 and 2022 (FTEs)



Direct employment was 1,080 FTEs in 2016 and this has risen to 1,250 FTEs in January 2022.

Work is ongoing as part of the Dounreay Socio Economic Plan to better understand the skills mix required of future years to provide clarity on the skills sets no longer required and the potential recruitment needs for new skills or retraining.[2]

Turning to the direct employment impacts at different spatial levels, a very high proportion of DSRL employees (98.7%) live within Caithness and Sutherland (a fraction below the 99.7% for Scotland and 99.3% for Highlands and Islands). This is new data, but little changed from that used in the previous (2016) report. The table below shows numbers of jobs at the different spatial levels in 2022.

Table 1. Direct DSRL employment impacts at different spatial levels (FTEs)

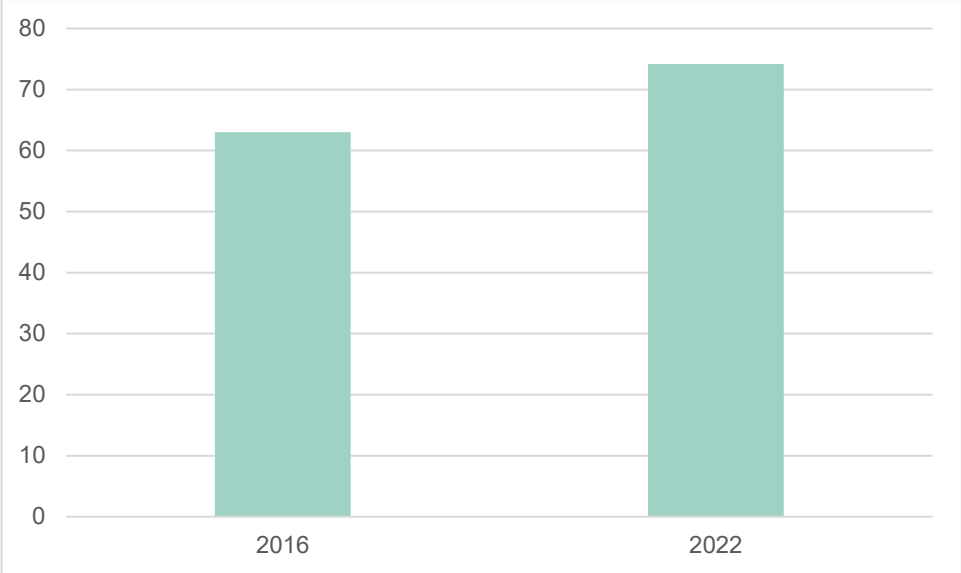
Geography	2022
UK	1,250
Of which:	
Scotland	1,246
HIE area	1,241
Caithness and Sutherland	1,234

In the previous (2016) report, GVA was estimated by taking an average wage of c. £52,000 in 2016 prices and multiplying this by the number of jobs – this constitutes an 'labour only' GVA measure. That approach is replicated here: the 2016 average wage is uprated by inflation to c. £58,500 (i.e., to 2022 prices) and the latest employment numbers used.[3] As a result of both higher employment numbers and higher GVA

[2] Dounreay Socio-Economic Plan
[3] Calculated using the latest UK GDP deflators

per FTE, therefore, the direct 'labour only' GVA from DSRL employment is higher than in 2016 when both are compared in 2022 prices.

Figure 2. UK Direct DSRL 'labour only' GVA impacts, 2016 and 2022 (£m 2022 prices)

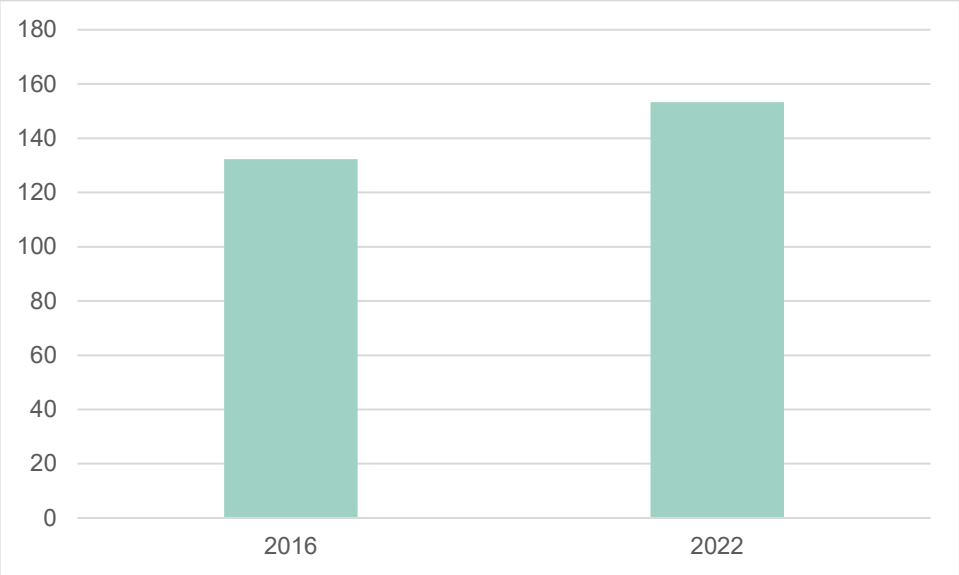


However, whilst the 'labour only' measure of GVA – seems reasonable, if conservative, in the Scottish context – it is not reasonable in the UK context.[4] For the UK any estimate of GVA should ideally include all the returns on investment including those from capital to arrive at a 'total' GVA impact.

To capture this, an adjustment factor of 2.1 can be applied to the wage-based estimates above to capture all the returns on investment. This adjustment is based on evidence from the Scottish Annual Business Statistics (approximate GVA divided by gross wages and salaries). Again, UK level estimates were not included in the 2016 report:

[4] Justification given in previous report: "any financial surplus is likely to accrue outside Scotland"

Figure 3. UK Direct DSRL 'total' GVA impacts, 2016 and 2022 (£m 2022 prices)



The impact of Dounreay on the UK economy is clearly even greater on this 'total' GVA measure that includes returns from capital.

It is noted that all GVA impacts set out – whether 'labour only' or 'total' - should be viewed as GVA *demand* impacts. The actual impacts on the economy may be lower because 'net additionality' is likely to be under 100% (usually because supply is constrained). This will certainly be true at the UK level, but at the local and regional levels, 'labour only' GVA is likely to closely reflect the actual impacts on the economy.

Turning to the direct 'labour only' GVA impacts at different spatial levels, there is more of a difference between UK GVA and Scottish impacts than suggested by the employment figures in the table above. For the UK, the impact of Dounreay in 2022 was £74.2m. This was significantly higher than for Scotland at £59.1m (around 80% of the UK total).

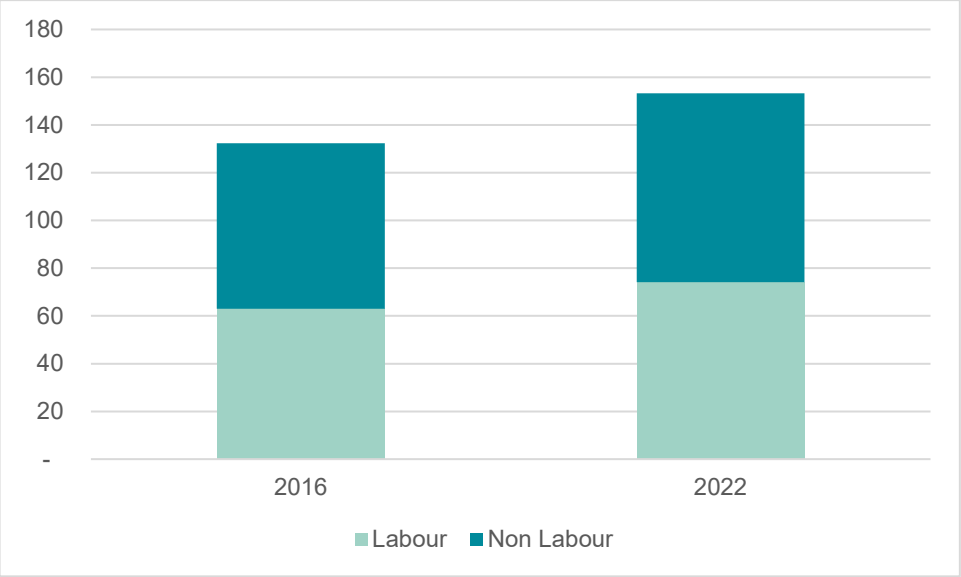
Table 2. Direct DSRL 'labour only' GVA impacts at different spatial levels

Geography	2022	% of UK
UK	74.2	100%
Of which:		
Scotland	59.1	79.7%
HIE area	58.8	79.3%
Caithness and Sutherland	57.6	79.0%

Part of the gap between these UK and Scotland GVA impacts is due to the difference between retained jobs, but this is very marginal given 99.7% of the jobs are in Scotland and only 0.3% in the rest of the UK (England). Most of the difference is explained by an assumption inherited from the previous (2016) report that only net salaries should be included in the GVA impact (assumed to be 80% of the gross figure), for all spatial levels up to Scotland. In other words, GVA figures for these spatial levels are adjusted for taxes and transfers to and from the UK central government. However, for the new analysis at the UK level, 100% of the gross figure is assumed.

The figure below shows the UK 'labour only' and 'total' GVA impacts.

Figure 4. UK Direct DSRL GVA impacts, 2016 and 2022 (£m 2022 prices)



Direct 'labour only' GVA impacts at the spatial levels below the UK are not presented separately with charts as the differences are very small (as per table 2). These small differences largely reflect the minor differences in the direct employment impacts (as per table 1).

Figure 4a below calculates the indirect and induced GVA from using the direct UK wide GVA figures above. In August 2021, the Prospect Group published a report into the economic impact of the UK civil industry. The report estimated that the indirect to direct multiplier was 1.33 and that the induced to indirect and direct multiplier was 1.27, producing a Direct GVA multiplier of 1.60.

Using these figures produces the following indirect and induced GVA enhancements.

Figure 4a. UK Direct DSRL Direct, Indirect and induced GVA impacts, 2016 and 2022 (£m 2022 prices)

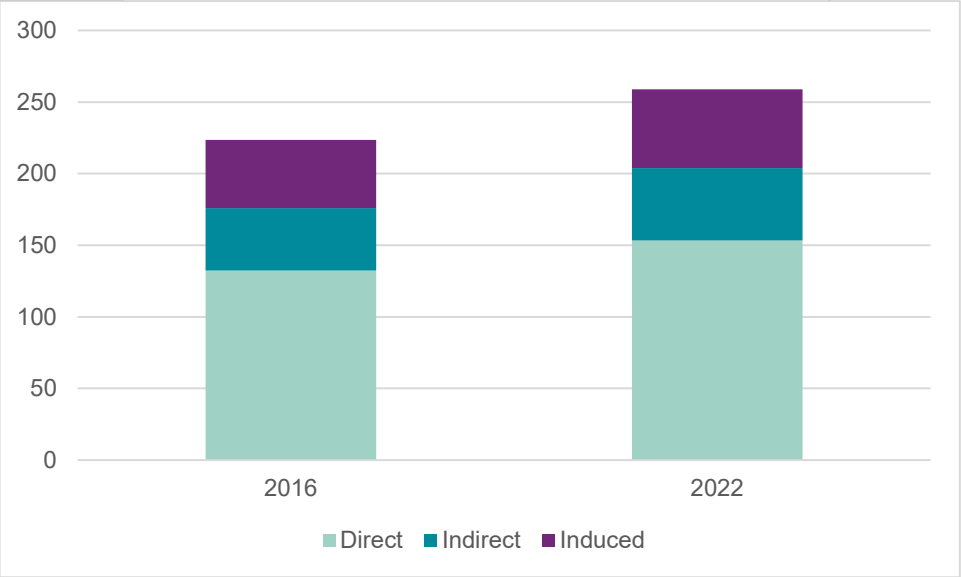


Figure 4b analyses the 2022 total GVA (direct, indirect, and induced) into its constituent parts. It also breaks down the £259m by GVA attributed to local labour (Caithness and North Sutherland), other labour and non-labour inputs (Capital, land and taxes). This analysis assumes that non labour inputs cannot be easily attributed to defined geographic areas.

Figure 4b. Breakdown of the 2022 total GVA by source and type.

£m - 2022 prices	C&NS Labour	Other labour	Capital and land	Total
Direct	57.6	16.6	79.1	**153.3**
Indirect	19.0	5.5	26.1	**50.6**
Induced	20.7	6.0	28.4	**55.1**
TOTAL	**97.3**	**28.0**	**133.6**	**258.9**

These figures suggest that the total GVA attributed to Caithness and North Sutherland is £97.3m. This is about 38% of the total GVA in 2022. These figures need to be taken with some caution. They assume that indirect and induced GVA splits in the same way across all 3 source groups. In reality this may not be true, but it is impossible to develop a more robust and accurate split. It also does not attempt to apportion the capital and land GVA over geographic areas, as again this is difficult to do meaningfully with any accuracy.

5.3 Indirect impacts

Spending on suppliers

Indirect – or 'supplier linkage' – effects refer to the employment and GVA generated by DSRL's purchases of the goods and services needed to support its operations and decommissioning activity over the period to 2022. DSRL spends substantial sums annually (more than direct payroll), and this is expected to continue throughout the period.

The chart below shows forecast expenditure during the period, with assumptions consistent with the previous (2016) report – though, again, updated to 2022 prices.

The composition of spend across four broad categories (construction, services, supplies, works) is also identical to the previous report. The largest share of spend is works (40%) followed closely by services (35%), then construction (13%) and supplies (12%). Expenditure on works is projected to increase over the period in contrast with expenditure on services which is expected to decline – reflecting the shift in activities through the decommissioning process, as depicted in figure 5. These four broad categories are captured by the Standard Industrial Classification (SIC) categories set out in the table below, as per the previous (2016) report.

Figure 5. DSRL expenditure by broad category, 2016 to 2022 (£m 2022 prices)

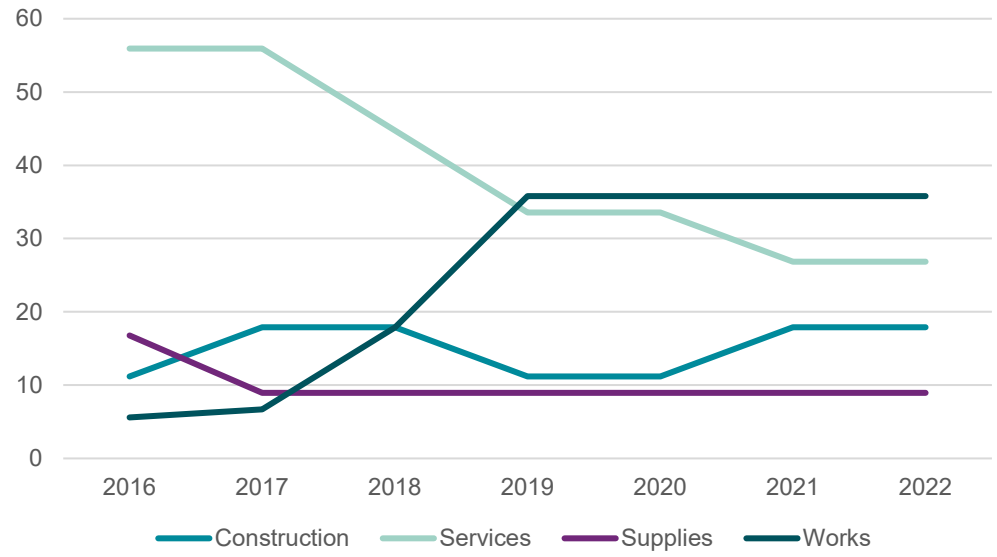


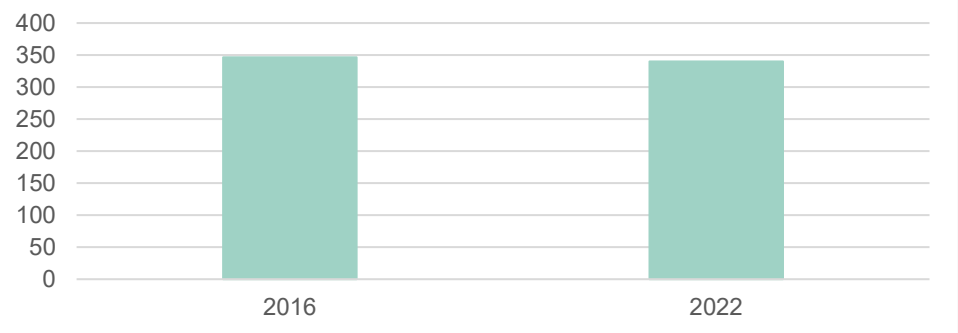
Table 2. DSRL spend categories mapping to SIC categories

DSRL spend category	SIC category
Construction	Construction (SIC 07, 41-43)
Services	Professional, scientific, and technical services (SIC 07, 69-75)
Supplies	Wholesale, excluding vehicles (SIC 46, 74)
Works	Specialist construction (SIC 07, 41-43)

The jobs impact in an area – as per the approach adopted in the previous (2016) report - depends on several factors: expenditure on goods and services (as per the figure above), the proportion of spend retained within the area, jobs supported per £ of expenditure, and jobs multipliers (so-called 'type 1' multipliers capturing the impact on the supply chain).

The figures for Scotland published in the previous (2016) report remain largely unchanged – other than a small difference owing to updated assumptions regarding jobs supported per pound of expenditure and jobs multipliers. The chart below compares new jobs estimates with those presented in the previous report. The gap between previous and new estimates varies slightly over time as a result of changes in the composition of spending in combination with new multiplier assumptions.

Figure 6. Scotland supplier linkage employment impacts, 2016 to 2022 (FTEs)



At lower spatial areas to Scotland the spend (and employment) profile is the same, but with assumed differences in the percentages attached to (a) retained expenditure and (b) the multiplier – the percentages being lower the smaller the area reflective of the differing degrees of leakage.[5] The assumptions from the previous (2016) report are retained and are as follows:

Table 3. Key assumptions for impacts at different spatial scales

	Scotland	Highlands and Islands	Caithness and Sutherland
Proportion of DSRL expenditure retained	30%	23%	20%
Average jobs multiplier (Scotland)*	1.416		
Multiplier size relative to Scotland	100%	25%	10%
Combined impact relative to Scotland	100%	62%	53%
Jobs supported in 2022	350	209	178

*Weighted average of Scottish multipliers. Weightings are based on spend and number of jobs supported by category (i.e., construction, services, supplies, works).

[5] Assumptions as per the 2016 report or inferred in the report and cross-checked with evidence from the latest available spend data.

Box 1: Key calculations used for indirect impacts

HIE area

Total spend in 2020: £89.5m (2020 prices); of which 23% retained in Highlands and Islands (£20.21m).

Annual Business Statistics suggest 9.35 jobs are supported per £m spend, meaning 189 direct jobs associated with £20.21m.

The Scottish multiplier is 1.46 but the indirect component (0.46) is scaled as per the above table. Indirect jobs = 25% * 0.46 x 189 direct jobs = indirect 20 jobs supported.

Total direct and indirect: 189 + 22 = 209.

All areas

Scotland (£89.5m x 30% x 9.35) x (1 + (100% x 0.46)) = 350
Highlands and Islands (£89.5m x 23% x 9.35) x (1 + (25% x0.46)) = 209
Caithness and Sutherland (£89.5m x 20% x 9.35) x (1 + (10% x0.46)) = 178

Latest multiplier figures are 2018*. The underlying indirect ('type I') multipliers used for each DSRL expenditure category are:

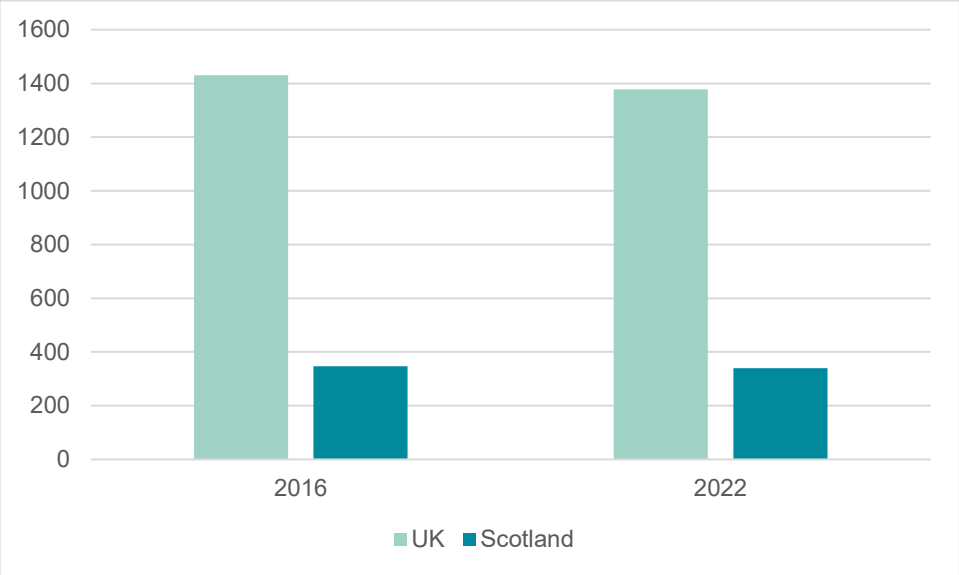
- Construction; 41-43 (Construction); 1.62
- Services; 74 (Other professional Services); 1.16
- Supplies; 46 (Wholesale – excl. vehicles); 1.35
- Works: 41-43 (Construction); 1.62

* Scottish Government, Supply, Use and Input-Output Tables[6]

UK figures, not included in the previous (2016) report, are considerably higher for two reasons: a much higher proportion of spend retained in the spatial area (85% compared to Scotland 30%); and higher multiplier effect (UK multipliers being larger reflecting the tendency for leakage in smaller areas).[7] The chart below compares jobs for the UK and Scotland.

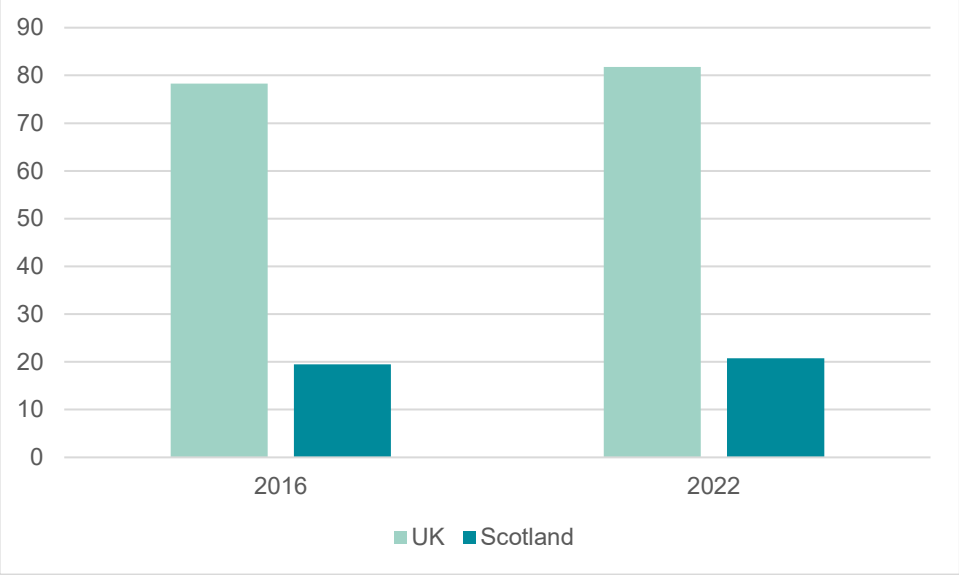
[6] Supply, Use and Input-Output Tables: 1998-2018 - gov.scot (www.gov.scot)
[7] The 85% assumption is broadly based on the value exports/imports relative to total GDP

Figure 7. UK and Scotland supplier linkage employment impacts (FTEs)



'Labour only' GVA is estimated by multiplying the number of jobs by the GVA per job. The chart below compares the UK and Scotland, with GVA per job as per the previous (2016) report (£50K in 2016 prices) but uprated by inflation (£54.7K in 2022 prices). The basis for the original £50K per job is unclear, but we note the average GVA per job in Scotland was £55,751 in 2019 (latest data) and £51,280 in 2016 (both current prices). The equivalent UK figures being £58,261 (2019) and £54,061 (2016).[8]

Figure 7. UK and Scotland supplier linkage 'labour only' GVA impacts (£m 2022 prices)



Agency and sub-contracted staff

Agency and sub-contracted are staff based on-site through arrangements with agencies and sub-contracted staff. These are effectively "supplier linkage" jobs as they are generated by the expenditures of DSRL on services, and for the purposes of the EIA this category of staff is treated separately for consistency with the previous (2016) report.

[8] Region by industry labour productivity - Office for National Statistics (ons.gov.uk)

The chart below includes two sets of estimates for FTE agency and sub-contracted staff – the first reflecting numbers in the previous (2016) report and the second updating these numbers proportionately to the new direct job numbers referred to above, in the absence of new input numbers.

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As per the previous (2016) report FTE numbers are multiplied by average GVA (£50K in 2016 uprated to £55.9K in 2022, in absence of new input numbers. Given a constant GVA/job assumption, the profile for GVA mirrors the profile for numbers of agency and subcontracted staff in the previous chart. As per the previous (2016) report both the jobs and associated GVA impacts are assumed to be the same for Scotland, Highlands and Islands, and Caithness and Sutherland.

Figure 8. All spatial levels' agency / sub-contracted staff (FTEs)

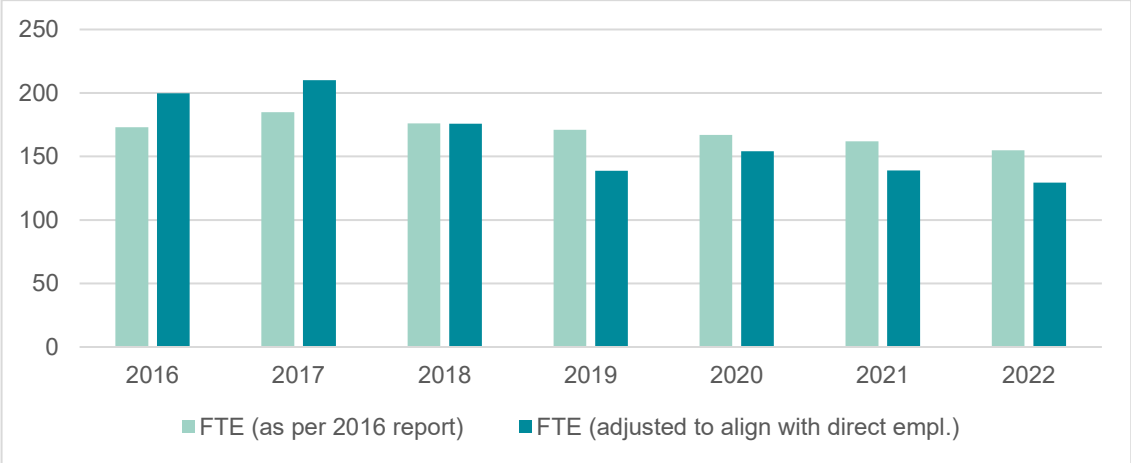
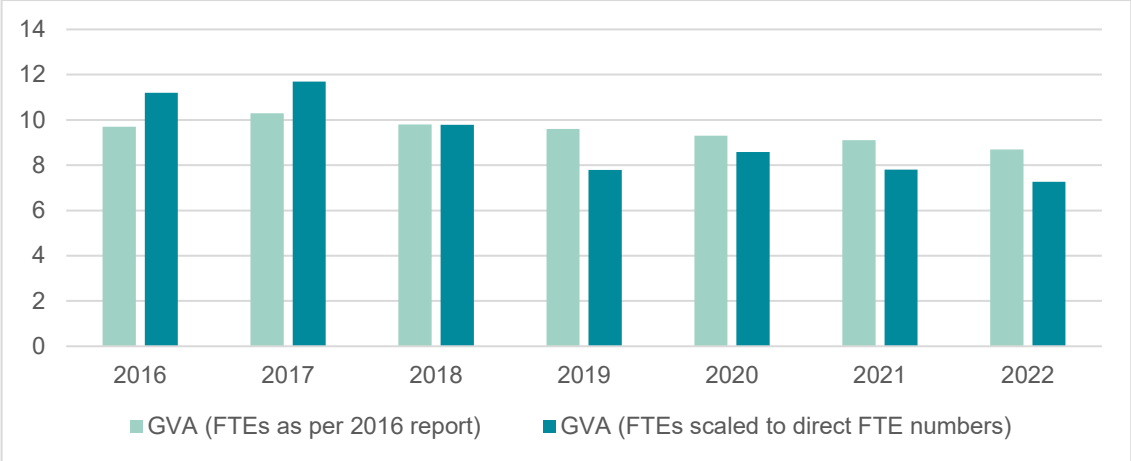


Figure 9. All spatial levels' agency / sub-contracted staff 'labour only' GVA impact (£m, 2020 prices)



5.4 Induced impacts

The previous (2016) report included estimates of the induced (type 2 multiplier) effects i.e., the increase in demand associated with the spending of income generated from direct and indirect (type 1 multiplier) effects. It considered the induced effects associated with employment and GVA impacts from expenditures of those employed directly by DSRL, those employed through supply chains, and those employed via agency and subcontract arrangements. It used Scottish multipliers, as per the indirect analysis, adjusting these for smaller areas (Highlands and Islands 50%, and Caithness and Sutherland 25% of the Scottish value.

The previous (2016) report estimated the induced impacts as follows:

Table 4. Induced impacts, previous (2016) report

	2016		2020	
	Jobs (FTE)	GVA (£m 2016 prices)	Jobs (FTE)	GVA (£m 2016 prices)
Scotland	327	19.9	344	20.5
Highlands and Islands	149	9.3	150	9.3
Caithness and Sutherland	73	4.5	72	4.5

Induced estimates have not been calculated for this 2022 update for two main reasons:
(1) there is no evidence available on the size of comparable type 2 multipliers at UK level;
(2) perhaps more importantly, induced impacts are not part of the Green Book appraisal process.[9] This is because the impact of any single policy intervention is considered unlikely to have a meaningful impact on overall levels of spending and taxation.

However, it can be noted that the scale of induced impacts is likely to be roughly proportional to those in the 2016 report. On the one hand the absolute figures are increased as a result of inflation – moving from 2016 to 2020 prices; but on the other reduced overall reflecting the reduced spending associated with direct DSRL employment and supply chains.

From a UK perspective, excluding the induced impacts is more than offset by including the returns on capital part of GVA previously excluded from the estimate of GVA from direct DSRL employment (as per figures 3 and 4).

[9] See pg. 17 of the Green Book [link]

5.5 Summary of impacts

Employment

A total of 1,250 FTEs were employed by DSRL in January 2022 with 1,234 residents in Caithness and North Sutherland and 16 further afield. DSRL's supply chain supported a further 178 FTE jobs in Caithness and North Sutherland, 209 in Highland and Islands, and 350 in Scotland more broadly. The supply chain supported 4 x as many jobs in the UK than just in Scotland. 167 agency / contract staff were supported at all spatial levels – the presumption being all are resident locally.

All in all, in 2022 Dounreay supported 1,579 jobs at the local level, 1,617 in Highlands and Islands, 1,763 in Scotland and 2,842 in the UK, the differences driven largely by the supply chain effects.

Table 5a: Latest DSRL direct and indirect employment impact estimates, 2022 (FTEs)

	Caithness and North Sutherland	Highlands and Islands	Scotland	UK
Direct	1,234	1,241	1,246	1,250
Indirect	345	376	517	1,592
o/w				
Supplier linkage	178	209	350	1,425
Agency / contract staff	167	167	167	167
Total	1,579	1,617	1,763	2,842

GVA

Dounreay's direct 'labour only' GVA impact on Caithness and North Sutherland is £57.7 million, similar to Highland and Islands and Scotland. The impact on the UK is notably higher, for reasons discussed earlier (mainly the different treatment of UK central government taxes and transfers at the UK spatial level). DSRL's supply chain 'labour only' GVA impact was £10.5 million in Caithness and North Sutherland, £12.4 million in Highlands and Islands, £21.2 million in Scotland more broadly, jumping to £83.7 million in the UK – a similar pattern to supply chain jobs.

The 'labour only' GVA impacts increase proportionately more than employment impacts do as we move up through the spatial levels, highlighted by the near-doubling of total GVA impact on the UK vs Scottish economy, again largely by virtue of the supply chain effect.

All in all, Dounreay contributes 'labour only' GVA of up to £77.4 million to the local economy; £80.5 million to the Highlands and Islands economy; £89.6 million to the Scottish economy; and £167.2 million to the UK economy.

Table 6a: Latest DSRL 'labour only' GVA impact estimates, 2022 (£m 2022 prices)

	Caithness and North Sutherland	Highlands and Islands	Scotland	UK
Direct	57.6	58.8	59.1	74.2
Indirect	19.8	21.7	30.5	93.0
o/w				
Supplier Linkage	10.5	12.4	21.2	83.7
Agency / contract staff	9.3	9.3	9.3	9.3
Total	77.4	80.5	89.6	167.2

Table 6b: Previous (2016) DSRL 'labour only' GVA impact estimates, 2020 (£m 2022 prices)

	Caithness and North Sutherland	Highlands and Islands	Scotland	UK
Direct	47.9	48.2	48.4	NA
Indirect	19.8	21.8	30.5	NA
o/w				
Supplier Linkage	10.5	12.5	21.2	NA
Agency / contract staff	9.3	9.3	9.3	NA
Total	67.7	70.0	78.9	NA

It is noted that the previous (2016) did not include the employment and GVA impacts of the Ministry or Defence's Vulcan site and the main analysis of this report follows the same approach for consistency to and enable comparison. For this reason, the Vulcan impacts are not included in the summary tables above.

However, there are 280 FTE directly employed on the Vulcan site and it is estimated that 140 (50%) of these employees live locally and the other half (50%) in England - namely they are Rolls Royce employees based in Derby who travel up to Dounreay for periods at a time. This implies direct employment impacts of 140 on the local economy. As far as indirect impacts, no data pertaining to supplier linkage effects or agency and sub-contract staff FTE has been provided, but assuming these are proportionate to the main DSRL site would imply indirect employment impacts of 51 at the local level. Overall, the employment impact of the Vulcan site is estimated at 191 at the local level. The total 'labour only' GVA impacts are around £9 million, in 2022 prices.

The Vulcan site is expected to close at the end of 2025, and it is assumed the current level of direct and indirect employment is sustained until then.

The economic impact in context

Given most (98.7%) of Dounreay's employees and contractors work in Caithness and Sutherland, and further that most of the economic impact is through direct effects, then the effect of decommissioning Dounreay will be felt overwhelmingly at the local spatial level.

A sense of this can be gained by comparing the Dounreay's impact on jobs in Caithness and Sutherland to the overall number of jobs in the local economy. The table provides a summary:

Table 8. Labour impact of Dounreay on the local economy in demographic context, 2022

Dounreay, 2022		Caithness & Sutherland, 2022	
		#	%
Direct employment	1,234	Total employment	14,605
Agency & subcontracted staff	167	Total working age population	22,788
Supported by DSRL expenditure	178	Total population	38,659
Total (C&S only)	1,579		

*Direct and indirect impacts only

Given Dounreay still provides nearly 11% of local jobs (1,579 of 14,605), it remains a vitally important part of the local economy and more so than many sectors. This importance appears to have remained relatively stable since 2016.

Table 9. Labour impact of Dounreay on the local economy, 2016 and 2022

	2016 (previous report)	2022* (latest report)
Dounreay (C&S only)	1,506	1,579
Caithness & Sutherland	14,800	14,605
Dounreay share of local jobs	10.2%	10.8%

*Direct and indirect impacts only

SECTION 6
CNSRP ACTIVITY

6 Caithness and North Sutherland Regeneration Partnership Review

The Caithness and North Sutherland Regeneration Partnership (CNSRP) - also referred to as the Partnership) was developed in 2007 in response to the decommissioning activity at Dounreay. The purpose of the Partnership was to help mitigate the negative impact on the local economy.

CNSRP is an informal partnership consisting of four layers of governance: Executive Board, Advisory Board, Delivery Group and Programme Manager. The senior level of staff involved with the Partnership is an example of best practice.

Over the past ten years the Partnership has reviewed its key objectives and currently supports circa 20 projects focusing on two sectors: Energy and Services. Activity is categorised within either Inward Investment or Growing Local Business.

Crucially, the key role of the Partnership is to be an enabler of activities.

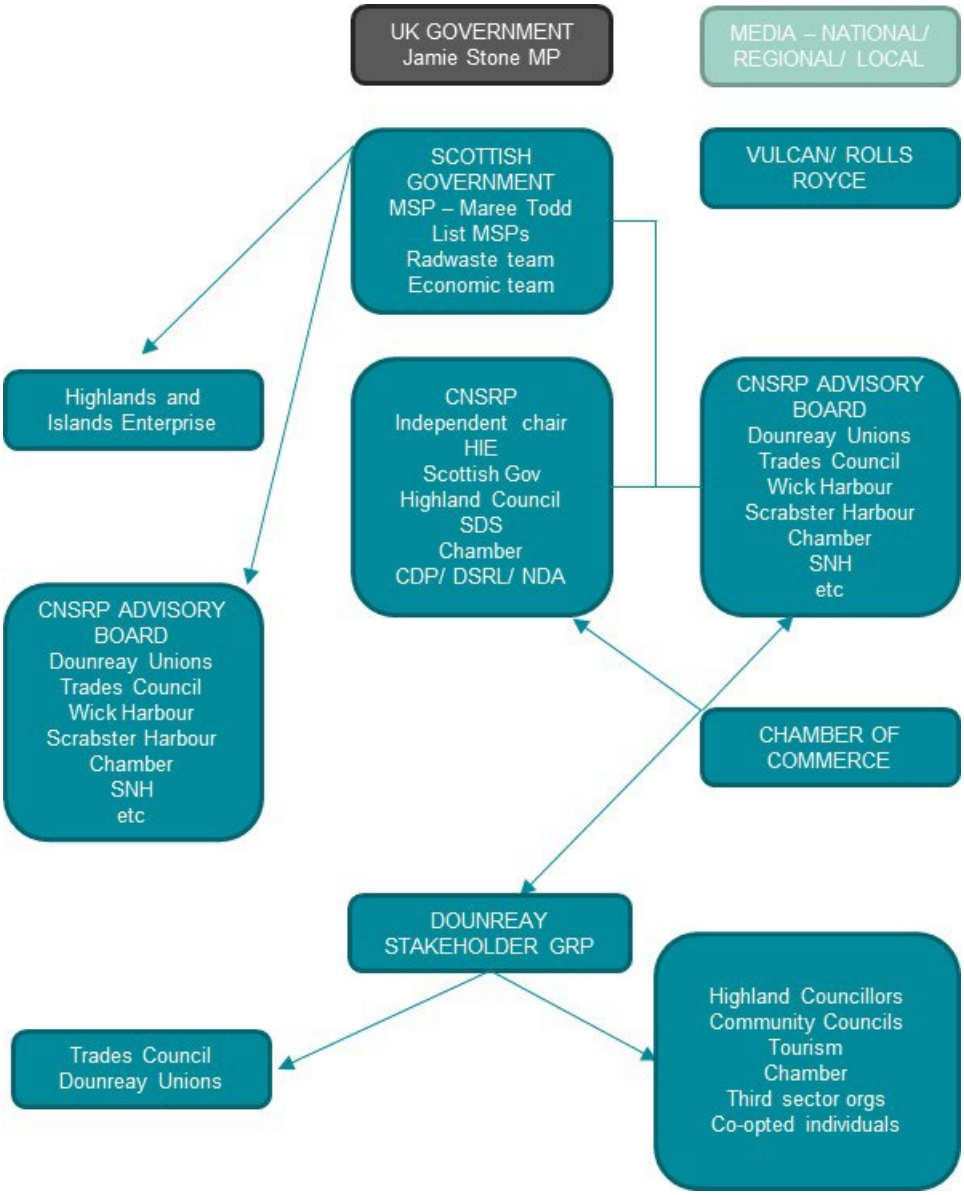
Mace consulted 7 stakeholders and provided the following feedback regarding the Partnership and its activities:

- stakeholders were positive about the Partnership reporting it to have a clear and continued rationale;
- the Partnership is complementary to wider initiatives in the region and is strategically aligned with national and local policy;
- internally, the Partnership is well understood and recognised, however this awareness reduces amongst the wider community;
- greater communication between governance levels would be appreciated;
- stakeholders acknowledged the Partnership was overambitious in the early days and revised the key objectives accordingly – some were of the opinion further revisions were required;
- clear progress has been made, particularly in developing relationships between key organisations in the region; and
- the Partnership is faced with several challenges including the ever changing IES date, ensuring membership longevity, and monitoring of attributable Partnership achievements.

Future opportunities for the region were reported to lie within:

- further diversification of the current workforce including skills transition training and business start-up support;
- continued development of a skilled pipeline of talent to add to the working age population – attainment levels are increasing, MA starts have risen, and a higher proportion of school leavers enter employment within the region;
- attraction and retention of working age population

The CNSRP fits into the broad regional regeneration strategy as follows:


UK GOVERNMENT
Jamie Stone MP
MEDIA – NATIONAL/ REGIONAL/ LOCAL
SCOTTISH GOVERNMENT
MSP – Maree Todd
List MSPs
Radwaste team
Economic team
VULCAN/ ROLLS ROYCE
Highlands and Islands Enterprise
CNSRP
Independent chair
HIE
Scottish Gov
Highland Council
SDS
Chamber
CDP/ DSRL/ NDA
CNSRP ADVISORY BOARD
Dounreay Unions
Trades Council
Wick Harbour
Scrabster Harbour
Chamber
SNH
etc
CNSRP ADVISORY BOARD
Dounreay Unions
Trades Council
Wick Harbour
Scrabster Harbour
Chamber
SNH
etc
CHAMBER OF COMMERCE
DOUNREAY STAKEHOLDER GRP
Trades Council
Dounreay Unions
Highland Councillors
Community Councils
Tourism
Chamber
Third sector orgs
Co-opted individuals

SECTION 7
STAKEHOLDER FEEDBACK

7 Stakeholder Engagement

7.1 Introduction

The stakeholder engagement activity undertaken for this report took place in January 2022, when there were Covid-19 pandemic restrictions in place in Scotland, which included a working from home mandate. Stakeholder engagement consisted of six interviews with a range of key stakeholders through MS Teams video conferencing. All the stakeholders were either members of the Caithness and North Sutherland Regeneration Partnership (CNSRP) or its advisory board. The aim of the sessions was to gain insight into the effects of the decommissioning process on the local and regional economies, growth patterns since the last report was produced in 2016 and beyond, NDA's role in the decommissioning process and the functions of the CNSRP.

Mace formulated the stakeholder engagement sessions to achieve a better understanding of the key areas below:

- The impact of Dounreay on the local economy, region, and the UK with respect to supply chain research and development, gross value added etc.
- The wider socio-economic contributions / impacts of workers at Dounreay to the local area and potential migration or retention during and following the decommissioning process.
- The trends to the local economy from the 2005 baseline and since the last report was issued in 2016.
- NDA's role during the pandemic and the impacts of COVID on the decommissioning process and local communities.
- The effectiveness of the CNSRP and contributions by the various agencies in enhancing and diversifying the local economy.

All those interviewed are members of organisations which form the CNSRP which provided a range of perspectives. They are:

1. Malcolm MacLeod: Executive Chief Officer Infrastructure and Environment - Highland Council.
2. Eann Sinclair - Area Manager in Caithness and Sutherland - Highlands and Islands Enterprise (HIE)
3. Niall Watson: Dounreay Union Lead - Dounreay Site Restoration Ltd (DSRL).
4. Peter Faccenda: CNSRP Manager - Highlands and Islands Enterprise (HIE).
5. Stephen Sheridan: Regional Skills Planning Lead - Skills Development Scotland (SDS) Highlands and Islands
6. Trudy Morris: Chief Executive - Caithness Chamber of Commerce.

7.2 Key themes from Engagement

Caithness and North Sutherland / Dounreay Site Restoration Ltd (DSRL).

Everyone interviewed expressed that DSRL is extremely important to the local communities. With a total workforce of circa 2,000 people (1,282 employees and about 700 contractors), it is the largest single employer in Caithness and North Sutherland accounting for 15% of total jobs in 2005 and 13% as of 2021.

A key theme amongst interviewees was that DSRL's position within the area has positive and negative attributes. It provides well paid jobs and employment packages in comparison to other employers. This however has had an adverse impact on competition and diversification of skills, leaving other businesses unable to compete with high salaries, and leading to loss of expertise and skills from other sectors to

DSRL. It was stated that it is typical to have lawyers or administrators transition from their roles in favour of a higher paying job on the Dounreay site.

A significant percentage of those interviewed felt that there are some opportunities which could persuade workers to stay in the area, such as the Sutherland space hub and offshore wind. However, some interviewees recognised that a lot of the benefits of these projects were not staying in Caithness and North Sutherland area.

One factor mentioned by interviewees that will influence an individual and his/her family's decision to stay or leave the area after Dounreay decommissions was the level of attachment or family ties an individual has to an area. The fewer ties, the more likely one was to leave.

In addition, a lack of immediate and future career prospective could persuade people to leave the area. An example given by one participant was the prevalence of the younger generation moving to other parts of Scotland such as Edinburgh and Glasgow for University education. Once they leave, a very low percentage return resulting in an aging, non-working population which in turn has an impact on facilities in the area, such as health care, housing, and retail. It was felt that the introduction of relevant educational opportunities in the area would not totally eradicate this trend but could slow down the process.

All the interviewees viewed the constantly changing decommissioning timelines as a hinderance to planning and envisioning the possibility of future careers by the current population in the area. The Interim End State (IES) was 2036 in 2005. This date was brought forward to 2023 in 2014 and in 2016 the timeline was extended to 2033. These changes reduce confidence in the credibility of the process and seem so distant in the future, people are unable to see the end of the decommission as an event that will directly impact their own lives.

Many interviewees noted that better communication of future opportunities and pipeline projects could encourage settlement in the area. This was not least associated with communication of the decommissioning timelines which have changed frequently over the years.

Some factors that influence settlement were noted as:

- Need for more viable diverse projects which are attractive to potential investors;
- A lack of schools and colleges geared towards the new opportunities that projects will bring, especially in Caithness.
- There is a shortage of good quality housing in the area.
- Tourism is seen by the locals as low skill and low pay. With Flow Country receiving national heritage status, there are opportunities to introduce new attractions and improve on the existing tourism offer.

Several interviewees noted that Dounreay's supply chain had been significantly impacted during the Covid-19 pandemic. Dounreay shut down for a period, which proved difficult for local firms. Covid-19 also had a negative impact on the hospitality industry. The pandemic sped up the move to online shopping by local people. This trend had started before Covid-19 mainly due a shortage of local retail shops which are mostly family owned. There is a vicious circle developing where many shops do not open at lunchtime/early evenings which encourages more shoppers to move to online shopping which in turn makes some shops unviable, thus encouraging more people to shop online.

One interviewee noted that there is a sense of community spirit and a willingness to 'buy local' but retail is not deemed an attractive industry. As most shops are family owned, when owners retire, the shop / land is sold.

All interviewees were keen to note the positive contributions of DSRL and the NDA during COVID. Many staff supported their local communities by engaging in volunteering activities. Unemployment in the area

was not as high as had been predicted with one participant stating that Job Centre had said the 'Tsunami of unemployment expected did not happen in Caithness and parts of Sutherland.'

Several interviewees commented that it would be helpful if the IES date could be confirmed, to allow people to plan their futures, with support from the local councils, chamber of commerce and the CNSRP and the NDA. In addition, some interviewees stressed the importance of including the socio-economic impacts of decommissioning into the next iteration of the decommissioning timeline.

CNSRP

All interviewees stated that the partnership has achieved a level of maturity, has been effective in achieving many of its objectives and deemed as being successful. Many however commented that there are opportunities for improvement and introduction of initiatives which would take the partnership through the next phases of the decommissioning.

Several interviewees noted that the new leadership has taken the partnership in a new direction. The introduction of new projects such as offshore wind and the space port have ensured the creation and retention of jobs which have also diversified the offer in Caithness and Northern Sutherland. The new business development manager and project manager were seen as resources which could further expand opportunities in the local areas.

The majority of interviewees stated that partners tended to focus on the needs of their area of interest with the overall socio-economic impact addressed only if it had a direct effect. Many suggested a more cohesive and comprehensive approach to the introduction and development of projects could ensure that the benefits of the "sum total is greater than the individual parts."

With the partnership being a virtual body, many realised it can be difficult to get significant investment from the constituent organisations.

Several interviewees commented that they wondered if the magnitude of the task to replace jobs following decommissioning at Dounreay was completely understood by decision makers. It was felt that the partnership needed to further challenge itself and support the growth and sustainability of local businesses.

All interviewees expressed that a new vision is required with a more strategic approach to governance and the commissioning of new initiatives. Government should be made aware of the challenges faced in Caithness. With this area being a small percentage of the Highland council area and some meetings being held at Council level, it is inevitable that Caithness is sometime overlooked considering the overall success and stability of the Highland council area.

SECTION 8
CONCLUSIONS

8 Conclusions

The key findings and observations from this piece of work are as follows:

Caithness and Sutherland have strong skills and expert knowledge in the nuclear industry and currently the nuclear decommissioning process.

There are many transferable skills where that expertise can be utilised in other sectors and industries locally. Such skills are particularly suited to the emerging energy sector, the pace of which is accelerating rapidly across the world as viable and high-volume low carbon alternatives to oil and gas are sought.

However, the area is losing young people to other areas (especially other parts of Scotland). In 2001, 20% of the Highland area's population was aged 0-15 years-olds, today it is 14%. In 2001, working aged people (16 to 64) constituted 63% of the Highland population, today it is 62% and projected to be 56% in 2043. The proportion of older people was 17% in 2001, 24% in 2020 and projections expect it will be 29% in 2043.

This is especially true for new university students. Young people leave the area to go to study elsewhere and there is little replacement of other areas' young people moving to Caithness and Sutherland. Furthermore, when young people leave, few return straight after university.

The future of the area relies on a viable, vibrant cohort of young people to fill the jobs.

Yet the offer to young people in Caithness and Sutherland is poorer than for many other areas. Many jobs and much of the local economy is and has been dependent on Dounreay. Economic analysis suggests that Dounreay has a GVA per employee of £58,500 per annum. This is almost double the Highland Council area figure and shows the importance of Dounreay to the local area. In total, the economic data suggests Dounreay contributes £77.5m per annum to the local economy.

Local leaders and the Caithness and North Sutherland Regeneration Partnership (CNSRP) have been highly successful in attracting new industries to the area, such as the offshore wind farm and satellite launching facility and the CNSRP is meeting the lower end of the job targets spectrum. However, Caithness and Sutherland are failing to maximise the socio-economic benefits from these new industries as so much of the work is not undertaken locally.

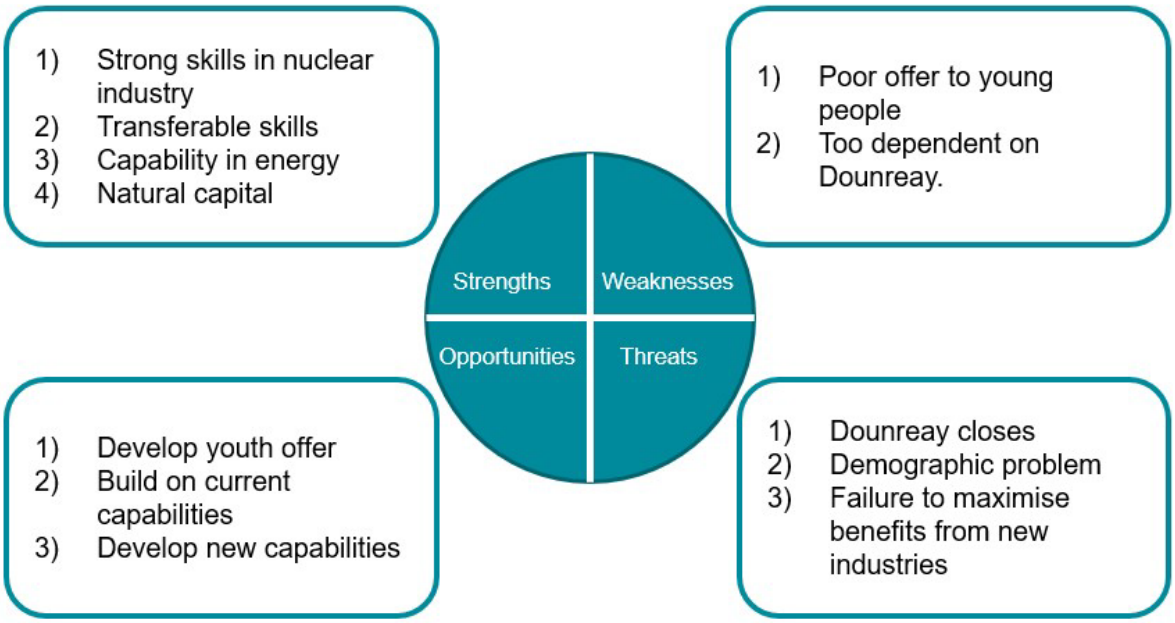
The is still an opportunity to:

- Develop a youth offer
- Build on current capabilities
- Develop new capabilities

At the same time Caithness and Sutherland is seeing an increasingly ageing population that is far more significant than the rest of Scotland. In 2001, 17% of the Highlands area was occupied by over 65-year-olds, today it is 24%. and projected to be 30% in 2043.

This would potentially produce a demographic challenge in the area when Dounreay closes if the area is unable to capture benefits from new industries

A summary SWOT analysis is shown below.



These issues are explored in more detail below:

The area is losing young people at faster rate than it is gaining them. This is not caused directly by the decommissioning of Dounreay, as the workforce has grown since 2016.

At the same time, the old-age population is increasing well above the UK and Scotland position. If left unaddressed the impact on the locality will be:

- Fewer business and Council taxes will be collected,
- Falling school roles
- Pressures on public transport
- There will be increased costs of supporting older people with fewer resources
- Increased pressure on health and social care services.
- Fewer people to work in the health and social care sector

Local companies in the Dounreay area have indicated they are unable to compete on wages. This suggests that when the decommissioning work ends the average wage level will drop, reducing spending power of the local population, unless similar high skilled opportunities are found for the decommissioning staff that are able to harness those skills and prevent them from leaving the area.

Since the level of young people leaving the Dounreay area is down to a perceived lack of career opportunities, perhaps a stronger offer is required to both retain those young people and attract others to the region.

Those individuals would appear to be seeking better opportunities elsewhere in Scotland, and Glasgow in particular.

Improving the offer for young people may help alleviate two problems in the area. If the area can improve its net migration figures for the crucial 16–25-year-old group, this should feed into higher birth rates in 5-15 years' time as that cohort reaches the age when many people start families (average age of mothers at their child's birth is 30 in Scotland).

The area does have many strengths.

The core skills base in the area lies in the energy and utilities sector. This allies with the area's natural advantages (tidal locations, great offshore wind locations) to ensure the area should have an enduring competitive advantage in the energy generation sector.

Mace believes there is an opportunity to harness that expertise, making the most of the strengths of the localities and the people who live there.

The introduction of large major projects in the Dounreay area does not necessarily lead to a high number of skilled jobs for local people, for example there has been success in bringing two highly innovative and notable projects to the area.

- The BOWL offshore wind project has mainly created jobs in Germany (manufacture) and Hull (assembly). However, it is pleasing to note that around 90 people located in Wick are required for maintenance services. These are well paying jobs in an area which suffers from deprivation. In addition, these jobs will support further roles in the economy through indirect and induced effects. At the time of writing the Crown Estate Scotland is in the process of letting new contracts for leases in the North Atlantic/North Sea area. These contracts will include local supply provisions, so the number of local jobs in Caithness in the offshore wind sector should increase significantly over the coming decade.

- The Space hub is well located in North Sutherland for the launch of low-earth-orbit observation satellites in polar and sun-synchronous orbits. This will create 40 jobs by 2024.The main launch vehicle provider is based in Forres (Moray) and is building a significant workforce at their factory there (potentially as many as 400 eventually). The space cluster investigations undertaken through the chamber and supported by Jacobs demonstrate significant potential job growth in the North Highlands and Moray (Space Cluster - CNSRP (cnsrp.org.uk).) Resourcing and developing the space cluster opportunities to be local is an important element of the CNSRP programme.

The Dounreay area has first-class high-tech skills relating to the energy and utilities sector. It is important however that everything possible is done to optimise local opportunities from major projects that are brought into the area

The number of people on benefits increased significantly due to the pandemic, however they are now returning to pre pandemic levels. Local unemployment is not the issue, it is a lack of people to do the work in many cases.

Some of the stakeholders indicated that addressing the socio-economic impact of decommissioning is not yet fully embedded in the decommissioning process. This will be a principal factor in retaining skilled people in the area (and their families) and making it less likely they will leave to pursue other opportunities elsewhere.

In terms of the Dounreay workforce this is not an issue while the workforce is static or growing (which it has been since the 2016 report). However, once the decommissioning timeline becomes clearer it will be possible to forecast when those key skills will become available. This will provide for advance planning of where the following skills may be redeployed in the area (current workforce proportion in brackets):

- People with NEBOSH qualifications (9%);
- Project Management (68%)

- Plant operation and maintenance (40%);
- safety management, advice, audit (40%);
- IT Support (38%);
- project planning, engineering, and costing (34%).

In terms of businesses, the region is strong on the energy and utilities sectors. These are major strengths in areas of scarce resources and the area must seek to focus on these skills to retain and attract them to the area.

The data suggest that a similar number of business births is replacing business deaths. This indicates that Increased start-ups and expanding businesses are replacing traditional industries

A significant amount of discussion at Council level has led to a perceived view that Caithness may be underrepresented, and its socio-economic issues warrant a greater level of attention.

CNSRP

Mace has analysed the strategic, governance and operations of the CNSRP.

The overall governance structure is effective and has the appropriate membership. It has been highly successful in attracting new industries to the area, such as the offshore wind farm and satellite launching facility and meeting the lower end of the job targets spectrum, according to a CNSRP Programme Manager report to the Dounreay Stakeholder Group in October 2021.

All parties are engaged with the process. Attendance has improved (due to video conferencing), and perhaps this could a permanent way for people to join future meetings if they are unable to attend in person.

The CNSRP is solely focussed on this part of the world, which enables it to apply all its efforts to the local communities without distraction from other areas outside the region. The partnership therefore represents that area very well. The partnership is also well chaired.

SECTION 9
APPENDICES

9 Appendices

Appendix 1.1: Caithness and Sutherland Employment

Broad Industrial Groups	2005	2010	2014	2017	2020	Change from 2005	% Change from 2005
1: Agriculture, forestry & fishing (A)	300	300	300	340	275	-25	-8%
2: Mining, quarrying & utilities (B, D and E)	1,400	1,400	1,400	1,770	1,735	335	24%
3: Manufacturing (C)	1,300	900	700	675	650	-650	-50%
4: Construction (F)	600	800	800	900	825	225	38%
5: Motor trades (Part G)	300	200	100	165	140	-160	-53%
6: Wholesale (Part G)	400	300	400	345	330	-70	-18%
7: Retail (Part G)	1,200	1,400	1,500	1,525	1,550	350	29%
8: Transport & storage (inc postal) (H)	300	400	600	650	650	350	117%
9: Accommodation & food services (I)	1,600	1,500	1,500	1,650	1,500	-100	-6%
10: Information & communication (J)	200	200	200	240	380	180	90%
11: Financial & insurance (K)	200	100	100	165	105	-95	-48%
12: Property (L)	400	100	100	140	190	-210	-53%
13: Professional, scientific & technical (M)	600	900	1,100	1,115	990	390	65%
14: Business administration & support services (N)	1,300	900	600	500	360	-940	-72%
15: Public administration & defence (O)	900	1000	700	825	875	-25	-3%
16: Education (P)	1,400	1,400	1,200	1,150	1,300	-100	-7%
17: Health (Q)	2,600	2,500	2,900	2,650	2,100	-500	-19%
18: Arts, entertainment, recreation & other services (R, S, T and U)	500	400	500	725	650	150	30%
Total	**15,600**	**14,700**	**14,800**	**15,530**	**14,605**	**-995**	**-6%**

Source: Nomis

Appendix 1.2: HIE Area Employment

Broad Industrial Groups	2005	2010	2014	2017	2020	Change from 2005	% Change from 2005
1: Agriculture, forestry & fishing (A)	4,300	3,900	3,900	9,450	9,250	4,950	115%
2: Mining, quarrying & utilities (B, D and E)	4,600	4,200	4,600	4,375	5,125	525	11%
3: Manufacturing (C)	16,000	14,300	17,100	15,800	14,200	-1,800	-11%
4: Construction (F)	12,600	12,100	14,600	14,000	12,150	-450	-4%
5: Motor trades (Part G)	4,800	4,200	4,000	3,625	3,275	-1,525	-32%
6: Wholesale (Part G)	5,400	5,100	5,800	5,225	4,400	-1,000	-19%
7: Retail (Part G)	19,600	20,600	21,400	19,900	20,000	400	2%
8: Transport & storage (inc postal) (H)	7,300	9,700	11,400	9,650	10,000	2,700	37%
9: Accommodation & food services (I)	19,700	18,200	20,800	21,700	19,900	200	1%
10: Information & communication (J)	3,200	3,700	3,200	3,025	3,800	600	19%
11: Financial & insurance (K)	2,600	2,000	1,700	1,625	1,325	-1,275	-49%
12: Property (L)	2,500	2,000	2,100	2,275	2,575	75	3%
13: Professional, scientific & technical (M)	6,900	7,300	9,500	9,600	9,950	3,050	44%
14: Business administration & support services (N)	7,000	8,300	9,600	9,900	10,050	3,050	44%
15: Public administration & defence (O)	14,300	16,800	13,400	14,750	14,500	200	1%
16: Education (P)	18,600	18,300	15,900	14,900	16,400	-2,200	-12%
17: Health (Q)	31,900	36,600	37,700	33,000	34,500	2,600	8%
18: Arts, entertainment, recreation & other services (R, S, T and U)	8,600	9,000	9,200	10,450	7,800	-800	-9%
Total	**190,000**	**196,600**	**205,700**	**203,250**	**199,200**	**9,200**	**5%**

Source: Nomis

Appendix 1.3: Scotland Employment

Broad Industrial Groups	2005	2010	2014	2017	2020	Change from 2005	% Change from 2005
1: Agriculture, forestry & fishing (A)	35,700	37,800	37,100	40,000	39,000	3,300	9%
2: Mining, quarrying & utilities (B, D and E)	52,700	64,000	71,200	66,000	66,000	13,300	25%
3: Manufacturing (C)	227,100	173,500	186,500	183,000	175,000	-52,100	-23%
4: Construction (F)	131,800	126,300	136,900	140,000	122,000	-9,800	-7%
5: Motor trades (Part G)	46,300	43,300	43,600	42,000	41,000	-5,300	-11%
6: Wholesale (Part G)	71,800	70,900	73,600	73,000	64,000	-7,800	-11%
7: Retail (Part G)	251,600	237,900	244,600	236,000	230,000	-21,600	-9%
8: Transport & storage (inc postal) (H)	89,600	93,500	101,000	107,000	109,000	19,400	22%
9: Accommodation & food services (I)	173,900	164,700	174,900	190,000	173,000	-900	-1%
10: Information & communication (J)	39,700	64,300	61,000	69,000	89,000	49,300	124%
11: Financial & insurance (K)	107,700	86,100	86,100	83,000	79,000	-28,700	-27%
12: Property (L)	35,100	25,000	26,600	32,000	36,000	900	3%
13: Professional, scientific & technical (M)	139,700	139,900	159,700	167,000	171,000	31,300	22%
14: Business administration & support services (N)	156,400	173,800	194,600	194,000	193,000	36,600	23%
15: Public administration & defence (O)	160,400	156,300	146,600	157,000	156,000	-4,400	-3%
16: Education (P)	205,500	191,600	190,100	194,000	204,000	-1,500	-1%
17: Health (Q)	359,900	380,100	402,300	383,000	402,000	42,100	12%
18: Arts, entertainment, recreation & other services (R, S, T and U)	114,000	101,300	100,500	115,000	95,000	-19,000	-17%
Total	**2,398,800**	**2,330,500**	**2,437,100**	**2,471,000**	**2,444,000**	**45,200**	**2%**

Source: NOMIS

Appendix 2.1: Location quotients vs Scotland for 2020

Broad Industrial Groups	Caithness	Caithness & Sutherland	HIE
1: Agriculture, forestry & fishing (A)	**0.48**	1.18	2.91
2: Mining, quarrying & utilities (B, D and E)	5.91	4.40	0.95
3: Manufacturing (C)	0.63	0.62	1.00
4: Construction (F)	1.05	1.13	1.22
5: Motor trades (Part G)	0.60	0.57	0.98
6: Wholesale (Part G)	0.91	0.86	0.84
7: Retail (Part G)	1.21	1.13	1.07
8: Transport & storage (inc postal) (H)	0.80	1.00	1.13
9: Accommodation & food services (I)	1.01	1.45	1.41
10: Information & communication (J)	0.89	0.71	0.52
11: Financial & insurance (K)	**0.31**	**0.22**	**0.21**
12: Property (L)	0.52	0.88	0.88
13: Professional, scientific & technical (M)	1.16	0.97	0.71
14: Business administration & support services (N)	**0.33**	**0.31**	0.64
15: Public administration & defence (O)	0.82	0.94	1.14
16: Education (P)	0.97	1.07	0.99
17: Health (Q)	0.81	0.87	1.05
18: Arts, entertainment, recreation & other services (R, S, T, U)	0.80	1.14	1.01
Total	1.00	1.00	1.00

Source: NOMIS

Appendix 2.2: Location quotients vs Scotland for 2005

Broad Industrial Groups	Caithness	Caithness & Sutherland	HIE
1: Agriculture, forestry & fishing (A)	0.61	1.29	1.52
2: Mining, quarrying & utilities (B, D and E)	5.33	4.08	1.10
3: Manufacturing (C)	1.05	0.88	0.89
4: Construction (F)	0.66	0.70	1.21
5: Motor trades (Part G)	0.93	1.00	1.31
6: Wholesale (Part G)	0.90	0.86	0.95
7: Retail (Part G)	0.77	0.73	0.98
8: Transport & storage (inc postal) (H)	0.72	0.51	1.03
9: Accommodation & food services (I)	0.99	1.41	1.43
10: Information & communication (J)	0.54	0.77	1.02
11: Financial & insurance (K)	**0.20**	**0.29**	**0.30**
12: Property (L)	1.85	1.75	0.90
13: Professional, scientific & technical (M)	0.77	0.66	0.62
14: Business administration & support services (N)	1.66	1.28	0.57
15: Public administration & defence (O)	0.54	0.86	1.13
16: Education (P)	1.05	1.05	1.14
17: Health (Q)	1.02	1.11	1.12
18: Arts, entertainment, recreation & other services (R, S, T, U)	0.57	0.67	0.95
Total	1.00	1.00	1.00

Source: NOMIS

Appendix 3.1: Business Base for Caithness

Broad Industrial Groups	2010	2015	2017	2021	Change from 2010	% Change from 2010
1: Agriculture, forestry & fishing (A)	450	460	455	455	5	1%
2: Mining, quarrying & utilities (B, D E)	5	15	5	15	10	200%
3: Manufacturing (C)	65	80	80	65	0	0%
4: Construction (F)	135	140	145	155	20	15%
5: Motor trades (Part G)	25	30	35	35	10	40%
6: Wholesale (Part G)	25	30	30	25	0	0%
7: Retail (Part G)	115	110	110	90	-25	-22%
8: Transport & storage (inc postal) (H)	30	30	30	25	-5	-17%
9: Accommodation & food services (I)	70	75	80	75	5	7%
10: Information & communication (J)	15	10	5	10	-5	-33%
11: Financial & insurance (K)	0	0	0	5	5	0%
12: Property (L)	5	15	10	15	10	200%
13: Professional, scientific & tech (M)	90	175	175	145	55	61%
14: Bus admin & support services (N)	60	65	85	75	15	25%
15: Public admin & defence (O)	0	0	0	0	0	0%
16: Education (P)	0	5	10	10	10	0%
17: Health (Q)	30	40	30	30	0	0%
18: Arts, entertainment, recreation & other services (R, S, T and U)	40	60	55	55	15	38%
Total	**1,160**	**1,340**	**1,340**	**1,285**	**125**	**11%**

Source: NOMIS

Appendix 3.2: Business Base for Caithness and Sutherland

Broad Industrial Groups	2010	2015	2017	2021	Change from 2010	% Change from 2010
1: Agriculture, forestry & fishing (A)	750	795	780	805	55	7%
2: Mining, quarrying & utilities (B, D and E)	10	25	15	25	15	150%
3: Manufacturing (C)	105	120	125	110	5	5%
4: Construction (F)	245	240	245	270	25	10%
5: Motor trades (Part G)	45	55	60	60	15	33%
6: Wholesale (Part G)	40	50	35	35	-5	-13%
7: Retail (Part G)	185	180	185	150	-35	-19%
8: Transport & storage (inc postal) (H)	50	55	55	40	-10	-20%
9: Accommodation & food services (I)	150	165	165	175	25	17%
10: Information & communication (J)	30	25	15	25	-5	-17%
11: Financial & insurance (K)	0	0	0	5	5	0%
12: Property (L)	20	35	30	35	15	75%
13: Professional, scientific & technical (M)	125	260	260	210	85	68%
14: Business admin & support services (N)	105	120	140	130	25	24%
15: Public administration & defence (O)	0	0	0	0	0	0%
16: Education (P)	0	10	10	10	10	0%
17: Health (Q)	55	75	55	55	0	0%
18: Arts, entertain't, recreation & other services (R, S, T, U)	85	115	105	105	20	24%
Total	**2,000**	**2,325**	**2,280**	**2,245**	**245**	**12%**

Source: NOMIS

Appendix 3.3: Business Base for the HIE area

Broad Industrial Groups	2010	2015	2017	2021	Change from 2010	% Change from 2010
1: Agriculture, forestry & fishing (A)	5,015	5,185	5,190	5,315	300	6%
2: Mining, quarrying & utilities (B, D and E)	105	200	230	245	140	133%
3: Manufacturing (C)	940	1,045	1,100	1,175	235	25%
4: Construction (F)	2,545	2,580	2,670	2,830	285	11%
5: Motor trades (Part G)	545	580	575	575	30	6%
6: Wholesale (Part G)	535	505	485	460	-75	-14%
7: Retail (Part G)	1,825	1,735	1,665	1,495	-330	-18%
8: Transport & storage (inc postal) (H)	655	665	670	670	15	2%
9: Accommodation & food services (I)	1,860	2,045	2,055	2,155	295	16%
10: Information & communication (J)	430	460	485	505	75	17%
11: Financial & insurance (K)	125	130	125	125	0	0%
12: Property (L)	405	480	515	570	165	41%
13: Professional, scientific & technical (M)	1,695	2,560	2,560	2,310	615	36%
14: Business admin & support services (N)	980	1,290	1,375	1,350	370	38%
15: Public administration & defence (O)	10	10	10	5	-5	-50%
16: Education (P)	190	190	190	180	-10	-5%
17: Health (Q)	670	735	710	665	-5	-1%
18: Arts, entertainment, recreation & other services (R, S, T and U)	1,220	1,360	1,330	1,290	70	6%
Total	**19,750**	**21,755**	**21,940**	**21,920**	**2,170**	**11%**

Source: NOMIS

Appendix 3.4: Business Base for the Scotland

Broad Industrial Groups	2010	2015	2017	2021	Change from 2010	% Change from 2010
1: Agriculture, forestry & fishing (A)	16,840	17,205	17,195	17,245	405	2%
2: Mining, quarrying & utilities (B, D and E)	700	1,165	1,305	1,435	735	105%
3: Manufacturing (C)	7,710	8,495	8,995	9,370	1,660	22%
4: Construction (F)	18,015	18,420	19,790	21,055	3,040	17%
5: Motor trades (Part G)	4,150	4,480	4,580	4,780	630	15%
6: Wholesale (Part G)	5,480	5,440	5,375	5,225	-255	-5%
7: Retail (Part G)	14,155	13,975	13,460	13,595	-560	-4%
8: Transport & storage (inc postal) (H)	4,675	4,950	5,600	6,575	1,900	41%
9: Accommodation & food services (I)	12,075	13,380	13,585	14,405	2,330	19%
10: Information & communication (J)	6,570	9,045	10,265	9,385	2,815	43%
11: Financial & insurance (K)	2,090	2,695	3,005	3,200	1,110	53%
12: Property (L)	4,445	5,235	5,395	5,955	1,510	34%
13: Professional, scientific & technical (M)	21,280	31,585	32,450	28,785	7,505	35%
14: Business admin & support services (N)	8,520	11,300	12,420	13,085	4,565	54%
15: Public administration & defence (O)	50	50	50	55	5	10%
16: Education (P)	1,675	1,850	1,950	2,010	335	20%
17: Health (Q)	5,515	6,600	6,755	6,590	1,075	19%
18: Arts, entertainment, recreation & other services (R, S, T and U)	10,625	12,405	12,455	12,645	2,020	19%
Total	**144,570**	**168,275**	**174,630**	**175,395**	**30,825**	**21%**

Source: NOMIS

Appendix 4.1: CNSRP jobs target and performance (March 2020)

	3 year target		Current projections		
	Lo	Hi	New	Ret	Total
Bowl offshore wind	45	145	50	0	50
Tidal	0	10			0
Spacehub Sutherland	0	20	3		3
Oil & Gas	15	25	9		9
Nuclear Services	60	120			0
Business Services	15	100	51		51
North Coast 500	30	100			0
Other sectors	30	60	234	10	244
Local market	75	90	13		13
	270	**670**	**360**	**10**	**370**

Source: CNSPR

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