


Fraser of Allander Institute

The economic and wider contribution of
Balfour Beatty to Scotland's economy
July 2023



Glasgow Queen Street

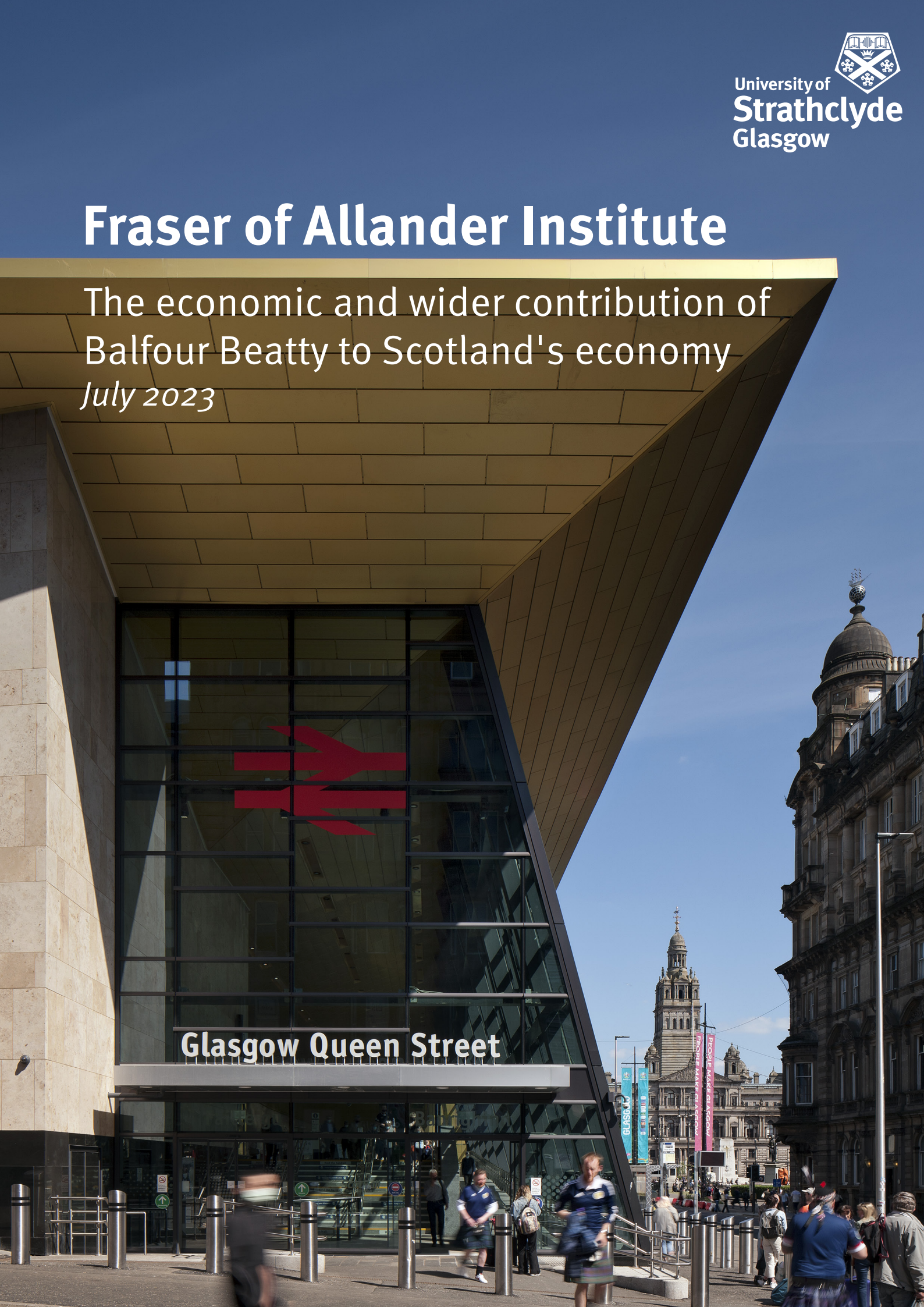


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Disclaimer

The analysis in this report has been conducted by the Fraser of Allander Institute (FAI) at the University of Strathclyde. The FAI is a leading academic research centre focused on the Scottish economy.

The report was commissioned in January 2023 by Balfour Beatty.

The analysis and writing-up of the results was undertaken independently by the FAI. The FAI is committed to providing the highest quality analytical advice and analysis. We are therefore happy to respond to requests for technical advice and analysis. Any technical errors or omissions are those of the FAI.

Executive Summary

Balfour Beatty is an international infrastructure group headquartered in the UK with a strong presence in Scotland.

In 1909, the construction firm was founded and later that year it carried out its first project for a new tramway system in Dunfermline in Fife. From power stations in the Highlands to hospitals and universities across the central belt, Balfour Beatty's contribution to the Scottish economy dates back over 100 years.

In this report, we use our detailed model of the Scottish economy to quantify the economic impact and wider spill-over effects of Balfour Beatty's expenditure in Scotland. However, this report goes beyond a traditional economic impact assessment, highlighting the wider impact of Balfour Beatty on the Scottish economy.

To do so, this report evaluates Balfour Beatty's contribution to the Scottish Government's National Strategy for Economic Transformation (NSET), the Scottish Government's 10-year economic strategy to achieve a wellbeing economy. This report uses data and case studies provided by Balfour Beatty, and analyses publicly available data to highlight Balfour Beatty's economic and wider contribution to the Scottish economy.

This report finds that, from 2016-2022:

- Balfour Beatty is estimated to have contributed just under £1.6bn in Gross Value Added (GVA) to the Scottish economy, supporting a total of 26,570 Full-Time-Equivalent (FTE) Scottish jobs.

Additionally, this report sets out how Balfour Beatty contributes to the following five Scottish Government programmes of action:

1. Entrepreneurial People and Culture

- A key indicator used to track progress against the first programme of action in NSET, is Scotland's 3-year business survival rate. In 2022, we estimate that Balfour Beatty spent just under £68m in Scotland on firms within the construction sector, roughly a third of Balfour Beatty's capital expenditure in the latest year. Of that £68m, 80% was on SMEs.
- However, Balfour Beatty does not just support SMEs within its own sector. In 2022, 78% of Balfour Beatty spending in Scotland was on SMEs. This has increased significantly since 2021 when 62% of expenditure was on SMEs. Since 2016, Balfour Beatty spend on supporting small and medium enterprises in its supply chain has increased by over 40-percentage points, demonstrating Balfour Beatty's increasing support for SMEs and business survival across not only construction but the whole Scottish economy..

2. New Market Opportunities

- Capital spend is an important indicator of the second pillar of NSET and Balfour Beatty's capital spend of £1.6bn over 2016 - 2022 not only supports this programme of action but it spans further than just Scotland's central belt, supporting new market opportunities across the Scottish economy. In 2022, Balfour Beatty made capital investments of £200m, £50m of which was made up of organisations in the Scottish Highlands, the most of any local authority.
- Balfour Beatty have a strong track record of serving the communities it works with, reporting an average customer satisfaction rating of 95% in 2022.

3. Productive Businesses and Regions

- As well as making substantive capital investments in infrastructure, Balfour Beatty carries out a significant amount of research and development, supporting Scotland's productive capacity.
- Construction firms spent over £37m on R&D in Scotland in 2020. In the same year, Balfour Beatty spent over £3m on R&D in Scotland, increasing to over £4m in 2022.
- Between 2016 and 2021, Balfour Beatty spent over £13m on R&D (on its live projects) in Scotland. Over this period, its projects included the Glasgow Queen Street Development and the Edinburgh Futures Institute, with R&D expenditure of over £2.3m and £1.7m, respectively.

4. Skilled Workforce

- Balfour Beatty UK employs 11% of its workforce in Scotland; of this employment in Scotland, over 11% are employed in North Lanarkshire. 14% of Balfour Beatty's North Lanarkshire-based workforce is made up of young people (16-25).
- The number of young people participating in education, training or employment is a key indicator in NSET's third programme of action. Therefore, through its employment of young people in North Lanarkshire, Balfour Beatty is supporting opportunities for young people in Scotland's second most deprived area for education and ninth most deprived for employment.
- Additionally, Modern Apprenticeships offer qualification levels ranging from SCQF 5 – SCQF 12 in Scotland. Therefore, Balfour Beatty's apprenticeship programmes also play an important role in upskilling the Scottish population.
- Beyond apprenticeships, employers play an important role in developing the skillset of their workforce throughout their career. In the UK, Balfour Beatty provided 664 distinct training courses with 30,705 attendees in 2022. Furthermore, 35,975 e-learning courses were completed over the same year.

5. A Fairer and More Equal Society

- A key indicator within this final programme of action is the number of workers earning above the real living wage (rLW) which stands at £9.90 in 2021/22. The Scottish construction sector performs well under this indicator, paying the lowest 10% of earners £10.23 per hour – around 3.5% higher than the rLW.
- Balfour Beatty pay 98.9% of employees above the living wage, and generally pay its staff a much higher weekly wage than the rest of the sector and economy across Scotland. For example, in 2022, Balfour Beatty Scotland paid its staff average weekly earnings of over £950. This is £265 more than the Scottish construction average for weekly pay, and over £350 more than the average Scottish earner receives each week across all industries.
- Balfour Beatty supports the Scottish Government's ambitions of a fairer and more equal society by providing significant economic growth and job spillovers in Scotland's poorest communities. For example, since 2016, Balfour Beatty has spent over £375m on capital projects within Glasgow City, Scotland's most deprived council area.

Section 1: Economic Impact Assessment

In this section, we model the economic impact of Balfour Beatty’s spending over a 7-year period in Scotland. This is carried out by fitting Balfour Beatty’s expenditure across 2016 – 2022 into a detailed model of the Scottish economy. This model estimates the impact that Balfour Beatty’s activities have on jobs and economic growth in Scotland, both directly and indirectly.

The methodology in Section 3 outlines how this economic modelling was carried out, with further detail on how to interpret the results of this section.

Between the years 2016– 2022, Balfour Beatty spent a total of almost £1.6bn in the form of capital expenditure (CAPEX) in Scotland.

Once spillover effects are accounted for, Balfour Beatty’s capital spend across 2016 – 2022 is estimated to support over 26,000 FTE Scottish jobs and have an economic impact of over £1.5bn on Scottish GDP. **See Table 1.**

Table 1: Economic Impact of Balfour Beatty CAPEX, Scotland, 2016 – 2022*, 2019 prices

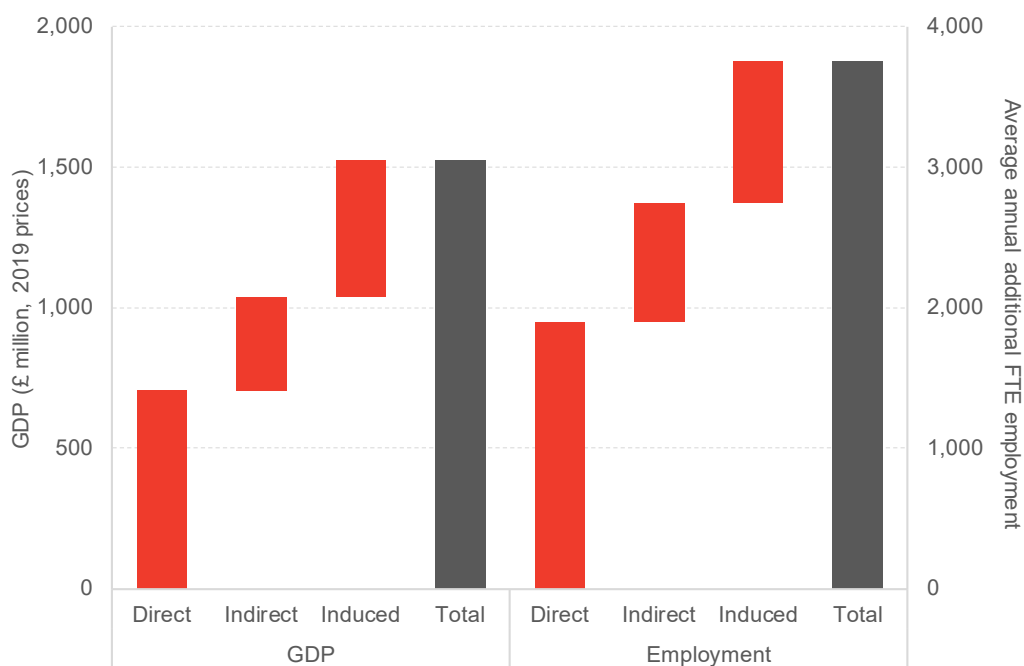
	Output (£m)	Employment (FTE)	GVA (£m)
Direct	1,595	13,275	705
Indirect	705	5,910	330
Induced	800	7,075	490
Total	3,100	26,260	1,525

*Totals may not sum due to rounding

Source: FAI Calculations

For every £1m invested in Scotland by Balfour Beatty over this period, over 16 jobs are estimated to be supported across the whole Scottish economy. On average, over the period of 2016 – 2022, Balfour Beatty’s capital investment is estimated to support over 3,750 FTE Scottish jobs annually. **See Chart 1.**

Chart 1: Economic Impact of Balfour Beatty CAPEX, Scotland, 2016 – 2022, 2019 prices



Source: FAI Calculations

Over the same period, Balfour Beatty spent a further £23m in the form of operational expenditure (OPEX) in Scotland. This brings Balfour Beatty's total impact over the 7-year period in Scotland to almost £1.6bn in GDP, with over 26,500 jobs supported. **See Table 2.**

Table 2: Total Economic Impact of Balfour Beatty, Scotland, 2016 – 2022*, 2019 prices

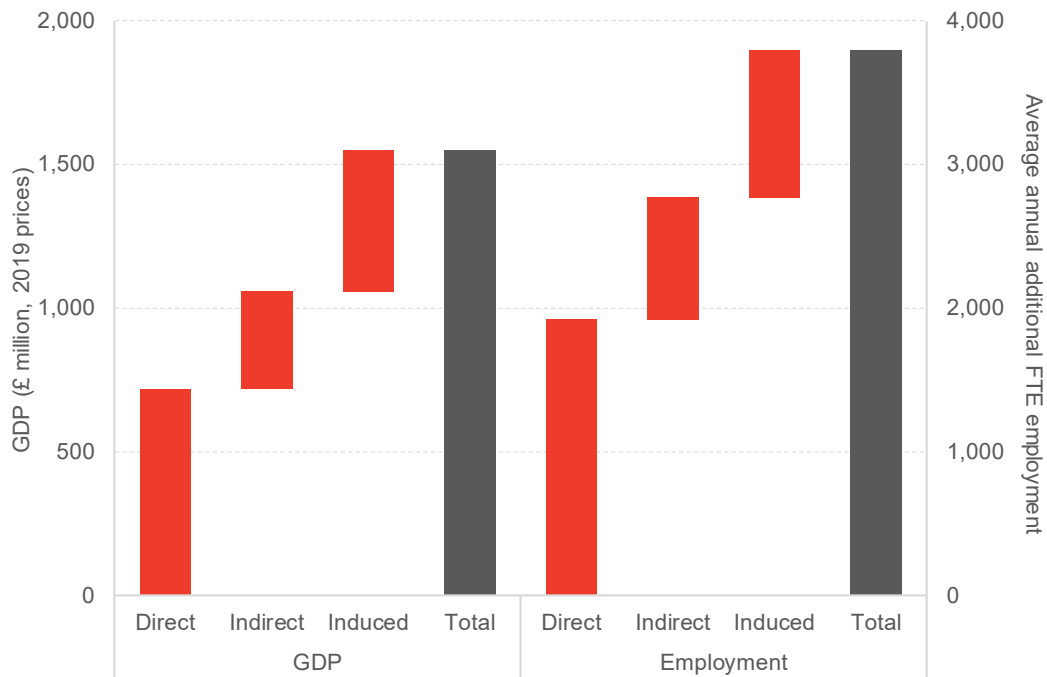
	Output (£m)	Employment (FTE)	GVA (£m)
Direct	1,620	13,440	720
Indirect	715	5,985	335
Induced	810	7,150	495
Total	3,140	26,570	1,550

*Totals may not sum due to rounding

Source: FAI Calculations

On average, over this period, Balfour Beatty's total spend is estimated to support just under 3,800 FTE Scottish jobs annually. **See Chart 2.**

Chart 2: Total Economic Impact of Balfour Beatty, Scotland, 2016 – 2022, 2019 prices



Source: FAI Calculations

Section 2: Wider Impact Assessment

Box 1: Introducing Balfour Beatty

In 1909, Balfour Beatty's first ever construction project started - to build trams infrastructure in Dunfermline, Fife. As the business has grown sustainably since then, across the UK and beyond, to become a leading international infrastructure group, we have been ever-present in Scotland: financing, developing, building, and maintaining the infrastructure that underpins daily life across the nation.

During this time, we have been trusted with some of Scotland's most iconic built heritage, including building major hydropower schemes in the highlands, maintaining the Forth Rail Bridge, refurbishing the National Museum of Scotland, and building the 137-mile-long Beaulieu to Denny power line.

Our current and recent projects include building the cutting-edge Institute for Repair and Regeneration for University of Edinburgh, the multiple award-winning redevelopment of Glasgow Queen Street station, the outstanding quality National Treatment Centre in Inverness and dualling the Luncarty to Pass of Birnam stretch of the A9, which has been cited as an exemplar project for achieving “an unprecedented focus on community benefits” in Scottish Procurement Policy Note SPPN 10/2020.

With more than 1,200 employees in Scotland we proactively apply that mindset to every project we work on here, maximising long-term positive legacy for communities, supply chains and people through bespoke socioeconomic impact proposals tuned to local needs and context wherever we are working in the country, from the highlands and islands to the borders.

That community investment and our continued presence in Scotland since 1909 has been made possible by our persistent focus on sustainable business, partnering with customers to deliver projects that benefit all parties fairly, rewarding quality delivery and driving added value.

Source: Balfour Beatty

The contribution of Balfour Beatty to the Scottish economy extends beyond traditional economic metrics. Balfour Beatty's activities bring wider socioeconomic impacts, which are supporting Scotland to implement its 10-year strategy for economic transformation.

In March 2022, the Scottish Government published its [National Strategy for Economic Transformation](#) (NSET). This sets out the key pillars of action needed to transform the Scottish economy to be “fairer, wealthier, and greener” by 2032.

This report focuses on the first five ‘transformational’ programmes, which include:

- Entrepreneurial People and Culture,
- Skilled Workforce, and
- New Market Opportunities,
- A Fairer and More Equal Society.
- Productive Businesses and Regions,

The [NSET delivery plans](#) outline a number of indicators which can be used to track the progress of these five programmes of action.

This section outlines Balfour Beatty's wider impacts in relation to the five NSET programmes and their associated indicators. In addition to this, Balfour Beatty provided the Institute with a range of case studies which are used throughout this section to complement the analysis of its wider impact.

1. Entrepreneurial People and Culture

Fostering a culture of entrepreneurship and developing an entrepreneurial workforce is one of the central pillars of Scotland's National Strategy for Economic Transformation. This programme seeks to make Scotland a world leader in entrepreneurship by unlocking potential in the creation of new companies and the scaling up of successful companies.

A key indicator used to track progress against the first programme of action in NSET, is Scotland's 3-year business survival rate. In the latest estimates, Scotland performs better than the UK on this measure. That is, the 3-year survival rate of Scottish firms born in 2018 is estimated at 59%, while the equivalent UK-wide figure is 57.6%.

At the UK level, the 3-year survival rate of construction firms (born in 2018) stands at 60.8%, around 3.2-percentage points greater than the UK industry average.

In national accounts, the construction sector is defined as "SIC 41-43", and within this sector, there are the following industries: Civil Engineering (SIC 41), Construction of Buildings (SIC 42), and Specialised Construction Activities (SIC 43). The latter includes activities such as repair and maintenance work.

The 3-year survival rate of construction of buildings and specialised construction activities firms (born in 2018) performs above the UK industry average of 57.6%, with rates of 58.2% and 63%, respectively. Civil engineering firms face a 3-year survival rate of 56.4%, underperforming relative to the UK rate.

While there are business survival rates for Scotland and its growth sectors, there is no Scottish data on construction firm survival. However, the latest Businesses in Scotland data provides insight into how construction firms in Scotland are faring.

In the Scottish construction sector, enterprise growth over the past decade suggests a strong track of entrepreneurship. The number of enterprises operating in the construction sector has increased considerably - up almost 15% since 2010. The number of firms¹ operating in this sector in 2022 stands at just under 22,000. This growth exceeds that across the Scottish average, where the number of businesses across the Scottish economy is up around 20,000 since 2010, a 13% increase.

The construction sector makes up 12.5% of private sector registered firms in Scotland.

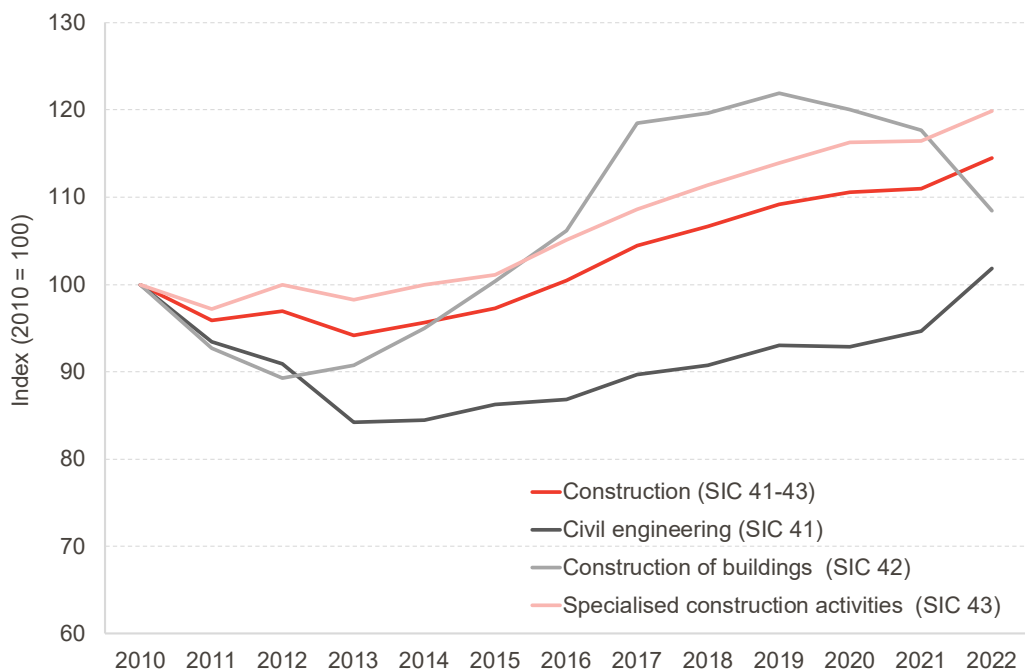
Over the past decade, the construction of buildings saw only slight growth following a number of hits to the sector, namely the Great Recession, the COVID-19 pandemic and the current cost-of-doing-business crisis. The number of businesses operating within this industry in 2022 stood at almost 5,000, just 2% above its 2010 levels. **See Chart 3.**

Civil engineering has also experienced significant headwinds in recent years and still struggling to recover from the pandemic. However, the industry reported some growth nonetheless, with over 1,400 firms in 2022, around 8.5% above its 2010 levels.

¹ Registered private sector firms only.

Unlike the other construction industries, specialised construction activities have consistently performed above the construction sector average since 2010. As of 2022, there are over 15,500 businesses in Scotland operating in this industry.

Chart 3: Scottish construction sector index, the total number of private registered businesses, by 2-digit SIC, 2010 – 2022



Source: Scottish Government

In 2022, we estimate that Balfour Beatty spent just under £68m in Scotland on firms within the construction sector. That is, roughly a third of Balfour Beatty’s capital expenditure in the latest year. Of that £68m, 80% was on SMEs.

However, Balfour Beatty does not just support SMEs within its own sector. In 2022, 78% of Balfour Beatty spending in Scotland was on SMEs. This has increased significantly since 2021 when 62% of expenditure was on SMEs. Since 2016, Balfour Beatty spend on SMEs has increased by over 40-percentage points. **See Chart 4.**

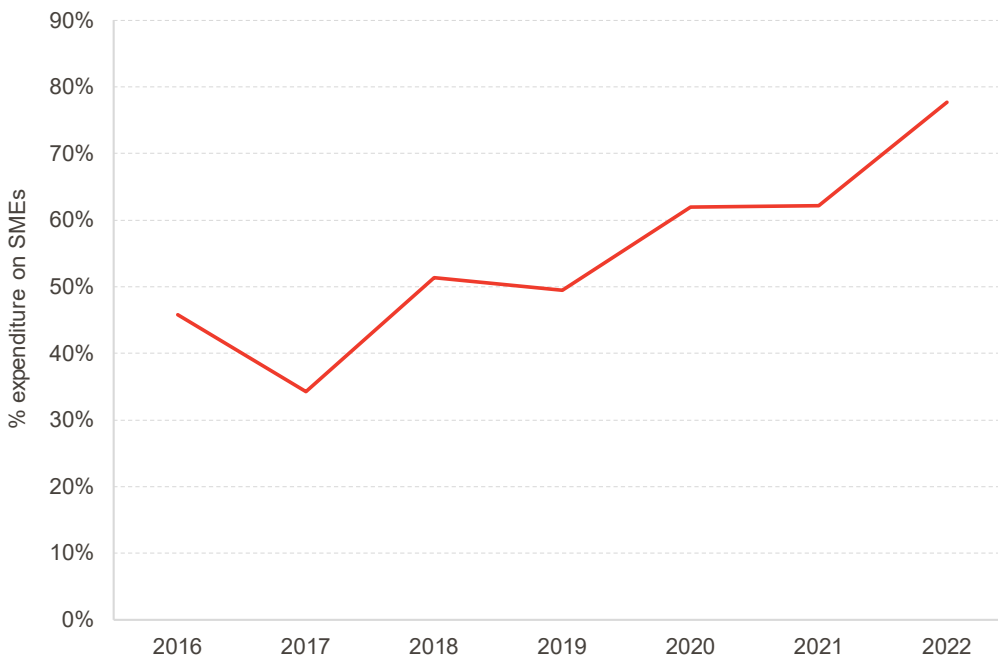
CASE STUDY

Enabling SME Innovation

At our Lochside Academy project in Aberdeen we worked closely with our groundworks supply chain partner (SME David Smith Contractors) for more than 6 months to create an innovative groundworks solution including retaining material onsite, adjusting levels, and soil improvement. Doing so saved our customer £4m and reduced carbon emissions by eliminating the need to transport soil from the site to disposal facilities and, in turn, hundreds of lorry movements.

Source: Balfour Beatty

Chart 4: Balfour Beatty's spend on SMEs, Scotland, 2016 – 2022



Note: Balfour Beatty spend on SMEs is calculated as the share of total assigned spend (i.e. spend assigned to SMEs, Large firms, Government) by Balfour Beatty that is spent on SMEs. No unassigned or unclassified spend is used in the denominator because Balfour Beatty data, as it progresses from 2016 to 2022, achieves a lower and lower share of unclassified spending which would make earlier estimates look smaller. For example, in 2016, 19% of spending was unassigned. In 2022, 0.1% was unassigned.

Source: Balfour Beatty

2. New Market Opportunities

Exploring new market opportunities is the second programme of action identified in Scotland's National Strategy for Economic Transformation. This seeks to strengthen Scotland's position in new markets and industries, generating new, well-paid jobs from a just transition to net-zero.

Box 1: Scotland's Just Transition

Scotland's just transition is defined as the process of shifting away from fossil fuels towards a greater utilisation of green energy, ensuring the workers and communities affected by this transition are well-supported

The just transition to net zero offers Scotland a particular opportunity to build on our historic expertise in engineering skills, energy markets and reputation. According to NSET, a key priority for this program is to identify Scottish companies with the skills, capacity and capability to bid for, win and deliver contracts in key industries.

CASE STUDY

Edinburgh Botanics Diary

With climate change one of the biggest global challenges, we believe our industry must work together at scale to shift the dial on decarbonising construction as a whole. That's why we have set out a roadmap to deliver a zero carbon construction site, identifying the gaps and challenges preventing zero carbon construction.

Working in collaboration with our customer the Royal Botanic Garden Edinburgh, the designer and our supply chain partners, and drawing on the expertise of the whole UK business, we're trialling this live on the Biomes initiative. From the materials used, developing our people's green skills, the logistics of transporting people, plant and products to and from the site and all the activities that take place on site during construction up until handover – we're examining every element of the project to find lower carbon options and solutions.

Key project learnings

Geopolymer concrete

We have been working with Roisin Hyde, a Fulbright award-winning Architect and Doctoral Research Student at Queen's University Belfast in the area of Novel Materials, Architecture and Design (NoMAD), on her geopolymer concrete solution. This is a low-carbon concrete substitute made from up to 96% waste materials from mining, quarrying, metallurgy, water purification, incineration and agriculture. Our action: We are exploring how we can bring geopolymer concrete into use on a commercial scale on our projects.

Recycling glass

We have been exploring how we can reuse the glass that will be removed from the iconic Victorian Palm house. While glass is an easy product to recycle and reuse (and is often in high demand) we are keen to use the palm house glass which is so critical to the Royal Botanic Garden Edinburgh, to demonstrate how circular economies can work at a local scale. We are working with our supply chain partners, glass specialists, research facilities and concrete producers to see if we can reuse the glass for something that would be a useful addition to the project or the wider Royal Botanic Garden. Our action: Once the trial has concluded in mid 2023, the results will be shared with the rest of the business to ensure as many schemes as possible benefit.

Surplus topsoil

Topsoil is a precious resource and every effort should be made to reuse 100% of it. We relocated c.50 tonnes of soil to local allotments as well as supporting school's charitable initiatives. In an agreement with Scottish Environment Protection Agency (SEPA), the use of the greenfield soils is not subject to regulation as a waste activity which means we can work with the material as a clean material. Our action: To continue to Think Global, Act Local and try and maximise the local reuse of any surplus materials from the project.

Green skills

Having a construction workforce that is trained and ready to deliver net zero is essential. We are rolling out a UK-wide Carbon Conscious Education programme to ensure employees understand the carbon costs of their behaviour and how they can play their part in helping Balfour Beatty reduce its carbon footprint – as well as reducing the carbon impact of their own activities. Our action: We are working with partners to ensure qualifications and training frameworks reflect the importance of carbon-related knowledge and skills, and also providing training to our supply chain.

Source: Balfour Beatty

CASE STUDY

Circular Accelerator

After being awarded the Fife College Campus contract, Balfour Beatty will be responsible for the delivery of three buildings spanning over 20,000_m². Inside the new campus, you can expect industry-standard workshops for engineering and construction, a university hub so learners can study to degree level with a range of university partners on campus, a purpose-built learning café, sports hall, and an innovation and events hub to cater for different College and community events.

As Balfour Beatty assessed its own green credentials, it collaborated with Zero Waste Scotland (ZWS) together with its Industry partner Insight Futures (IF), CIRRCLE modelling tool and digital platform to work in collaboration with its supply chain to gain more detailed sustainability information than had previously been gathered. To do this, Climate Accelerator initiative was launched which included the use of a Climate Action Benchmark Assessment, targeting mechanical and electrical suppliers.

The assessment was conducted to highlight which stage each supplier was at on their circular awareness and innovation journey. Once results were gathered, suppliers were then signposted to support and key recommendations for how to progress their sustainability agenda. ZWS offered suppliers who took part a range of support, including access to technical expertise, funding and practical advice based on research and evidence.

The assessment identified development opportunities for 75 respondents across 49 companies who completed the assessment, which will result in a change of pace across the sector. The assessment process was also supported by a Climate Accelerator Conference where the customer Fife College, Balfour Beatty, the design and the supply chain were all brought together to discuss.

Source: Balfour Beatty

In 2020, Balfour Beatty launched its Sustainability Strategy, *Building New Futures*, which focuses on three key areas: Environment, Materials and Communities. The strategy includes a firm 2030 target of halving its 2020 carbon emissions and an ambition of going 'Beyond Net Zero Carbon' by 2040 on an absolute reduction basis.

In a recent report, [Greening the Scottish Supply Chain](#), Balfour Beatty emphasise the value of collaboration, in particular involving the supply chain from the very early stages of a project in order to maximise the opportunities to drive decarbonisation.

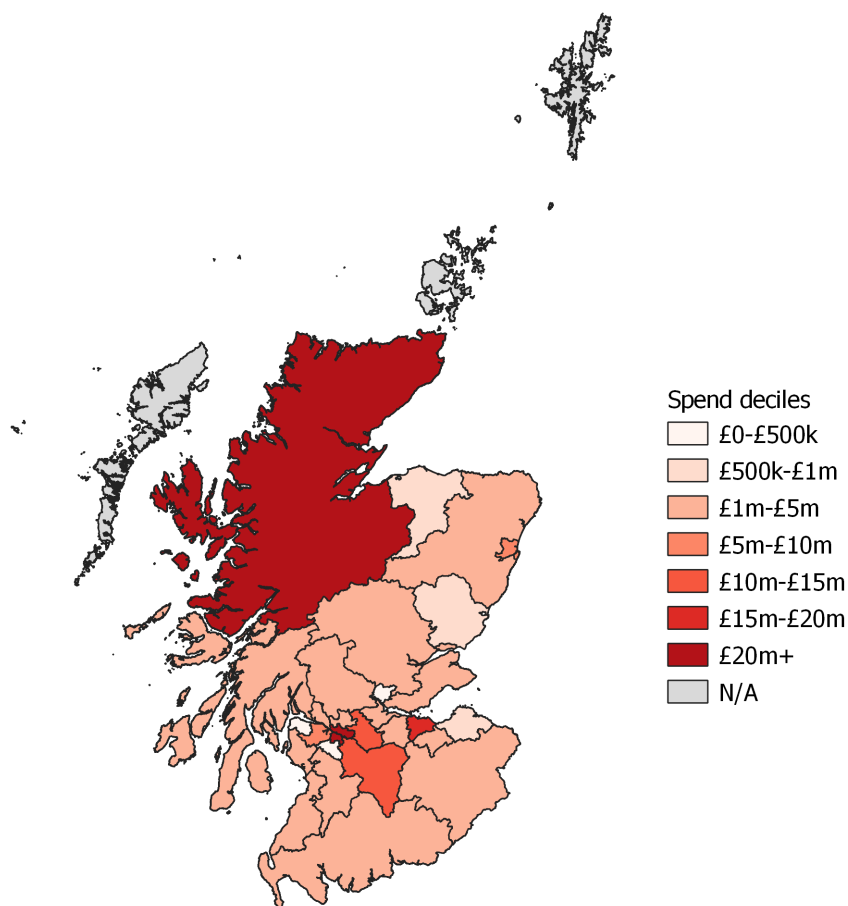
Balfour Beatty does not only contribute to Scotland's green economy, but it also helps tackle the challenge of securing longer-term economic growth through their capital investment.

A key indicator in this NSET programme is capital investment, and as discussed in Section 1, Balfour Beatty's capital expenditure of £1.6bn in 2016 – 2022 has a significant economic impact in terms of the employment and GVA it supports. However, it is important to note that capital expenditure also plays an important role in the economy's longer-term prosperity.

Capital expenditure increases the productive capacity of the economy and, given that Balfour Beatty's spending spans further than Scotland's central belt, Balfour Beatty supports productivity across the whole of Scotland. **See Map 1.**

Of the £200m spent on capital investment in Scotland in 2022, 25% was in the Highlands. That is, £50m of Balfour Beatty's supply chain in 2022 was made up of organisations in the Highlands, the most of any local authority.

Map 1: Balfour Beatty capital spend in Scotland, 2022



Source: Balfour Beatty, FAI calculations

It is important to note that Balfour Beatty have a strong record of serving the communities it works with. In its latest [Annual Report](#) for 2022, Balfour Beatty reported an average customer satisfaction rating of 95%.

Balfour Beatty's capital investment does not just support this programme of action in NSET but it has also played a significant role in supporting the country throughout the COVID-19 pandemic.

CASE STUDY

Louisa Jordan Hospital

During the first week of the Covid-19 lockdown, Balfour Beatty were commissioned to build the temporary NHS Louisa Jordan Hospital on behalf of the Scottish Government. The new facility was built to provide extra patient capacity as NHS Scotland required additional flexibility at the time of the pandemic.

Balfour Beatty mobilised a delivery team in 24 hours with a delivery phase of three weeks, involving 81 employees and 550 supply chain members. Throughout the project, collaboration between the industry, the military, Scottish Government and the NHS was vital to ensure the project was met on time.

- The project consisted of converting 24,000m² of the Scottish Exhibition Conference Centre (SECC) space into a functional hospital.
- Work on the project included the construction of sterile temporary wards, installing and commissioning of life-saving oxygen and gas systems.
- The hospital provided 1036 patient beds, including 90 high-dependency units.
- The project also included the installation of 220,000 metres of fibre-optic and structured cabling, 35,000 metres of network cabling for the nurse call system as well as 2,200 patient call devices, along with 1,144 oxygen outlet points.

Source: Balfour Beatty

3. Productive Businesses and Regions

Enhancing the productivity and innovation of Scotland's businesses, industries, regions, communities and public services is the third key pillar of the national strategy.

The Scottish Government have identified that a key part of boosting productivity is by addressing regional inequalities in economic activity as well as boosting traditional and digital infrastructure. Furthermore, international evidence shows that economies with strong productivity score highly on the indicators of a wellbeing economy.

As well as making substantive capital investments in infrastructure, Balfour Beatty carries out a significant amount of research and development, supporting Scotland's ambition to grow the productive capacity of the Scottish economy.

Balfour Beatty contributes to Scotland's research and development through its internal R&D and outsourced R&D. **See Diagram 1.**

Diagram 1: Balfour Beatty Scotland qualifying R&D expenditure



Source: Balfour Beatty

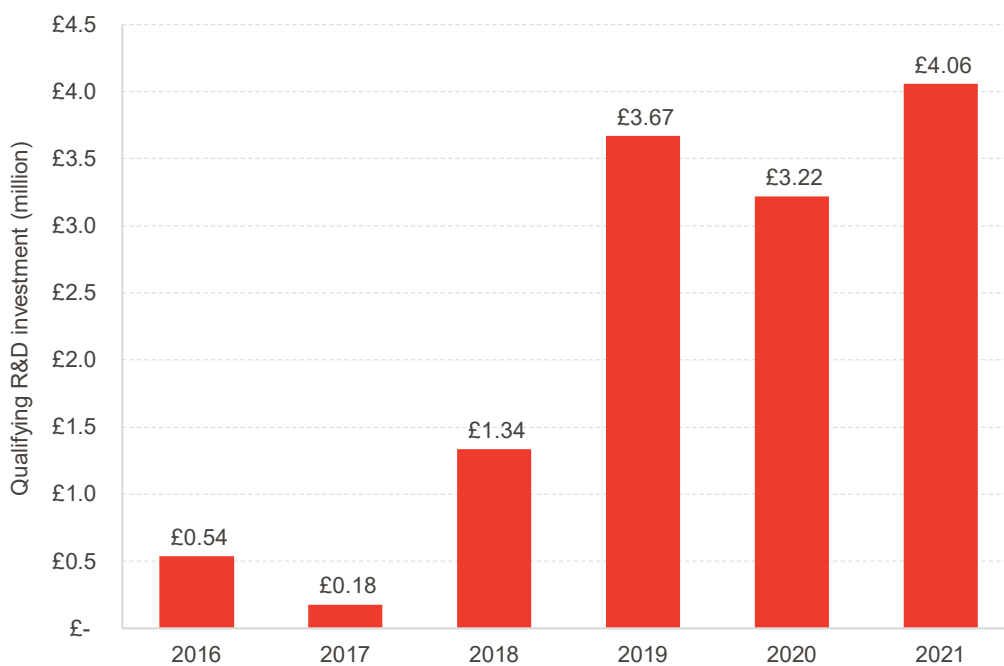
The Scottish Government’s [Business Enterprise Research and Development Statistics](#) (BERD) estimates R&D performed in Scotland by businesses, irrespective of the business residence. BERD excludes R&D funded by Scottish businesses that is performed overseas.

The latest estimates highlight that, in 2020, construction firms spent over £37m on R&D. In this year, Balfour Beatty spent over £3m on R&D in Scotland. In the latest year, 2022, Balfour Beatty spent a total of over £4m on research and development in Scotland. **See Chart 5.**

Between 2016 – 2021, Balfour Beatty spent over £13m on R&D (on its live projects) in Scotland. Over this period, Balfour Beatty spent over £2.3m on R&D in Scotland as part of the Glasgow Queen Street Development. In 2019 alone, Balfour Beatty spent over £1.2m on R&D under this project.

Since 2019, Balfour Beatty have spent £1.7m on R&D under the Edinburgh Futures Institute at Quartermile, with over £1m invested in 2021.

Chart 5: R&D investment, Balfour Beatty Scotland, 2016 – 2021



Source: Balfour Beatty

CASE STUDY

Glasgow Queen Street

Appointed by Network Rail to build the £75m redevelopment of Glasgow Queen Street which completed in 2021, Balfour Beatty conducted extensive design and development of new elevated glass and stone curtain envelope facade capable of withstanding extreme weather and blast conditions.

The architect's design for the station's façade consisted of an array of glass and stone cladding, made up of 310 glass panes installed across a 21-metre-high structure. It covers 734m² and weighs 33,030kg.

A glass façade structure of this scale is not new technology however this glass facade had not previously been designed at the sloping angle proposed at Glasgow Queen Street Station. Significant testing and investigative work were necessary to determine the technological feasibility and long-term durability of the façade system.

This included developing and conducting practical and digitally enabled tests to establish the proposed design's air permeability, static watertightness, wind resistance and explosive blasts. In most cases no previous research existed into this specific design's features, so the learnings developed constitute new technological knowledge and capability within the fields of mechanical and structural Engineering.

Throughout the blast and weather testing, Balfour Beatty made changes and revisions to the cladding design to ensure the design achieved sufficient mechanical properties, in order for the design to qualify as a safe and durable feature at Glasgow Queen Street Station. Due to the elevated design of the cladding not typically used in the industry, all the learnings developed constitute new knowledge within the fields of Mechanical and Structural Engineering, specifically with regards to cladding capability.

Source: Balfour Beatty

NSET's third programme of action aims to increase the proportion of firms in Scotland that are innovation active, and increase digital skills in business.

The latest Productivity Index for Scotland finds that just 39% of Scottish firms in 2018 – 2020 were innovation active. Despite this being over 7-percentage points higher than in 2016-18, the Scottish figure lags behind all UK regions, with the exception of Northern Ireland, and is around 7-percentage points below the UK average of 45%. Balfour Beatty play an active role in innovation within Scotland, coming up with new methods of construction within the civil and structural engineering field.

Balfour Beatty also plays an important role internally in supporting Scotland's R&D ambitions. In 2016, Balfour Beatty combined its Engineering Services and Engineering Construction businesses to form Balfour Beatty Kilpatrick, a UK powerhouse of mechanical and electrical engineering capability.

The organisation is dynamic, offering breadth and depth of expertise, with quality delivery and significant capability unique in the mechanical and electrical market. Its capabilities span the nuclear, power, infrastructure, process and defence, transport, healthcare, education, residential and commercial sectors.

As of 2022, Balfour Beatty Kilpatrick directly employs a workforce of over 2,500 across the UK.

CASE STUDY

Edinburgh Futures Institute at Quartermile

The surgical building of Edinburgh's Old Royal Infirmary, a Category A listed building at the heart of the city centre, will be the setting for the University of Edinburgh's new Futures Institute ("EFI Quartermile").

The historic building, which is over 130 years old, was being used by the NHS as an infirmary and through the years the building has been adjusted to the ever-changing needs of the NHS, including new laboratories, surgery suites and the installation of heavy and complex machinery.

To achieve the requirements for the historic features of the existing building, including interior arches and masonry columns containing chimney stacks, to be retained and incorporated into the new structure, Balfour Beatty undertook an R&D project to develop a feasible and structurally stable solution that could incorporate the existing historic features into the new design. This included the strengthening of the brick arches in a safe manner and the existing chimney stacks, particularly those in masonry columns, to cater for different and potentially larger loads.

This advanced the fields of civil and structural engineering through the development of:

- an improved multiple-pin stabilising and strengthening solution for a brick arch experiencing unusual levels of settlement.
- a new methodology for strengthening masonry columns containing chimney stacks into enhanced load-bearing structural columns.

Through their R&D at EFI Quartermile, Balfour Beatty pushed the boundaries of civil and structural engineering techniques by developing new knowledge about how to retain severely dilapidated flattened brick arches. Furthermore, the team proved that it is technologically feasible to enhance the load-carrying capacity of old masonry columns. The lessons learned from overcoming these challenges can be carried forward onto future refurbishment projects that incorporate existing structures.

Source: Balfour Beatty

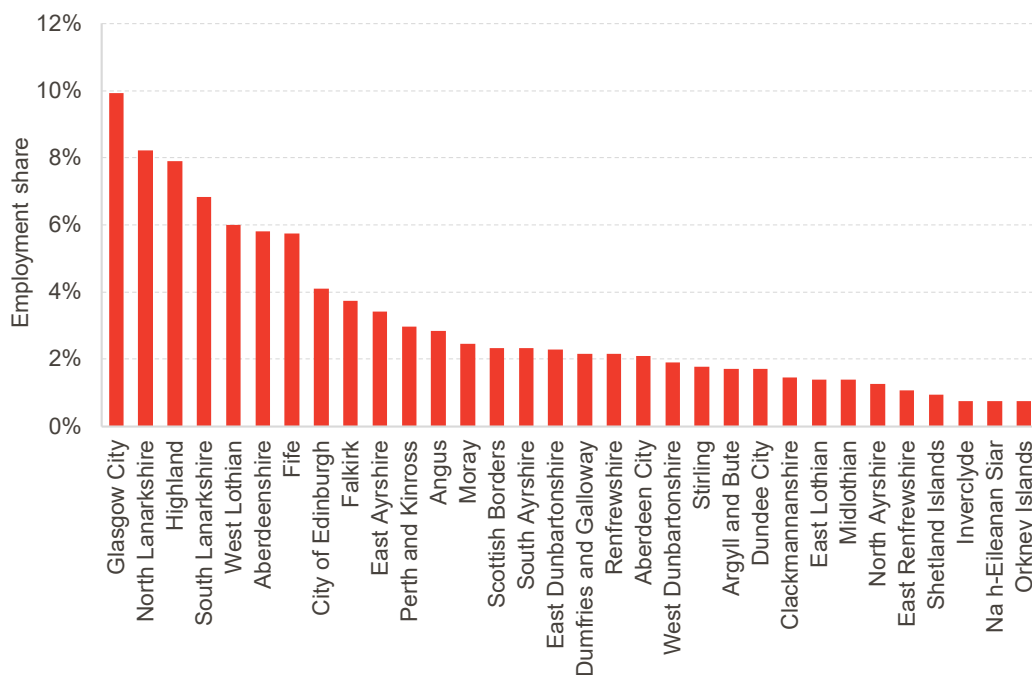
4. Skilled Workforce

The fourth pillar of the National Strategy recognises the importance of a skilled workforce to business productivity and economic prosperity in Scotland. Skills enable people to more effectively participate and progress in the labour market, as well as lead fulfilling lives. Furthermore, a skilled population is also key to business productivity and economic prosperity for the country as a whole.

The construction sector accounts for a large proportion of jobs in Scotland, accounting for 6% of the total employment share in Scotland as of 2022². Therefore, the sector plays an important role in bringing about NSET's fourth programme of action - a skilled workforce.

7.4% of the UK's construction workforce is based in Scotland, and these jobs are spread across a number of local authorities, including Glasgow City and North Lanarkshire, the second and ninth most deprived³ areas in Scotland for employment, respectively. **See Chart 6.**

Chart 6: Employment by local authority of the Scottish construction sector, Oct 2021 – Sep 2022



Source: ONS

Balfour Beatty UK employs 11% of its workforce in Scotland; of this employment in Scotland, over 11% are employed in North Lanarkshire. Balfour Beatty's Scotland-based workforce is made up of 11% of those aged 16-25, and 14% of Balfour Beatty's North Lanarkshire-based workforce is also made up of young people (16-25)⁴.

The number of young people⁵ participating in education, training or employment is a key indicator in NSET's third programme of action. Therefore, through its employment of young people in North Lanarkshire, Balfour Beatty is supporting opportunities for young people in Scotland's second most deprived area for education and ninth most deprived for employment.

² Oct 2021 – Sep 2022 data from [Annual Population Survey](#).

³ Based on [Scottish Index of Multiple Deprivation](#) - '15% Most Deprived Local Authorities'.

⁴ Data for Balfour Beatty is as of 31 December 2022, while data from the ONS covers Oct 2021– Sep 2022. Also, Balfour Beatty's data on young people includes those aged 25 while national data does not.

⁵ Young people is define here as those aged 16-24.

A key indicator not only tracked in Scotland's NSET but also the Scottish Government's [National Performance Framework](#) and [Wellbeing Economy Monitor](#) is the share of people with low/no qualifications, defined as those with Scottish Credit and Qualifications Framework (SCQF) level 4 and under. Examples of qualifications at SCQF level 4 include: National 4, Intermediate 1, Standard Grade General and SVQ1.

According to the Wellbeing Economy December 2022 Update, in Scotland, 9.7% of all people aged 16-64 have no/low qualifications. This proportion has decreased considerably over time, down by 6.7% since 2007. However, there are remaining differences across regions in Scotland. In 2020, the highest proportion of people aged 16 to 64 with low or no qualifications was in West Dunbartonshire (15.8%), North Lanarkshire (14.6%); and Glasgow City (13.5%) – all much higher than the Scottish figure.

CASE STUDY

Skills Development

We are working in partnership with local SME businesses in the Highlands & Islands to develop skills and capacity not just for our projects but also for others in the area and to ensure local capital recirculation.

Inverness-based UB Civils has a turnover of £10m and a workforce of 105 local people. They have delivered many work packages for us on a wide range of projects in the North of Scotland over the years, including extensive civils on energy schemes for SSE and the recently completed National Treatment Centre for NHS Highland. They are currently on site delivering advance works packages on our HMP Highland project for Scottish Prison Service.

“Balfour Beatty is the number one client of choice for UB Civils. During the past ten years, we have appreciated a constant work stream supporting the construction, civil engineering, and power divisions of Balfour Beatty. Through this partnership, we have benefited hugely from the high standards that are pursued in all aspects, and in particular, developing an effective health and safety culture for our own business.” Colin Peteranna, Director – UB Civils LTD

Also, through our membership in Everyone's Edinburgh, we have supported bringing the Business for Good programme to life to help local businesses become more sustainable. We are working with Cyrenians, developing a Green Skills Foundation Apprenticeship programme for disadvantaged young people to learn skills for careers of the future and working to reinstate the Cook Club at the Royal Botanic Gardens.

Source: Balfour Beatty

There is also variation between men and women. The proportion of men with low or no qualifications (10.8%) is higher than that of women (8.6%).

One way to gain further qualifications is via apprenticeships. According to the Scottish Government, over 18,650 people started apprenticeships in 2021/22.

Modern Apprenticeships offer qualification levels ranging from SCQF 5–SCQF 12 in Scotland. Therefore, Balfour Beatty's apprenticeship programmes play an important role in upskilling the Scottish population.

CASE STUDY

Apprenticeships

As part of our Community Benefit plan for HMP Highland, the Scottish Prison Service and Balfour Beatty are working in partnership with Barnardos to support the local CITB funded 'Scottish Academy for Construction Opportunities programme (SACO).

HMP Highland supply chain partners are being introduced to SACO programme leads to promote and encourage employers to engage with the Highland employability programme which supports people into employment opportunities within the construction sector.

As part of G&A Barnies commitments to the HMP Highland community benefits plan, they engaged with SACO to support site visits to their depot within Inverness and subsequently supported two of the participants on work placements.

In February 2023, both Callum & Luke completed their work placements and successfully commenced full-time paid positions with G&A Barnie and will be supporting off-site manufacturing for HMP Highland.

Both Callum and Luke are recent school leavers, achieving National 4 and National 5's between them, both participants faced barriers in terms of rurality and lack of transport links leading to reduced employment opportunities as well as low confidence, and collectively these barriers had an impact on their ability to engage in a peer group setting and secure employment. With a keen interest in moving into a job in the Construction Industry, both Callum and Luke completed Barnardo's Works 6-week Access to Trades programme linked to our collaboration with CITB and The Scottish Academy for Construction Opportunities.

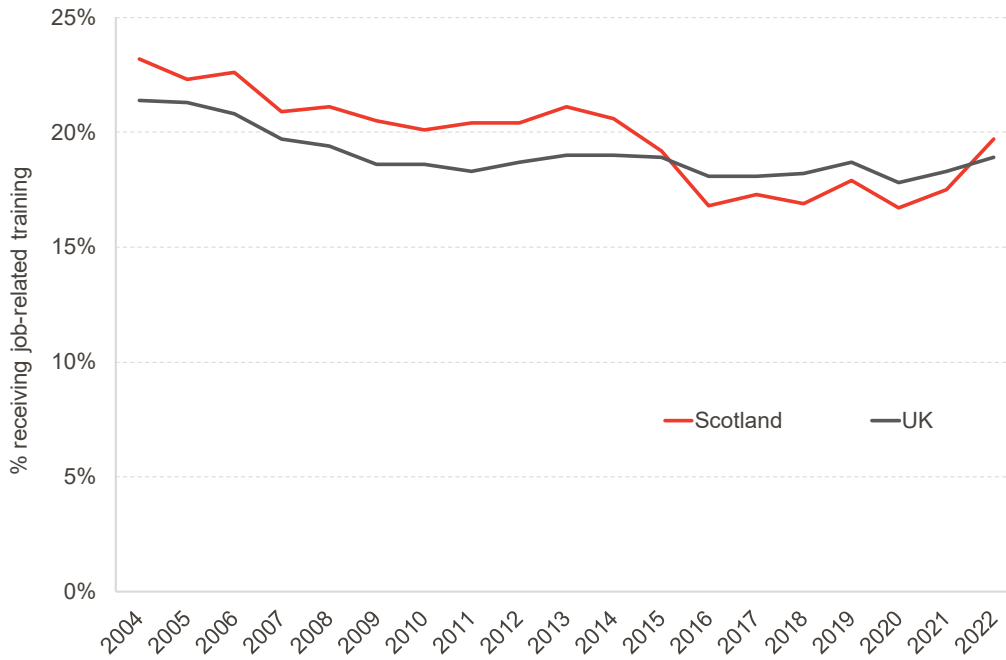
Source: Balfour Beatty

Beyond apprenticeships, employers play an important role in developing the skillset of their workforce throughout their career, and therefore improving the productive capacity of the economy.

In recent years, Scotland has underperformed – relative to its long-term trend and compared to the UK – when it comes to job-related training for around a decade however, in the latest estimates, Scotland has improved on this NSET indicator. In 2022, 19.7% of Scotland's workforce had received job-related training – around 0.8-percentage points higher than the UK's workforce as a whole. **See Chart 7.**

In the UK, Balfour Beatty provided 664 distinct training courses with 30,705 attendees in 2022. Furthermore, 35,975 e-learning courses were completed over the same year.

Chart 7: Population aged 16-64 who have received job-related training in the past 13 weeks, Scotland and UK, 2014 – 2022



Source: ONS

CASE STUDY

Job-related Training

We ensure our people have the capability, skills and support to deliver the highest levels of operational excellence and innovation on our projects. We extend this to supply chain partners, consultants and customers for key project elements (particularly safety, quality and environmental elements), tools, and systems.

We support employees to reach their potential through our Competency Made Easy system, which specifies the 40-50 key skills required for each role and which of the five levels of competency are required for that role. There are c.30 core competencies that apply to every role, augmented by role-specific skills. This system makes it easy for employees and management to understand and recognise current competence while planning for future or updated roles.

Our bi-annual Performance and Development Review (PDR) process is designed to help all employees understand their progress and ensure they are equipped and engaged to deliver and develop in their roles. PDR outputs are listed in a Personal Development Plan (PDP). PDPs apply the 70/20/10 model (70% on-the-job expertise, 20% informal learning, and 10% formal learning) to help employees and line managers create tailored PDPs to maximise potential.

Our Balfour Beatty Academy contains 50+ courses across digital, health and safety, capability and effectiveness, technical, and wellbeing. We also train and develop people through extended development programmes, weekly webinars across a wide variety of topics and formal technical/specialist training.

Source: Balfour Beatty

5. A Fairer and More Equal Society

Encouraging a fairer, more equal society is the final priority area highlighted in Scotland’s National Strategy for Economic Transformation.

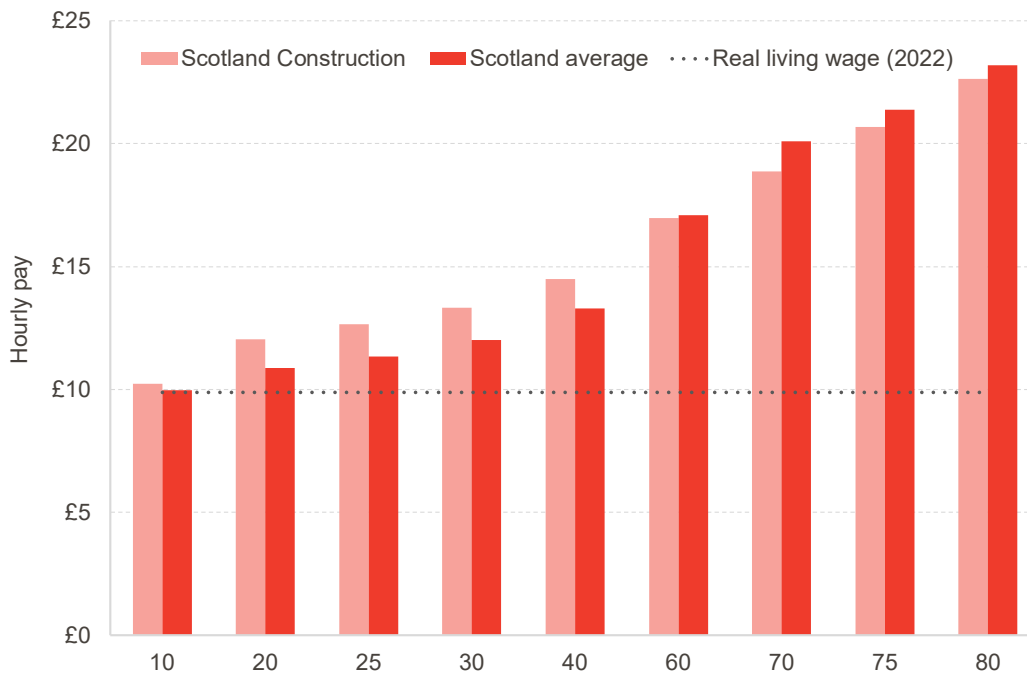
This pillar seeks to reorientate Scotland’s economy towards one of well-being and fair work; that delivers low unemployment and high wage growth; reduced structural poverty, in particular, child poverty; and improved health, cultural and social outcomes for disadvantaged families and communities.

One of the key indicators within this programme of action – and within the Scottish Government’s [Wellbeing Economy Monitor](#) – is the number of workers earning above the real living wage. In 2021/22, the [real living wage \(rLW\)](#) across the UK was £9.90, just under £1 more than the national minimum wage.

Scotland as a whole performs well under this indicator, with the lowest 10% of earners (10th decile) typically earning 7 pence above the rLW.

The Scottish construction sector, however, performs even better, paying the lowest 10% of earners £10.23 per hour – around 33 pence more than the rLW. **See Chart 8.**

Chart 8: Wage percentiles of the Scottish Construction sector, hourly pay and real living wage, 2021/2022



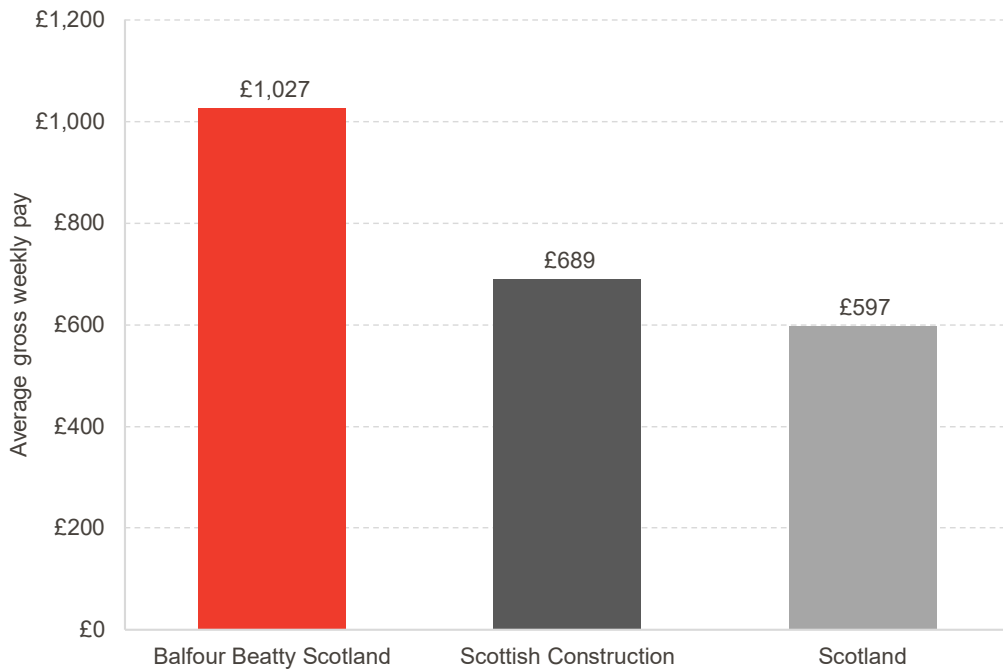
Note: 90th percentile statistics not available at the Scottish construction level.

Source: ONS; Living Wage

Balfour Beatty pay 98.9% of employees above the living wage, and generally pay its staff a much higher weekly wage than the rest of the sector and economy across Scotland. **See Chart 9.**

In 2022, Balfour Beatty Scotland paid its staff average weekly earnings of over £950. This is £265 more than the Scottish construction average for weekly pay, and over £350 more than the average Scottish earner receives each week across all industries.

Chart 9: Average (mean) gross weekly earnings in Balfour Beatty, Construction Sector and All Sectors for Scotland, 2022



Source: ONS; Balfour Beatty

CASE STUDY

Gender Diversity / Gender Pay Gap

Balfour Beatty's UK gender pay gap increased slightly in 2022 compared to 2021, although both the mean and median measures show a narrowing of the gap compared to the pre-COVID reporting period.

The focused activity implemented through the Value Everyone Action Plan remains pivotal in our aims to narrow the gap. Detailed analysis has been undertaken to further understand how specific actions impact the pay gap which highlights that a significant reduction will only be achieved over the longer term.

We will continue to develop this analysis to support the identification of targeted activities moving forward. Details of this can be found in Balfour Beatty's gender pay [report](#).

Source: Balfour Beatty

In their [Gender Pay Report 2022](#), Balfour Beatty UK report a median gender pay gap of 24.7% and a mean gender pay gap of 18.6%. These are up on the lower estimates of 17.8% (median) and 15.4% (mean) seen in 2020.

In their 2021 [report](#), Balfour Beatty explained that the rise in the gender pay gap in 2021 was due to the reopening of construction sites following the easing of COVID-19 restrictions. As many site workers are men, this pushed up male earnings during this time.

In the latest report, Balfour Beatty carried out some modelling to understand what is needed to reduce its gender pay gap. The report found that hiring 200 women across the most senior grades – that is, increasing female representation to 25% across these levels - would reduce the median pay gap by 6% and the mean pay gap by 9%.

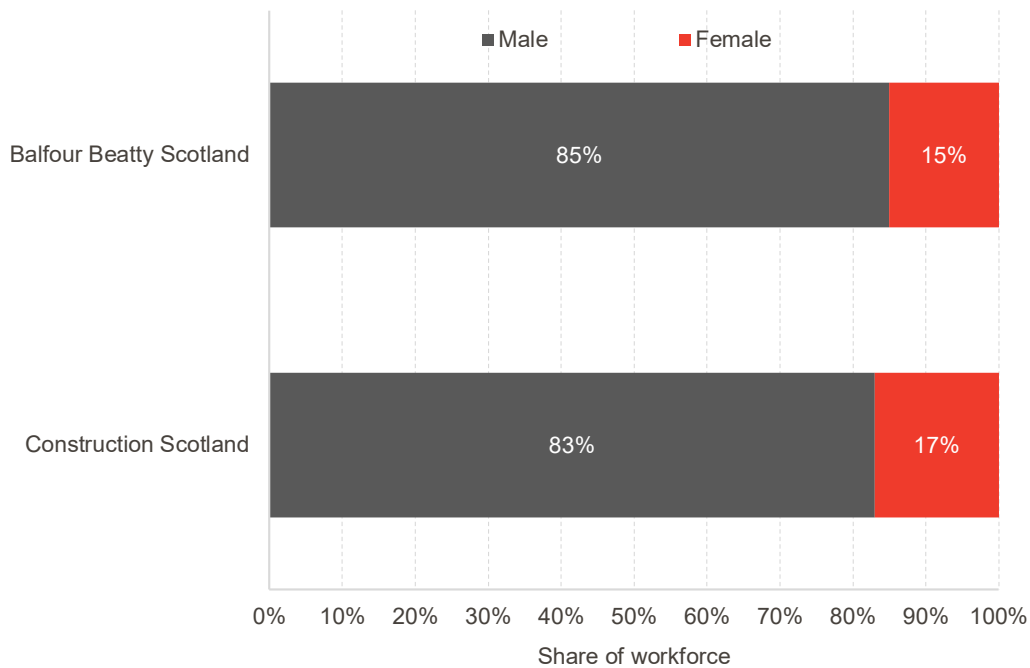
Balfour Beatty outline that historical structural issues within the sector make it difficult to fill senior roles with women however, they believe their recruitment of female apprentices and graduates will ensure a strong future pipeline of talented women.

So, how well are women represented in the sector?

The proportion of women in the Scottish construction sector workforce has been slowly increasing over the past five years, up 5-percentage points from 2017. However, the sector is still dominated by men; 83% of workers in the Scottish construction sector were men compared to 17% of women in 2022. **See Chart 10.**

Balfour Beatty Scotland employ a slightly lower proportion of women compared to the sector average by 2-percentage points.

Chart 10: Workforce split by gender, Scottish Construction Sector, Balfour Beatty, 2022⁶



Source: ONS

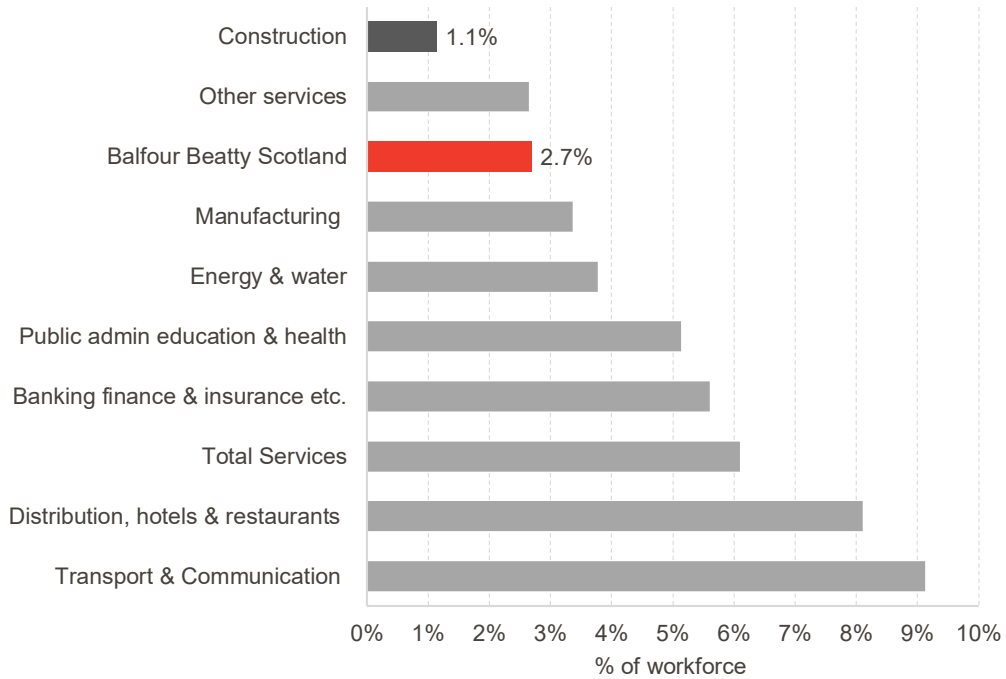
When it comes to employing ethnic minorities, the construction sector is the worst performer in Scotland.

In 2022, just over 1% of those working in the construction sector were ethnic minorities compared with around 5% across the Scottish workforce overall. This figure is the lowest of all the major industries in the economy.

However, Balfour Beatty Scotland performs better than the sector average for this measure, with 2.7% of its Scottish workforce from ethnic minority groups – more than double the Scottish construction average. **See Chart 11.**

⁶ National statistics cover Oct 2021 – Sep 2022. Balfour Beatty Data is as of 31/12/2022.

Chart 11: Industry share of workforce, ethnic minorities, Scotland, 2022⁷



Note: Agriculture & Fishing data not available.

Source: ONS; Balfour Beatty

CASE STUDY

Balfour Beatty's Affinity Networks

Balfour Beatty has four employee-led [Affinity Networks](#) that help them to build understanding in all areas of diversity and inclusion, and to make meaningful changes in the medium to long term. They help to formulate action plans for Balfour Beatty to take forward and promote a more inclusive workplace that enables innovation, understanding and harmony.

These networks include LGBTQ+, multicultural, ability, and gender.

These groups offer support by delivering toolbox talks and celebrating cultural events such as LGBT Pride and Black History Month, which, in turn, raise awareness and break down barriers.

Our 'reverse mentoring' scheme pairs Senior Leaders with employees to share insights into the experiences of ethnic minorities or other underrepresented groups.

Source: Balfour Beatty

⁷ National statistics cover Oct 2021 – Sep 2022. Balfour Beatty Data is as of 31/12/2022.

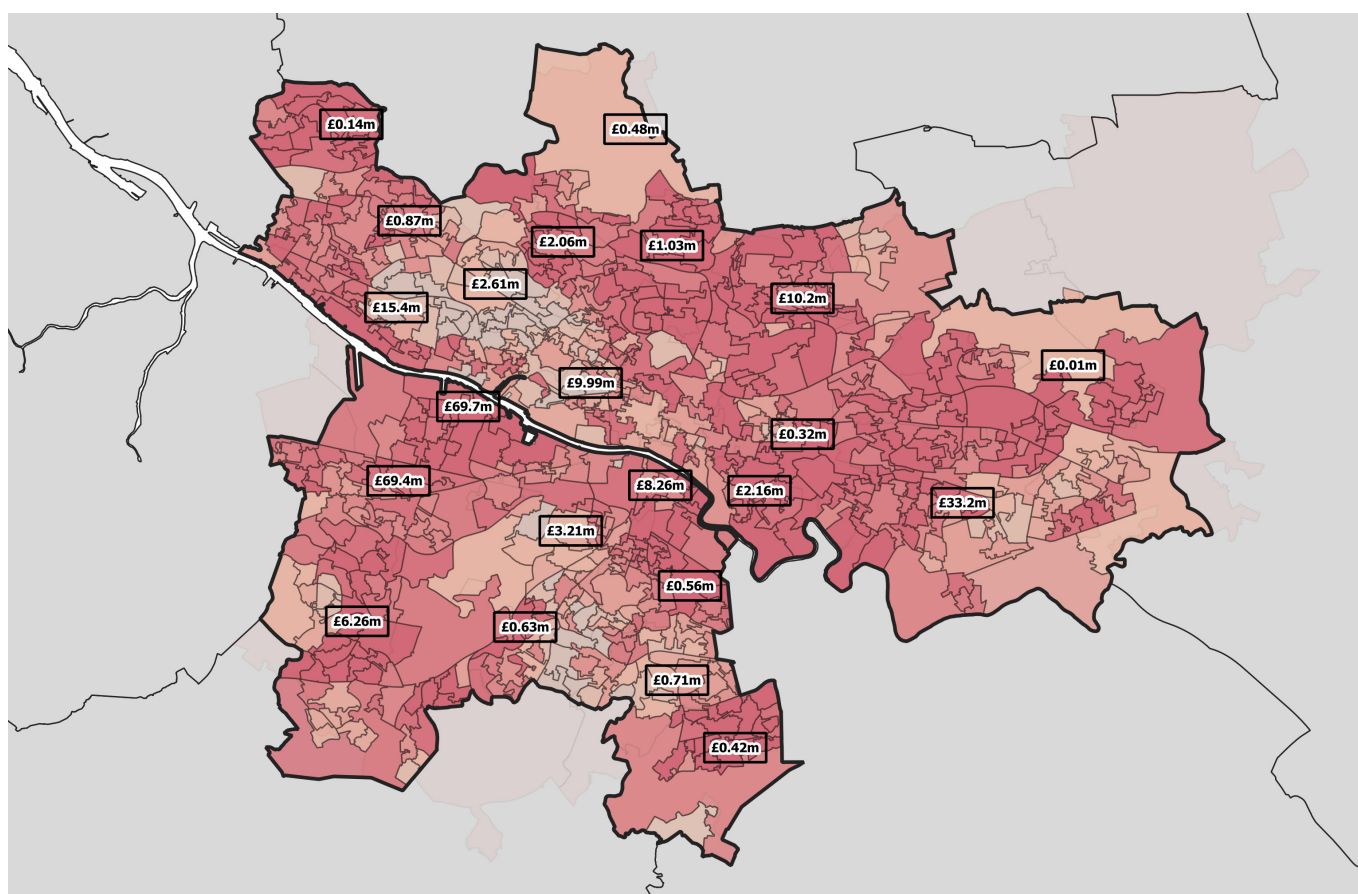
Balfour Beatty supports the Scottish Government's ambitions of a fairer and more equal society by providing significant economic growth and job spillovers in Scotland's poorest communities.

The Scottish Index of Multiple Deprivation (SIMD) is an indicator of inequalities across Scotland that measures the deprivation of 6,976 Scottish data zones through various domains which make up an overall SIMD deprivation rank. These domains include income, health, access, employment, education, crime, and housing.

Across all domains, Glasgow contains over 40% of Scotland's 5% most deprived data zones and almost a fifth of data zones in Glasgow City are considered to be among the 5% most deprived in Scotland. All of this makes Glasgow Scotland's most deprived council area.

Map 2 highlights Balfour Beatty's expenditure in Glasgow City, over the period of 2016 – 2022. This map shows spending in each postcode district with the SIMD rankings of Glasgow's data zones. Since 2016, Balfour Beatty has spent over £375m on capital projects with Glasgow City suppliers.

Map 2: Balfour Beatty capital spend in Glasgow by postcode and SIMD datazones, 2016 – 2022*



*A deprivation decile rank of 1 means that the datazone is considered to be within the top 10% most deprived Scottish areas.

Source: Balfour Beatty, FAI calculations

Section 3: Methodology

This report looks at the economic impacts of the activities of Balfour Beatty on Gross Domestic Product (GDP) and employment in Scotland.

GDP is the value of all final goods and services produced within the economy in a given period of time.

Employment here refers to FTE jobs. One FTE job is equivalent to one person working full-time for one year or, two people working half the hours of a full-time worker for one year, and so on.

Expenditure provided by Balfour Beatty excluded VAT and was limited to spending in Scotland.

Spending, excluding labour costs, was mapped to Standard Industrial Classifications (SIC) codes and, in accordance with the UK Government's [Green Book](#), was transformed into real terms using the ONS' GDP Deflator.

Expenditure was then modelled using the Institute's input-output model, built using the Scottish Government's (2019) [input-output tables](#).

Economic impact assessments examine three types of activity: direct, indirect and induced effects. **See Diagram 2.**

Diagram 2: Direct, indirect and induced impacts



Source: Fraser of Allander Institute

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