

South Yorkshire low carbon energy supply chains: Insulation sector summary



January 2022

1. INTRODUCTION

This sector summary focuses on the potential and challenges for the insulation sector in South Yorkshire. It sets out existing UK policy on insulation and outlines the current state of the sector, before exploring insulation supply chain, employment and skills within South Yorkshire. Findings are based on a review of policy literature, existing research and interviews with 10 industry stakeholders (including installers, manufacturers, accreditation and industry bodies). This summary forms part of a wider study of six energy sectors (carbon capture and storage, insulation, heat networks, heat pumps, hydrogen and small-scale nuclear). An outline of overarching findings from the study is published alongside these sector summaries and can be found here [hyperlink to summary report].

The report is based on findings from review of policy literature and in-depth interviews with 10 insulation industry stakeholders. These include private sector professionals in South Yorkshire, as well as national associations and certification agencies.

We found that both a barrier and opportunity for growing the sector comes from addressing the skills shortage in the installation stage of the supply chain. This can be achieved through better coordination of training across colleges, technical schools, and through apprenticeships. Highlighting the good pay and strong career prospects, and linking the industry to green and hi-tech visions of the future, will help to attract young people into construction and help to alleviate the long standing issue of an ageing workforce.

2. SECTOR SUMMARY

2.1. Context

Warning that emissions reductions from UK homes have stalled and that energy use in homes – which accounts for 14% of total UK emissions – has actually increased from 2016-2017, the UK's independent Committee for Climate Change¹ assert that the UK's homes are not fit to tackle the challenges of climate change. They advocate for more effort to increase installations and enforce higher standards of insulation on both new build and retrofitted homes. According to the Office for National Statistics,² the UK's low carbon and renewable energy economy (LCREE) was estimated to turn over £42.6bn and provide 202,000 full-time equivalent (FTE) jobs in 2019. This economy is comprised of six sectors:

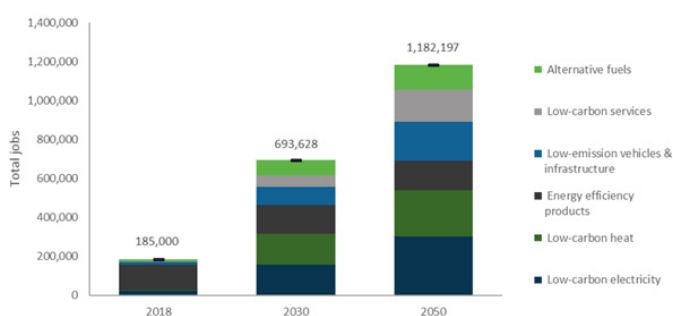
1. **Low-carbon electricity:** wind power, solar PV, hydropower, nuclear, carbon capture & storage (CCS).
2. **Low-carbon heat:** renewable heat, heat networks and combined heat & power (CHP).
3. **Alternative fuels:** bioenergy and hydrogen production.
4. **Energy efficient products:** insulation, lighting, monitoring and control systems.
5. **Low-carbon services:** low-carbon financial, IT, and advisory services.
6. **Low-emission vehicles & infrastructure:** low-emission vehicles & infrastructure, fuel cells and energy storage systems.

1 CCC (2019) UK Housing: Fit for the Future? UK: Committee on Climate Change, available online at <https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf>

2 ONS (2021) Low carbon and renewable energy economy, UK: 2019. Office of National Statistics, available online at <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2019>

Insulation forms part of the largest of these sectors, ‘energy efficient products’, which accounts for around 31% (£13.2 billion) of turnover and 40% (81,300 FTE) of employment in the LCREE. This sector has maintained a similar share of this economy since 2014, when these statistics were first recorded. A rise in low-carbon services and technologies is expected to drive employment opportunities to almost 1.2m jobs in the LCREE by 2050 – a near six-fold rise – however, this is across the other five sectors, with jobs in the energy efficient products sector forecast to remain static over this period (see Figure 1).

Figure 1: Low-carbon jobs in England, 2018, 2030 and 2050



Source: Ecuity (2020) Local green jobs –accelerating a sustainable economic recovery: An Ecuity Consulting report for the Local Government Association (LGA). Ecuity Consulting.

Increasing building regulations for energy efficiency has enabled more widespread use of insulation, which can easily be incorporated on all new build housing. However, even if housebuilders were to meet the ambitious government targets to build 300,000 new homes per year,³ this would only represent 1% of the 28.5 million dwellings in the UK.⁴ To contribute meaningfully to NetZero targets there would need to be widespread renovation of the existing housing stock, but this poses many socio-technical challenges. A report by Energy Savings Trust estimates that there are over 2.3 million dwellings with standard cavity walls that could be insulated, at an estimated cost of around £630m.⁵ An even larger proportion of walls fall into

the category of either non-standard construction – e.g. they are made of concrete, stone, or have a narrow cavity – or standard cavity with issues that need special attention – e.g. wall faults, exposure issues or access issues. These latter two categories account for 3.6 million dwellings in total (1.3m and 2.3m respectively) and are estimated to require £5.7bn to insulate. Most of these dwellings are owner occupied or privately rented,⁶ which means that the benefits of insulation need to be communicated to a large number of people. They then have to be convinced that the benefits outweigh the costs in order to commission the necessary renovations.

Gaining access and covering the cost poses one problem, whilst successful improvement in energy efficiency poses the another. The insulation sector covers several different forms of insulation, including: cavity wall, solid wall, loft, draught proofing, and spray foam insulation. These different insulation types in turn include a number of ‘solutions’ that use different types of materials and techniques, for example, polyisocyanurate (PIR) boards, mineral wool, loose cellulose fibre, expanded polystyrene beads, vermiculite or perlite beads, polyurethane (PUR) foam, or urea formaldehyde foam. Each material delivers different thermal properties and may only be suitable in a range of different situations e.g. internal or external application, blown installation, where moisture is high, or flammability is a key factor. Use of the wrong material, improper installation, or compromising a system following subsequent renovations, can all drastically reduce the energy efficiencies gained. Experience is required to successfully install each type, with training on the various types often provided directly by the product producers themselves, who are keen to ensure proper installation to protect their brand reputation. Each requires different tools and knowledge and whilst most can be installed by general builders, an element of specialism is required to be able to deal with different types. In addition, more advanced

3 CIPFA (2021) Government will never meet housebuilding targets without councils. Chartered Institute of Public Finance & Accountancy, available online at <https://www.cipfa.org/cipfa-thinks/cipfa-thinks-articles/government-will-never-meet-housebuilding-targets-without-councils>

4 BRE (2020) The Housing Stock of The United Kingdom. Building Research Establishment Trust, available online at https://files.bregroup.com/bretrust/The-Housing-Stock-of-the-United-Kingdom_Report_BRE-Trust.pdf

5 Energy Savings Trust (2016) Quantification of non standard cavity walls and lofts in Great Britain: Understanding the number of dwellings with unfilled non standard cavity walls and lofts in Great Britain, and information on how these might be insulated. Energy Savings Trust.

6 ONS (2015) Housing and home ownership in the UK. Office of National Statistics, available online at <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/housingandhomeownershipintheuk/2015-01-22>

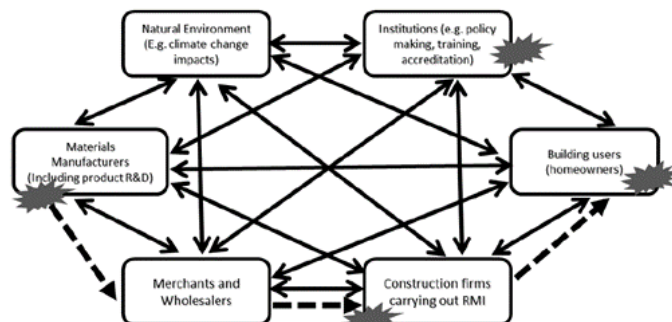
knowledge of how an insulation solution will interact with the other elements of the building is vital to achieving energy efficiency gains. This ‘whole house’ knowledge is also needed when subsequent home renovations are made so that the insulation system is not compromised, thus undermining its energy saving properties.

Despite these installation complexities, properly insulated buildings are a pre-requisite for the success of other home-based energy efficient technologies, such as heat pumps or hydrogen boilers, and could lead to cost savings overall if implemented as part of a ‘whole house’ solution. In their recent analysis of the government’s Renewable Heat Incentive (RHI), the Institute for Government underline how this policy incentivised “installing renewable technology in inefficient buildings, rather than first installing building fabric measures like insulation”.⁷ This approach results in expensive and overpowered heating systems that draw excess energy in order to cover the heat loss from the poor fabric of the building e.g. uninsulated walls or single glazed windows. To deliver successful reductions in CO2 emissions and energy use a ‘fabric first’ approach is needed, so that estimates on the size of heat pump or boiler needed can be accurately adjusted.

2.2. Insulation supply chain and key players

Insulation is situated within a conventional construction supply chain. This starts with chemical and material manufacturers and insulation product producers, then moves through wholesale merchants and distributors, national housebuilders and local renovation firms (referred to as Repair, Maintenance or Improvement (RMI) firms), and is ultimately driven by the building users or homeowners. Owen *et al* suggest that this supply chain is more complex with feedback generated between each node in the chain.⁸ It is impacted further by both the natural environment, through climate change, and a range of institutions, responsible for policy making, training, and certification (see Figure 2).

Figure 2: The repair, maintenance and improvement (RMI) system



Source: Owen *et al* (2017: 617)

The National Insulation Association (NIA) represents the insulation industry in the UK. Its members include manufacturers, system designers, and installers (both for homes and businesses).⁹ The variety of different insulation solutions also necessitates more specific trade associations. These include:

- Insulated Render and Cladding Association (INCA).
- British Urethane Foam Contractors Association (BUFCA).
- Thermal Insulation Contractors Association (TICA).
- Thermal Insulation Manufacturers and Suppliers Association (TIMSA).
- Insulation Manufacturers Association (IMA).

There are also independent organisations that provide guarantees on the work of registered insulation installers:

- Cavity Insulation Guarantee Agency (CIGA).
- Solid Wall Insulation Guarantee Agency (SWIGA).

Whilst providing research on the sector and certification of products are three interlinked organisations:

- British Board of Agrément (BBA).
- Building Research Establishment (BRE).
- UK Centre for Moisture and Buildings (UKCMB).

7 IfG (2021) Decarbonising heating at home: Learning from past successes and failures to improve energy policy making. Institute for Government, available online at <https://www.instituteforgovernment.org.uk/sites/default/files/publications/decarbonising-heating-home.pdf>

8 Owen, A., Killip, G. and Morgan, E. (2017) Supply chain dynamics in the UK construction industry and their impact on energy consumption in homes. European Council for an Energy Efficient Economy (ECEEE), Summer Study Proceedings 2017, 613-622. Available online at https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2017/3-local-action/supply-chain-dynamics-in-the-uk-construction-industry-and-their-impact-on-energy-consumption-in-homes/

9 A full list of members can be found at: <https://www.nia-uk.org/nia-members/online-directory/>

2.3. Overall market trends

As with many sectors, price dictates demand in a high proportion of situations, however insulation is increasingly driven by ‘the green agenda’ and a more sustainably conscious market – this includes end users, but also housebuilders and architects further up the supply chain. These actors are driven by specification rather than price, and a need to create a “golden thread” through from design to installation that delivers more energy efficient buildings (IN 06). This demand for higher sustainability specification could be attributed to price in the long run, but with the average savings from insulation taking nine years to recover the cost (IN 03), and little value being added to the resale value in the short term, it is only in a small number of cases that the financial benefit to the building user/owner adds up.

As the complexity of the insulation sector increases – driven by this rising awareness of, and demand for, energy efficient buildings and the increase in the range of materials and processes available to deliver on these demands – there is a connected trend towards whole house solutions to energy efficiency. This is not limited to the need to insulate a residential home in its entirety but is also concerned with how the fabric of a building interacts with new energy efficient technology, such as heat pumps or hydrogen boilers (IN 02 and 03). To ensure that energy efficiency is maximised requires design and installation of these interacting systems, which in turn requires a higher level of skills and knowledge than is currently provided by the average housebuilder or RMI firm. This is driven by installer certification schemes such as the Publicly Available Specification (PAS) 2030 and PAS 2035, which are designed to ensure that energy efficiency is maximised by any retrofitting of existing buildings. This was also a requirement of any installers who wanted to provide services through the recent Green Homes Grant (GHG) scheme,¹⁰ and from July 2021 will be a requirement for any government funded projects (IN 02).

3. DRIVERS AND BARRIERS OF MARKET GROWTH

Numerous policy and market factors are impacting upon the insulation sector, these include regulatory standards and policy interventions (see also section 1.5), such as the 2050 target to be net zero, but also from less well anticipated quarters, such as the implications from the Grenfell disaster and the Covid pandemic:

3.1. NetZero carbon reduction targets

In 2019, the UK became the first major economy in the world to pass laws to end its contribution to global warming by 2050, outlining that this would “require the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels”.¹¹ This target was highlighted as a significant driver of market growth for the insulation sector (IN 03, 06, 07, and 08), with one participant stating that, “the clear mid to long-term driver is carbon reduction and energy efficiency” (IN 06). However, there was also concern about how the NetZero targets might be supported and implemented, along with the difficulty in making the low carbon case to more cost-driven end consumers:

“If you spend twenty grand on your property ... it’s highly unlikely to add twenty grand to the value and therefore you’re putting money into it that’s not necessarily going to be realised, especially not in the short term because people don’t purchase houses based on things like energy performance, they base it on the size, location, the kitchen and the bathroom and those superficial things that make it look good in their eyes” (IN 03)

3.2. Implications from Grenfell

Following the Grenfell disaster in 2017 there has been an urgent need to remove cladding on buildings over 18m and replace it with non-combustible materials. This has created a new “strip off and repair” (SOAR) market to address the 12,000 buildings in the UK, of which around only 3,500 have already been dealt with (IN 02). This creates shortages for the insulation sector because the skills needed in the SOAR market are from the same general construction labourers, but large SOAR jobs

10 More details on the GHG can be found at: <https://www.gov.uk/guidance/apply-for-the-green-homes-grant-scheme>

11 BEIS (2019) UK becomes first major economy to pass net zero emissions law. Department for Business, Energy & Industrial Strategy, available online at <https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

can be very attractive, guaranteeing a stable income with fewer user demands or customer facing work required:

“There just isn’t the labour with those skills and experience and qualifications to do that quickly and it’s the same labour, renderers, contractors, that actually are in the retrofit market, so what’s happened is that pool of labour has moved to the more lucrative strip off and repair market” (IN 02)

The government recently announced grant funding of £3.5bn to speed up the process of replacing unsafe cladding for all leaseholders in residential buildings 18 metres and over.¹² There is a risk that this could pull more skills into the SOAR market and away from the insulation sector. However, it was suggested that this funding “probably wouldn’t cover the scaffolding costs” (IN 06).

Concern has also been raised around the certification process needed to confirm that tower blocks have safe cladding, with some insurance and mortgage lenders requiring an EWS1 form to be completed before agreeing to a sale.¹³

There is some confusion over who is certified to undertake an inspection and sign off this form, but for the majority of cases it has been found that an incorporated engineer is required. This causes another bottleneck as:

“There are currently 212 chartered fire engineers across the UK registered with the Institution of Fire Engineers (IFE). This figure marks a major drop off when compared to just a few months ago. In July 2020, the government said the number registered was 291”.

3.3. Impact of the Covid-19 pandemic

Following the outbreak of the pandemic and initial lockdown in March 2020, there were some barriers created as firms established whether they would be able to continue working during periods of increased restrictions, which led to some furloughing of staff (IN 05 and 08). As the ability to work during this period became clearer, the combination of people working from home and saving money during the pandemic meant that there was a boom in activity for producers and firms delivering smaller home projects (IN 01 and 07).

“For coronavirus lately, I don’t know how to say this, it was a benefit, an advantage, people stayed home and couldn’t travel so the money they had in savings, wanting to travel or do something with that money, they instead invested in their homes” (IN 01)

In addition to the consumer driver there has also been more interest in the employment opportunities within construction. As many people were unable to work in other sectors, in particular hospitality, this provided greater interest, particularly to young people, in the stability of construction work. In other roles across the sector, Covid-19 meant more attention was being paid to work/life balance (IN 06).

“Covid has given the construction industry more notice within the younger population ... conversations that I’ve had with some youngsters is the one thing there has been is stability through construction ... whether you go into recession or come out of a recession, construction has always been quite key” (IN 06)

However, for larger housebuilders and schemes Covid has reduced the efficiency of projects as restrictions limit the number of staff able to work on site (IN 02). There is also concern that there will be issues with material supplies, with timber and steel highlighted in construction generally, as well as a global shortage and increasing cost of a key chemical component of insulation, methylene diphenyl diisocyanate (MDI) (IN 03, 06, and 08).

3.4. Impact of Brexit

Brexit was not seen to have been as disruptive as anticipated, with some firms already sourcing their materials from within the UK (IN 06) and others having been able to stockpile materials prior to the deadline (IN 03). However, there is concern about longer term impacts on the large Eastern European workforce within the construction sector. With workers already in short supply in many areas (IN 01 and 08), and an increasing bottleneck at the installation end of the insulation supply chain (IN 01, 02, 03, 04, and 06), a loss of skilled and experienced workers on this scale could be catastrophic to delivering on NetZero ambitions.

12 The Future Homes Standard: 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings. Ministry of Housing, Communities and Local Government, available online at <https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings>

13 Simpson, J. (2021) EWS crisis: unwrapping the form that has caused mortgage chaos. Inside Housing, April 23, available online at <https://www.insidehousing.co.uk/insight/ews-crisis-unwrapping-the-form-that-has-caused-mortgage-chaos-70464>

4. POLICY AND REGULATORY LANDSCAPE

This can be split between regulations for new build houses (Future Homes Standard) and policy incentives for retrofitting existing housing stock (Green Homes Grant).

4.1. Future Homes Standard

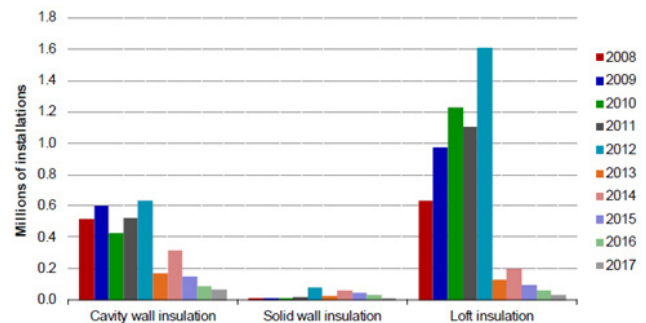
At the start of 2021, the government published its response to the consultation on a Future Homes Standard. This proposes changes to Part L (Conservation of fuel and power) and Part F (Ventilation) of the building regulations, and is designed to ensure that the industry is able to deliver homes that are “zero carbon ready” from 2025.¹⁴ This tightening of new building regulations has largely been welcomed, and along with the introduction of PAS 2030 and PAS 2035 it was noted that, “from now until 2025 is the greatest amount of changes that I’ve witnessed, and that’s making the developers think a lot more about how they’re going to be doing things” (IN 05). However, this fast-changing landscape also caused concern, “there is a significant, almost a panic effort, to try and get to the 2050 [NetZero] target and there’s a lot of schemes they’re proposing and they don’t seem to be joined up very well, or thought through” (IN 02).

4.2. Green Homes Grant (GHG)

Recognising that annual installations of insulation provided under government schemes has fallen considerably from a peak in 2012 (see figure 3) - when the Community Energy Savings Programme (CESP)¹⁵ was running - the GHG was announced by the Government in July 2020 and opened for applications in September 2020. This was a £2bn programme comprised of £500m for a Local Authority Delivery (LAD) element (to target low-income households) and £1.5 billion of vouchers to be given directly to households. The latter offered grants of up to £5,000, or £10,000 for low-income households, to install primary (insulation or low-carbon heating) or secondary (draught proofing, windows and doors, heating controls and insulation)

energy efficiency technologies. This was originally due to run until March 2021, but was extended to March 2022. However, this extension was scrapped and the funding was passed on to the LAD element.

Figure 3: Annual installation rates of loft insulation, cavity wall insulation and solid wall insulation under government schemes, 2008–2017



Source: CCC (2019) UK Housing: Fit for the Future? UK: Committee on Climate Change.

This was a common subject of discussion, with mostly critical views (IN 02, 03, 05, 06, and 07) – “the biggest challenge both in policy and technical challenge is in the renovation of existing buildings and the government has so far floundered in terms of policy” (IN 06). This included the difficulty for installers to register for the scheme due to the high levels of certification required (IN 01), and one firm stating on their website homepage that they had withdrawn “due to increased bureaucracy and problematic payment terms”.¹⁶ Another respondent suggested that the scheme was not attractive to them because they were a large national firm, and that this scheme was aimed more at local, small-scale installers (IN 02).

It was felt that the scheme failed to listen to the concerns of the sector on how it could be implemented (IN 04) and was seen as part of a continued boom-and-bust approach to supporting the sector following similar schemes (IN 03 and 06), such as the boiler replacement scheme and renewable energy feed-in tariffs.

14 MHCLG (2021b) The Future Homes Standard: 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings. Ministry of Housing, Communities and Local Government, available online at <https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings>

15 More information about the CESP can be found at: <https://www.gov.uk/government/publications/monitoring-of-the-community-energy-saving-programme-cesp>

16 Multi-Therm Insulations, available at: <https://www.multi-therm.co.uk/>

“we keep getting to the point where we set a target in the future, fail to meet it and then scrap it and come up with another one, it’s a really, really inefficient way of getting where we are. Somebody at some point is going to have to say actually it is going to cost money, it’s part of the infrastructure and we have a responsibility for the next generation or the generation after to ensure the built environment is to a standard that is where we need to be as far as the country and the planet and all the rest of it” (IN 03)

The GHG was considered headline grabbing policy making and not a sustainable approach for the sector, as it prevents firms from planning for growth. It was also accused of devaluing the sector, with the suggestion that homeowners would not purchase insulation or other energy efficient technologies between schemes (IN 02). There was also a call for policy to be better integrated into related sectors, such as energy generation, so that growth was coordinated:

“The policy levers have got to support long term growth of the industry in order to meet those carbon reduction and energy efficiency targets, and energy reduction as well ... because with the electrification of the grid, capacity is going to be an issue as well, so it’s energy use reduction as well as carbon reduction that will drive the use of insulation” (IN 06)

5. INSULATION SUPPLY CHAINS

5.1. Perspective on the UK supply chains

The insulation supply chain is comprised of (1) material and chemical manufacturers, (2) insulation manufacture and production, (3) wholesale merchants and distributors, (4) installation (5) architects and building designers, and (6) building users. The installation and building user categories can be further segmented. Installation includes national housebuilders, local RMI firms, and specialist insulation contractors, whilst building users can residential owner occupiers, private rented, or registered social landlords, as well as industrial and commercial building users. As highlighted above, the primary focus of the policy and regulatory landscape is on residential users.

In terms of geography, there is very little dependence on being in a certain location for either the supply or demand sides of the supply chain.

Raw materials are manufactured both in the UK and Europe and can be distributed easily throughout the UK. Likewise, demand is spread evenly across the UK, as you would expect from it being based on residential housing. There does not appear to be a major insulation cluster, though the main chemical manufacturers e.g. BASF and Arpadis, can be found primarily in the North West region. Firm location choice is therefore also very fluid, with the only factors mentioned being the proximity to where one company founder was already living (IN 07), and one wholesale merchant that located their network of distribution centres on the edge of cities, due to the reduced cost and accessible transport links for bulk haulage (IN 06). Scotland was highlighted as having a more aggressive approach to supporting retrofit activities, with one firm suggesting that around “50 or 60% of the stuff that was going on, up until very recently, has come out of Scotland” (IN 02).

5.2. Employment and Skills

Employment in the insulation sector varies across the five producer categories (see Table 1):

Table 1: Jobs in the insulation sector, by supply chain segment

Supply Chain	Job Roles
Manufacture	High skilled and highly automated, which limits numbers of employment opportunities to a small number of technical roles.
Production	Dependent on type of insulation being produced. Some is similar to manufacture level jobs, high skill and automated with limited opportunities. Others are split between traditional sales and management, and production line opportunities. Skill requirements are based on experience and attitude, with little formal qualification required for either role. Progression from entry level to senior management is possible and encouraged.
Distribution	High proportion of customer facing sales roles, and low or semi-skilled warehouse positions.
Installation	Covers a range of typical construction industry roles, from site manager and specialist installer, to skilled or general labourer. Formal skills are focussed on safety certification e.g. having a Construction Skills Certification Scheme (CSCS) card. Experience is critical to progression and aligned to this is producer-provided training on the specific installation process for the different types of insulation. National housebuilders provide opportunities across their group, offering a range of roles, specialist skills, and progression routes. Local firms are more inclined to only hire self-employed people on fixed contracts.
Design	High skilled roles requiring an architecture or building design degree qualification and continued professional development training to ensure compliance with building regulations and materials.

There was a clear confirmation that the main employment and skills issue in the insulation sector is the shortage of installers available to keep up with demand (IN 01, 02, 03, 04, and 06). Brexit and Covid have had some impact on this, as discussed above, but this has not been the main driver. An ageing workforce and a lack of interest from young people in construction jobs was blamed. The delivery of relevant NVQs was highlighted as one

way to target young people and prepare them for the increasing complexity of the ‘whole house’ approach needed to deliver energy efficiency (IN 02). In the same way, these NVQs needed to be properly coordinated with the other training options, linking to narrower skills available in technical colleges and experience gained through apprenticeships (IN 06):

“the NVQs aren’t something you get in a technical college, they come out with an apprenticeship, so again joining it up, you’ve got apprenticeships over here, NVQs over here for the industry and I’m saying some of those NVQ modules now can be bolted onto the technical colleges, the very narrow skills, so they get a wider understanding of how those skills can be used and when they come up against something else what to do and then they’re coming out with a really useful ready to go skill that employers are desperate for now” (IN 02)

This was seen as vital in shifting negative perceptions that construction is a ‘dirty’, male dominated industry, requiring few skills and with limited security and progression, and instead more should be done to highlight the role that construction jobs play in delivering a more sustainable, low carbon future (IN 02 and 06). Highlighting the skills potential, the secure, well-paid employment, the growing market, and the connection to green and hi-tech visions of the future would help to overcome the current bottleneck in the installation of insulation.

The range of different insulation solutions available requires installers to be trained, usually directly by the specific insulation producers, on each of the products they will be using. Regular follow up checks may also be made by the producer to ensure that installers are following the British Board of Agreement (BBA) certificate guidelines. From the producers point of view, this helps to ensure that the product is installed correctly and that the correct thermal properties are delivered by the product, maintaining their brand reputation.

Issues do arise when untrained, or poorly trained, installers provide the products to customers and issues arise such as moisture and damp, or loss of heat (IN 08). With the product often hidden inside a wall, it is difficult to demonstrate whether an issue relates to the product or to how it was installed. This is further complicated if subsequent renovations are made and care isn’t taken to protect the insulation system:

“you have lots of different skills and you have one skill that puts something in and they put it in

perfectly correctly and then you have someone else who comes along and bangs a hole through it, cos they want to put a pipe through it or electric or whatever, without realising they’re compromising the performance of that material. As with construction, everything is dependent upon everything else” (IN 03)

To help improve compliance there is a need for more resources at local building control level and adequately trained inspectors (IN 03). These skills will need to align with the ‘whole house’ approach so that inspectors are aware of how different aspects of the building fabric interact and how they need to be installed. This is something also highlighted by the CCC, who suggest that a stronger inspection regime and stiffer penalties for non-compliance with building regulations would help to remedy a current “performance gap” between stated efficiency and actual outcomes.¹

5.3. Barriers to market entry

As regulations increase to ensure energy efficiency of buildings (both new and retrofit) and to deliver on the NetZero 2050 target, barriers to market entry begin to increase. As has been highlighted already, the introduction of the PAS standards for retrofitting and the changes being made to new build regulations through the Future Homes Standard means that any installers that wish to be considered for government funded projects will need to ensure they have the necessary certification. Despite this barrier, the regulations were generally well received and warnings were made against limiting regulation or certification in order to encourage a more entrepreneurial approach, as this would open up opportunities for ‘cowboy builders’ and damage consumer confidence (IN 03 and 08).

Producers and manufacturers discussed the process of certification through the BRE and BBA, and whilst this could be a time-consuming process, it was considered necessary and that efforts to launch a product could be aligned with the certification process if properly planned. Certification did confer a comparative advantage on those more familiar with the process, which pointed to support for larger incumbent firms, but as certification increasingly becomes mandatory this is likely to reduce. However, some frustration was voiced around the ability to deploy innovative products, and situations where building regulations prohibit the use of new, and more efficient, technologies because they had not yet received certification:

“The difficulty we have is with it being new build you’ve got to stick within the regs, and if it isn’t part of the standard assessment procedure as a recognised product then you can’t really use that product as a developer. So it’s part of that education with not just ourselves as a business and with our partners, but also with other government bodies, with the likes of BRE who formulate these things” (IN 05)

A focus on whole house approaches and the need to understand the interface between different low carbon and energy efficient technologies significantly increases the skills barrier needed to enter the market. This will be reinforced by the Future Homes Standard that will require homes to be ‘zero carbon ready’. This means that from 2025 new homes must incorporate low carbon heating, such as heat pumps or hydrogen boilers, and high levels of energy efficiency, and should not require any further upgrades in order to meet the 2050 target.

6. SHEFFIELD CITY REGION

6.1. Firms in the region

There were no specific clusters or investments highlighted in the Sheffield City Region (SCR), but the area does boast a number of firms across almost all parts of the supply chain (see Table 2). SIG Technical Insulation Manufacturing was the largest of these firms, and is part of the wider SIG Plc group of specialist building solutions, whilst the majority of firms are smaller installation firms.

Table 2: Insulation firms in the Sheffield City Region, by supply chain segment

Supply Chain	Firms
Manufacture	SIG Technical Insulation Manufacturing.
Production	Inno-Therm, Super Quilt, YBS Insulation, Panel Systems, XtraTherm.
Distribution	Galaxy Insulation, Markowitz Insulation and Drylining, EcoHome Insulation.
Installation	One Insulation, Websters Insulation, Mac Plastering, DP Insulation Render, Birdwell Insulation, JJ Crump, URP Group, Multi-Therm Insulations, Sheffield Loft Boarding, All Seasons Interiors, Novora, Project Render Systems, Rendermaster.

7. POLICY RECOMMENDATIONS

7.1. Opportunities and barriers to growing the sector

Both a barrier and opportunity for growing the sector and delivering on carbon reduction and energy efficiency targets comes from addressing the skills shortage in the installation aspect of the supply chain. The competing SOAR market pulls skills away from the insulation sector whilst the Covid pandemic has driven up demand for those products. Developing and coordinating training across colleges, technical schools, and through apprenticeships has been highlighted as central to both growing the sector in the long term and meeting current demand (IN 02). This includes support to raise the profile of the sector, highlighting the good pay and strong career prospects, and linking the industry to green and hi-tech visions of the future (IN 06).

The lack of location dependence for firms makes opportunities to grow the sector in the SCR quite limited, but there may be some potential at the production level. One participant (IN 07) was in the process of looking for purpose-built premises in a more accessible location. They had originally located close to where their owner lived and had grown organically and adapted their premises as they grew. They also referenced the impact that having their local MP visit their premises had on getting a better understanding of their needs and prospects for growth and employment.

7.2. Support from SYMCA

- Promote the benefits of working in the insulation sector (and construction more broadly), particularly to young people, and highlight the training available in your local colleges and through apprenticeships.
- Outline a clear carbon reduction strategy for the region and communicate the actions that will result from this strategy e.g. the opportunities for local businesses and benefits to residents. This communication of benefits to building users and housing stock owners can encourage greater take up of energy efficient products, and underline the value of EPC ratings [or look to support an upgrade to a building passport

system]. It can also ensure that stock owners are aware of the changing standards that they need to adhere to and doesn't place the onus on contractors to communicate these changes.

- Conduct a survey of housing stock so that you know what buildings you have and what solutions are required to maximise energy efficiency, so that you are ready for when funding becomes available. This should also identify the opportunities to install other low carbon technologies, such as heat pumps. Opportunities to undertake installation on whole streets or small areas at the same time should also be identified, enabling costs to be minimised.
- When funding is available don't try to spread it across your whole housing stock as this will allow only marginal improvements to be made, and may require further upgrades soon after. The driver must be quality not volume. Instead, use the funding to maximise the efficiency of a smaller number of homes, so they are future proofed for 2050 targets. This can help to demonstrate the full impact of energy efficiency products to others in the community and can be replicated on the rest of the housing stock as further grants become available.
- Use this knowledge and case studies of impact to identify opportunities for whole street upgrades, helping to reduce the overall costs.
- Make local framework opportunities more inclusive by having a dialogue with potential suppliers, and not just through prime contractors. Use 'trustmark' as a way to ensure quality suppliers and to protect against unregulated suppliers. And any opportunities should focus on a 'fabric first' approach and not seek to install low-carbon heating systems in inefficient buildings.
- Consider more support to firms around waste management. This could reduce a significant expense on smaller construction projects, alleviate issues of fly tipping, and contribute to more recycling of waste materials.
- Ensure that building control have the resources to inspect and verify the installation and outputs of any insulation solutions used.
- Encourage greater engagement with local MPs to support local businesses and 'wave the flag' for energy efficient products.

Other Reports

- [Low Carbon Energy Supply Chains, Employment and Skills in South Yorkshire: Headline Findings](#)
- [South Yorkshire low carbon energy supply chains: Carbon Capture, Utilisation and Storage \(CCUS\) sector summary](#)
- [South Yorkshire low carbon energy supply chains: Heat Networks sector summary](#)
- [South Yorkshire low carbon energy supply chains: Heat Pumps sector summary](#)
- [South Yorkshire low carbon energy supply chains: Hydrogen sector summary](#)
- [South Yorkshire low carbon energy supply chains: Nuclear sector summary](#)

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South Yorkshire low carbon energy supply chains: insulation sector summary

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