

INDUSTRY ANALYSIS

Improving the energy efficiency of Britain's homes: the opportunity





CITB's purpose is to support the construction industry to have a skilled, competent and inclusive workforce now and in the future. This requires an evidence-based view of future industry and training needs.

Retrofitting the UK's built environment to be cleaner, greener, warmer (in winter), cooler (in summer) and progressively become more energy efficient and ultimately carbon - net zero - is the biggest construction opportunity this century. To benefit from this opportunity the construction industry needs to think differently and plan and train for the future. The examples in this report show what is possible.

FOREWORD

A huge opportunity for construction businesses

By **Simon Ayers MBE**

Chief Executive TrustMark



With challenge so comes opportunity and in the UK, one of the great challenges facing us is reaching zero carbon emissions by 2050.

The opportunity that task presents across the construction sector is vast. With around 27 million homes in the UK requiring retrofitting with measures to decarbonise and improve energy efficiency, the scope for new business and business development has seldom been as great.

The requirement for skilled, trained and competent tradespeople continues to grow – an estimated 1.3 million new roles are needed across the industry to deliver this work at the scale and pace necessary to achieve the deadline.

Grasping that opportunity, however, needs us all to think and behave differently in terms of recruiting into the industry, training and upskilling, support to micro and SME businesses and building confidence in longevity of funding and green jobs.

New entrants are needed into the industry – research for this report found only 31 apprentices across over 500 businesses, so we need to broaden our view. Up until end 2023 there were 900k young people not in education, employment or training (NEET), and over 860k aged 25 and over unemployed. And that's not counting retraining or upskilling of existing trades and employees.

The skills required are also changing. Soft skills need to be part of training to equip workers with the ability to interact with occupiers along with technical and technology skills. Support with recruitment, training, accreditation and business development varies across the sector. By improving collaboration and knowledge sharing, we can achieve a more consistent delivery mechanism for businesses and customers.

Innovation in both technology and data use can be at the forefront of improving understanding of the “what, where, how and by whom” of work carried out, enabling better planning and use of resources, both for people and funding. Technology cannot only help with training and upskilling but also ensuring quality of products and workmanship.

The research carried out for this report identifies some of the real issues being faced by those working on the frontline across the sector. By working together, we will find the right solutions to those challenges and optimise the opportunity for everyone.

▶ Keeping our homes warm without fossil fuels

The UK Government is committed to cutting greenhouse gas emissions by **78%** from 1990 levels by 2035, ahead of reaching its legal obligation of **net zero by 2050**.

To do this, around **27 million** UK homes must be retrofitted. This means the retrofit market needs to grow rapidly in the coming years – presenting a real opportunity for construction employers.

The incoming UK Government has committed to a **£6.6 billion** Warm Homes Plan, offering grants and low interest loans to support investment in insulation and other improvements in **five million homes**. The Scottish Government announced in April 2024 that it will make **£200m** available through the Social Housing Net Zero Heat Fund up to 2026. The Welsh Government has also awarded **£60m** of funding to phase three of the Optimised Retrofit Programme from 2022 to 2025.

TrustMark have regulatory responsibilities for numerous government capital and grant funded schemes aimed at improving the energy efficiency of domestic properties. This research aimed to find out more about the domestic energy efficiency retrofit market, the businesses who carry out this work, and the skills they need. This will help the industry plan future skills needs for this critical part of the construction sector.

Businesses involved in retrofitting homes are experiencing huge demand for their services, with three out of four looking to increase their workload. There is work available to construction businesses who want to be part of this major change to Britain's existing homes.

The market is currently driven by government-funded schemes to improve social and local authority housing stock. Demand is currently less strong from private homeowners but is likely to rise as people take action to make their homes warmer and more energy efficient in the face of climate change and rising energy bills. The financial services sector has been developing a variety of funding mechanisms for homeowners. A number of major banks are offering green mortgages which reward homeowners for improving a property's Energy Performance Certificate (EPC) rating, some also offer funding or loans for installing energy efficiency measures. These are becoming more widely available and when combined with government grants for homeowners could stimulate demand in this sector.

For businesses to gain work upgrading homes which is supported financially by governments, they must be TrustMark registered. TrustMark is the only Government Endorsed Quality scheme and businesses who want to work within the government's capital and funded schemes must hold current registration with them.

► Current landscape of the industry

This report provides the first in-depth look at the skills within the energy efficiency retrofit market. We look at the profile of businesses, where they are, the volume and type of work they are carrying out, and the skills they use.

Business size

As with the wider construction sector, the vast majority of businesses involved in energy efficiency work are small or micro in size. Nine out of 10 (92%) firms have fewer than 50 employees, with two out of three (65%) having fewer than 10. Of the 513 businesses surveyed, 35 (7%) were medium sized with between 50 and 249 employees, while only 6 (1%) were large, with over 250 employees.

Business location and travel-to-work distance

Many businesses are travelling significant distances to carry out work. The average travel to work radius is 54 miles with a maximum distance companies will travel of 100 miles. As businesses are often travelling over an hour to reach work, this suggests there are opportunities for energy efficiency businesses to establish themselves in local areas across Great Britain.

Main trades of surveyed businesses

Insulation installers are the most common primary trade of the energy efficiency businesses we surveyed. Two out of five (39%) surveyed businesses primarily install insulation. After this, plumbing and HVAC (heating, ventilation and air conditioning) trades (28%), followed by electrical trades, at 16%, and glaziers at 7% were most common.

For the trades respondents who are registered to carry out work under TrustMark, air source heat pump installation came out on top, with a quarter (28%) of businesses registered for this work. This is followed by loft installation, with one in five (19%) of businesses registered, external wall insulation at 13%, installation of solar panels at 12%.

Roles of directly employed workers

Loft insulation is the most common role of those who work directly for energy efficiency firms, with 16% in this role. One in 10 (10%) install solar panels, followed by external wall insulation (9%) and air source heat pump installation at 8%.

Subcontractors

Around half (50%) of all surveyed businesses subcontract work when carrying out energy efficiency improvement projects. Nine out of 10 subcontract to specific trades, such as electricians, insulation installers, gas and heating engineers, plumbers and solar panel installers. The majority (62%) of firms who subcontract say they check qualifications and accreditations of subcontractors, while around one in five (18%) have a long-term relationship with the company. Four out of five businesses who subcontract (83%) do not experience quality issues from subcontracted work.

The most common role for subcontracted workers is external wall insulation, at 27%. This is followed by solar panel installations at 13% and solar assisted heat pumps at 8%.

Most common measures

The most common measures carried out by energy efficiency businesses are air source heat pump installation (25%), loft insulation (21%), external wall insulation and solar panel installation (both 14%). Other types of insulation and heat pump installs make up the remainder. However, the TrustMark data indicates that the most common measures installed, excluding heating and hot water controls, are loft insulation, boilers (new and replacement), cavity wall insulation.¹

Multi-skilling

Multi-skilling is common across energy efficiency roles, and is particularly important for heat pump installation, and insulation work. Given the use of subcontractors by many energy efficiency firms, this suggests that given access to the right training, there is opportunity to ensure directly employed workers have the option to be multi-skilled.

Numbers of homes worked on

Our survey is clear that businesses in the energy efficiency sector have plenty of work. The average number of homes worked on by micro firms is 120. For small businesses this average rises to 330 and for medium or large companies it is over 1,000.

Accreditation

From 408 respondents, two out of three (64%) have PAS 2030: 2019 accreditation. This is the standard that businesses are required to hold and comply with in order to work within the government capital and grant funded schemes. Over half of respondents were accredited with the Microgeneration Certification Scheme (MCS). This scheme provides quality assurance and consumer protection for small-scale renewable electricity technologies, such as solar panels and heat pumps.

Respondents criticised the accreditation process as complicated, time-consuming and bureaucratic. Even those who found it simple, thought it was drawn-out and costly.

Staff working in energy efficiency roles

Nearly three-quarters (71%) of businesses have all their staff working in energy efficiency roles. The proportion decreases among larger firms, with three in 10 (29%) of staff at businesses with over 50 employees work directly on energy efficiency measures.

¹ This measure accounts for just under half of all energy efficiency work undertaken as part of all government-backed schemes in the 12 months leading up to May 2023. The prevalence of this measure is no doubt explained by the fact that a single energy efficiency project probably involves multiple installations of devices to control heating and hot water controls, in one single property.

► Retrofit coordinators and assessors

Our survey provides a detailed look at the vital roles of retrofit coordinators and assessors.

A retrofit assessor conducts an in-depth assessment of the property, developing plans to improve its energy efficiency. The retrofit coordinator's role is to manage all stages of a project. They are responsible for ensuring compliance with PAS 2035:2019 - Retrofitting dwellings for improved energy efficiency.

Of the 44 retrofit coordinators and assessors we interviewed, three out of five (61%) complete both roles. One out of three (34%) were solely coordinators while 5% were purely assessors.

Retrofit coordinators and assessors worked on over 300 properties over the past year on average, higher than survey respondents on the whole.



CASE STUDY

Retrofit coordinators and assessors

Location: West Midlands

Number of employees: 1

The business owner has engineering skills, and business knowledge and competencies developed in previous roles to give him a broad understanding of sustainability.

Business area and constraints

The main business is retrofit assessment, their clients are installers, coordinators and local authorities. The owner sees a risk for the industry in the number of small businesses and the cyclical nature of funding limiting the capacity of these to grow.

His accreditation was through ECMK and Elmhurst Energy, with TrustMark registration being a step removed from the process. He feels the entry criteria are low.

The business owner sees a flaw in the assessor and coordinator role because there is no payment unless a product is installed. He feels decisions around installation are too often commercially driven.

Growing the business

The owner has a strong belief that, while there are challenges in the sector, there are also opportunities, and the key to success is networking, innovation, and business agility, while building knowledge and expertise. The business has an ambition to develop a group of assessors and coordinators but there is a challenge around consistency of funding. The structure of the industry causes problems in scaling the business; there are difficulties creating an order book with a pipeline of work.

► The experience of getting accredited

TrustMark registered retrofit coordinators and assessors must operate to the current PAS2035 standard required for the retrofit of dwellings. Almost all (95%) also have the current PAS 2030 accreditation, the standard for installing energy efficient systems.

Only one in four (23%) said the process of gaining certification was simple. A similar proportion (25%) took extra training as part of the certification process, with about one in six (17%) needing specialist advice.

Some found completing the Level 5 retrofit coordinator training course straightforward, while others said it was time-consuming and bureaucratic. Some would have liked more guidance and support from TrustMark when taking the PAS assessment.

The highest qualification for a retrofit coordinator is the Level 5 Diploma in Retrofit Coordination and Risk Management. The highest qualification for retrofit assessors tends to be either the Level 4 Award in Domestic Retrofit Assessment, or the Level 3 Certificate for Retrofit Assessors.



CASE STUDY

Valley Group – The benefits of getting accredited

Location: Glasgow

Employees: 96

Valley started as an electrical contractor before expanding into energy-efficiency work. Services offered include heat pumps, solar panels, electric vehicle charging and cavity wall insulation. Some insulation work is carried out by subcontractors who are answerable to Valley's management. Valley stresses the importance of their staff induction process to overall quality, with the company actively seeking client feedback to guide improvements.

The business worked hard to be included on public sector frameworks, such as Warmworks, and to gain TrustMark accreditation.

Training and barriers to growth

The biggest barriers to expansion are seen as availability of public funding for retrofit work, and training, rather than recruitment. Valley has found it difficult to access some forms of training. Some courses are not delivered by colleges, so they have used private training providers instead.

Multi-skilling

Multi-skilling is being used to support renewables work. For example, gas engineers are being trained in heat pump installation. There is a move to upskill mechanical and electrical staff to get more involved in energy efficiency work.



TrustMark certification helps us secure grants, work with energy providers and build relationships that we simply couldn't without it.

Frazer Lowrie,
HSQE Manager

► Subcontractors

The vast majority (95%) of surveyed retrofit coordinators and assessors are subcontractors. All have an established relationship with a main contractor. Some have long-term partnerships with housing associations, local authorities and social landlords. Over half of retrofit coordinators who work as subcontractors experience issues in quality assurance when working with main contractors.



CASE STUDY

Insulation installer – micro business needing accreditation support

Location: North Scotland

Employees: 4

The business specialises in installing insulation, mechanical ventilation with heat recovery (MVHR) and electric vehicle charge points. The business owner originally specialised in building and landscaping before moving into energy efficiency work. The commitment to decarbonisation includes using environmentally sound insulation materials such as sheep's wool and wood fibre. Staff are multi-skilled, being able to install heat pumps, insulation and windows and doors.

Clients

Business is divided between work carried out directly for homeowners and work subcontracted from a local architect who also acts as the retrofit coordinator.

Homeowner clients are often older people who want to reduce the costs of running their homes through energy efficiency measures. Rising energy costs has increased this area of work.

Constraints

The business currently doesn't have accreditation, which means it cannot carry out work backed by government grants. The owner feels the cost of being accredited for the work he does would be considerable, which together with the administration involved, is a significant barrier.

The business doesn't advertise, its presence online is limited to a basic website. Business is currently gained through the architect and word-of-mouth recommendations.

► Challenges and opportunities

Our research clearly highlights significant challenges – and huge opportunities – in the retrofit market.

Businesses who wish to access government capital and funded schemes need to have TrustMark and either MCS or PAS 2030 certification. For many, however, this is not a straightforward process, with cost also a barrier for some.

The evidence suggests that while some are supported well by their certification body, support isn't the same for everyone. This should be more consistent to encourage more businesses to get certificated to deliver under these schemes. Improved signposting is needed for those getting certificated independently.

Only one in five contractors report difficulties accessing training. When this is an issue, cost is seen as the main barrier. However, a need was identified for workers to improve their soft skills, such as communication and team working, which are critical when working in people's homes.

One of the best ways to develop a secure pipeline of future workers is through apprenticeships. However, our 513 surveyed businesses reported only 31 apprentices in total, with the majority of those working in insulation. These are relatively small numbers, which may reflect the fact that there are currently no apprenticeship frameworks or standards covering insulation installation (although one is currently being developed), so respondents are likely referring to NVQs or SVQs. In England, heat pump installation is covered by the apprenticeship standard in Refrigeration, Air Conditioning and Heat Pump Engineering Technician and a new low carbon heating technician apprenticeship is also now available. As the market for energy efficiency work expands, having a clear apprenticeship pipeline is worth considering.

While only a small number of main contractors experience issues with the quality of work, retrofit coordinators, who are often subcontractors, highlight this issue more frequently. This particularly refers to working with installers who do not meet the PAS accreditation requirements. There is a wider issue here for the consumer. If the quality of work is higher, this is more likely to achieve the right energy performance certificate EPC rating to be able to save money on energy bills. It also reduces the chances of remedial work – and the additional costs which may come with it.

The big, clear positive from our research is that three-quarters of businesses are looking to expand. However, barriers, such as availability of staff, need to be reduced.

The Opportunity

There is a large amount of retrofit work out there. This is unlikely to decline as the drive towards net zero goals continues and energy bills remain significant.

Green funding schemes were introduced under the former UK Government, such as the Energy Company Obligation and the Social Housing Decarbonisation Fund, which can be delivered until 2026. In Scotland there is funding available through Home Energy Scotland, Warmer Homes Scotland, and Home Energy Efficiency Programmes. Wales has the Optimised Retrofit Programme. This provides an opportunity for businesses to have a consistent pipeline of work.

For clients, there is also an opportunity to carry out work in batches. For example, rows of terraced houses or blocks of flats, to gain time saving measures as part of a single project. However, smarter procurement is needed to maximise these savings.

Conclusions and guidance

FOR CONSTRUCTION EMPLOYERS

There is a big opportunity for more construction employers to get involved in energy efficiency retrofit schemes. To do so, we recommend:

1. Get informed

Visit the Supply Chain Sustainability School's website, which has [free resources](#) detailing business cases, standards and the whole building approach.

2. Get registered

TrustMark registration is essential to be able to carry out Government-backed energy efficiency work. TrustMark has guidance on how to become a [TrustMark-registered business](#) and the available support to gain [PAS and MCS Certification](#).

3. Get involved

TrustMark explain retrofit [standards](#) and detail the various energy efficiency schemes funded by the [government](#).

4. Get trained

CITB funds several retrofit training courses to make sure you have the right skills in your businesses to carry out this work. The CLC National Retrofit Hub has a full list of [training and qualifications](#).

▶ Conclusions and guidance

FOR GOVERNMENTS

Governments across the UK have provided significant support for the energy efficiency market over the past 10 years. As the Scottish and Welsh Governments continue this work, and the new UK Government looks to deliver its Green Prosperity Plan, the following guidance from this report aims to identify how industry and government can work together to support these commitments.

1. Plan further ahead

Businesses have told us that longer-term commitments would help them plan ahead so that they can confidently participate in this market. This is especially important for SMEs, which make up the vast majority of the construction industry. Employers have suggested 10-year funding plans to help them develop the right business strategy, get the right skills in place and allow them to expand.

2. Subsidise accredited training

The demand for retrofit skills is likely to increase. Governments, working with industry, should develop a retrofit skills plan to ensure needs are met. This plan should determine which training should be subsidised, how to fund, and link training to places where demand is greatest.

3. Support recruitment initiatives

Develop a recruitment toolkit to help businesses attract talent. Raising awareness of energy efficiency roles could make recruitment easier for smaller businesses who lack sophisticated hiring methods.

Conclusions and guidance

FOR TRADE AND EMPLOYER ASSOCIATIONS

1. Play a strong advocacy role

Employer groups are perfectly positioned to advocate to their members about opportunities to develop their businesses. Furthermore, trade bodies can promote training opportunities to build capacity in the energy efficiency retrofit market.

2. Facilitate soft skills development

Retrofit projects mostly take place in people's homes. Therefore, soft skills around customer service can make a big difference to the success of a project. Trade associations should provide guidance and resources to help employers develop soft skills. They could collaborate with industry stakeholders to offer formal or informal training programmes to upskill their members.

3. Provide help with the certification process and make this more consistent across PAS 2030 certification bodies and MCS to simplify the journey to TrustMark registration.

ACTION FROM CITB

1. Invest in upscaling opportunities

CITB has added net zero to the [Industry Impact Fund](#). We are seeking to fund successful, industry created solutions for upscaling and roll-out across the industry.

2. Establish career pathways

We are developing clearly defined career pathways within the industry, showcasing opportunities for progression from entry-level roles to managerial positions. This will attract younger talent and provide a structured approach to recruitment and retention. This is an ongoing programme of work with occupations including retrofit roofing and insulation.

3. Promote collaboration and knowledge sharing

The CLC Retrofit Hub, of which CITB is a partner, is seeking to foster collaboration, and sharing of knowledge and best practice between businesses in the sector. By encouraging the exchange of expertise will help to improve standards and efficiency.

Further information on our plans and support we are offering is detailed in our [Net Zero Action Plan](#).

► What we did - methodology



Surveyed
513
energy efficiency
businesses across
Great Britain.

► We asked about their:

- Company profile
- Skills challenges
- Accreditation
- Activity levels
- Use of subcontractors.



Covering **12** types of energy efficiency installations and **30** retrofit measures.



We carried out **8** case study interviews to get an in-depth understanding of individual businesses.



Analysed TrustMark data from a 12 month period, looking at **147,000** energy efficiency measures and **37,000** homes.