

G S E N Z H

S U P P L Y C H A I N M A R K E T I N T E L L I G E N C E E X E C U T I V E S U M M A R Y



Greater
South East
Net Zero Hub

SUPPLY CHAIN MARKET INTELLIGENCE EXECUTIVE SUMMARY

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1 Introduction

The GSENGH is a collaboration of eleven Local Enterprise Partnerships (LEPs). These LEPs are working together to increase the number, scale and quality of local energy projects being delivered across the Greater South East (GSE) region of England. Local Enterprise Partnerships (LEPs) are business-led partnerships between local authorities and the local private-sector business community. These partnerships are overseen by the Department for Business, Energy and Industrial Strategy (BEIS). LEPs work to identify priorities and undertake activities in their locality, to improve infrastructure, and drive economic growth, job creation and the development of workforce skills.

The GSENGH were successful in securing and delivering funding for the Local Authority Delivery Phase 2 (LAD2) scheme. Additionally, further funding was secured for the delivery of Sustainable Warmth, split between two schemes - LAD3 and Home Upgrade Grant Phase 1 (HUG1).

For the purposes of this project, the data was researched and presented by LEP area, with all eleven LEPs included. The LEP-level data was collated to produce a combined Hub-level report in addition to the individual LEP reports.

Greater South East Net Zero Hub Map



The overall objective of the Greater South East Net Zero Hub (GSENGH) Supply Chain Market Intelligence research project was to assess the current capacity and capability of the Domestic Energy Efficiency supply chain (DEESC) across the Greater South East region against the level of resource required to reach our commitment to achieving Net Zero 2050. The findings of the study will be used by the GSENGH to determine the key areas requiring intervention, to forecast required growth and to develop a legacy plan for strategy development.

For the purposes of this study, the Domestic Energy Efficiency supply chain is broadly defined as “those activities required to deliver net zero across the domestic housing sector”. This includes

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obvious activities such as insulating the property, but also manufacturing of the insulation materials, the advice given to insulate the house and the behavioural scientists working to change behaviours.

Mace were appointed by the GSENZH to carry out sector assessments of the DEESC across the Greater South East of England. The assessment was undertaken to enable efficient review of the current state of the sector and where support, development and intervention is needed to help grow the sector across the region - from LEP level to a Hub-wide level.

Mace collaborated with strategic partner kMatrix Data Services to deliver the services required, ensuring robust data confidence levels and efficient delivery and presentation of data to inform GSENZH and its stakeholders' strategy on delivery and associated growth opportunities by leading thinking for the domestic energy efficiency sector.

In order to achieve the project goals, Mace and kMatrix's activities included:

- Primary research to gain insight into company sizes, roles within and capacity to deliver per sub-sector
- Mapping of regional and national market demand, availability/accessibility and locality of materials, including plotting of growth factors (e.g., UK vs. LEP) – gives insight into which sub-sectors are growing faster than national averages and relative size of activities
- Desk and primary research to evaluate the interventions required to fill the gaps in market provision over the next 3-5 years
- Collation of data to model the impact of government policy on delivery – assessment of policy vs. no policy

The full report set, and accompanying appendices, presents quantitative and qualitative findings from the research into the DEESC, and recommendations on the routes to take when progressing with the delivery of Government funded schemes to ensure Net Zero 2050 commitments are achieved.

The primary research aim is to generate an understanding of:

1. The existing supply chain within the market
 - Companies by sub-sector, in terms of size and capacity to deliver
2. The existing market demand and availability of materials
 - The region's access to manufacturing and production for domestic energy efficiency products and technologies
 - Local strengths in manufacturing and technology
 - The impact that restrictions on access to components and materials may have (regionally and nationally)
3. The interventions required to fill the gaps in market provision
 - Key components required to support the market to enable demand to be met, focusing on large-scale government programmes
4. The impact of government policy on delivery
 - Estimates of the scale of manufacturing and installation required to deliver on national and regional net-zero ambitions

2 Key Findings

2.1.1 Businesses & Employee Numbers

The largest number of businesses and employees were found within the Greater London Authority LEP. In terms of the domestic energy efficiency measures applicable to GSENZH scheme delivery, the lowest number of businesses and employees were found within Buckinghamshire LEP. Ventilation & Air-tightness (*which includes the provision of materials and labour for Ventilation and Heat Recovery Systems, Energy Efficient Windows & Doors and Insulation for Walls, Roof/Lofts and Floors, and Roofing including Park Home Insulation*) demonstrated the largest number of businesses and employees across the GSENZH as a whole, as well as within each individual LEP. Information Dissemination and Consumer Advisory Services demonstrated the lowest numbers of companies and employees across the GSENZH as a whole, as well as within each individual LEP.

Service	Activity	No. of Companies	No. of Employees
Ventilation and Air-tightness	Roof/Loft Insulation	1,458	48,821
Ventilation and Air-tightness	External Cavity Wall Insulation	544	18,719
Walls & Ceilings	Plastering & Plasterboarding	264	8,495
Ventilation and Air-tightness	Floor Insulation	203	6,933
Information Dissemination	Industry-oriented Publications	2	78
Information Dissemination	Societal Engagement Campaigns (e.g. info boards)	2	67
Consumer Advisory Services	Funding Advice	1	42

2.1.2 Sales / Turnover Levels

Sales/turnover levels across the GSE region correlate well with the number of businesses and employees, demonstrating the highest levels within the Ventilation & Air-tightness sub-sector.

Level 2	Level 3	Total Turnover/Sales
Ventilation and Air-tightness	Roof/Loft Insulation External Cavity Wall Insulation Floor Insulation Ventilation and Heat Recovery Systems Heating System Insulation (ducting/pipework/cylinders)	£15.25 billion

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	<ul style="list-style-type: none"> Energy Efficient Windows Insulated Doors External Wall Insulated Cladding Internal Wall Insulation Roofing Park Home Insulation 	
Walls & Ceilings	<ul style="list-style-type: none"> Plastering & Plasterboarding Painting and Decorating 	£2.21 billion
Heat Pumps	<ul style="list-style-type: none"> Air Source Heat Pumps Ground Source Heat Pumps Water Source Heat Pumps 	£1.65 billion
Energy Management	<ul style="list-style-type: none"> Home Energy Systems Integration Home Automation Energy Management Systems Smart Heating Controls 	£1.53 billion
Photovoltaic	<ul style="list-style-type: none"> Solar Photovoltaic Solar Thermal 	£1.01 billion
Biogas	<ul style="list-style-type: none"> Biogas Plant (Domestic) Biogas Energy Systems Biogas Boilers and Related systems Biogas Furnace Systems 	£786.7 million
Biomass	<ul style="list-style-type: none"> Biomass Boilers and Related systems Biomass Furnace Systems Biomass Energy Systems 	£749.5 million
Technical Services	<ul style="list-style-type: none"> Project Planning (Strategy/Approach) Planning Application Services (Listed buildings etc) Building Surveys Monitoring & Evaluation Architectural Services Environmental Consultancy Specification Technical Advice Retrofit Coordination 	£565.3 million
Hot Water	<ul style="list-style-type: none"> Hot Water Systems 	£542.7 million

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Electric Vehicle Charge Point	On-road Solutions Off-road Solutions	£525.4 million
Energy Saving Lighting	Energy Saving Lighting Equipment	£524.9 million
Battery Technologies	Electrical Batteries Thermal Batteries (Latent Heat Storage) Thermal Stores (Sensible Heat Storage) Thermal Batteries (Thermochemical Heat Storage)	£466.6 million
Electric Heating	High Retention Storage Heaters	£450.6 million
Geothermal	Horizontal Systems Vertical Systems	£338.2 million
Heat Networks (Domestic Assets Only)	External Physical Assets Internal Physical Assets	£291.5 million
Floors	Hard Flooring Carpet Fitting	£244.9 million
Hydrogen	Hydrogen Cooking Appliances Hydrogen Boilers Hydrogen Fuel Cells	£233.2 million
Wind	Domestic Small Wind Turbines	£185.1 million
Combination Systems	Combination Systems Installation Combination Systems Design	£94.2 million
Sector Development	Business Support & Development Business Model Development Sales Strategy Training Societal Behaviour Studies	£43.2 million
Consumer Advisory Services	After Sales Support Energy Tariff Advice Funding Advice	£43.1 million
Information Dissemination	Newscasting (early-stage project engagement activities) Industry-oriented Publications Societal Engagement Campaigns (e.g., info boards)	£24.3 million
Cleaning Services	Contract Cleaning	£20.9 million

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2.1.3 Investment

Investment within the GSE region grew in all three categories of investment between 2019/20 and 2021/22:

- Private Equity Investment grew 25.1% to £2.2bn
- Venture capital Investment grew 24.4% to £2.2bn
- Other Investment grew 20.8% to £2.2bn

All types of investment demonstrated good levels of growth between 2019/20 and 2021/22 across the DEESC within the region. Growth between 2019/20 and 2020/21 was strong and within 1% of the UK's growth rates, however growth between 2020/21 and 2021/22 slowed and demonstrated much slower progress than the UK's average growth rates for this period (2.6% GSE region vs. 14.1% UK).

2.1.4 Forecasting, Sector Development & Regional Opportunities

Using data from 2021/22 to undertake analysis of the existing supply chain within the domestic energy efficiency sector, it has been demonstrated that the number of Roof/Loft Insulation companies and associated employee numbers was significantly higher than any other at 1,458 companies and 48,821 employees. This was followed by External Cavity Wall Insulation where it has been identified that there are 544 companies and 18,719 employees within the GSE region. Interestingly, the third largest business area was identified as Plastering & Plasterboarding where 264 companies consisting of 8,495 employees were identified, with Floor Insulation following at 203 companies and 6,933 employees.

The lowest numbers of existing companies were identified across Consumer Advisory Services, Information Dissemination and Sector Development where a total of 33 companies were identified with a total of 1,047 employees across these.

In terms of the industry's capacity to deliver within the region based on turnover/sales only, the largest sector is Ventilation and Air-tightness, with the second largest being Walls & Ceilings which includes Plastering & Plasterboarding and Painting & Decorating. Similarly, the largest sub-sector in terms of both sales/turnover and number of companies/employee numbers is Ventilation & Air-tightness, followed by Walls & Ceilings.

Additionally, the data gathered suggests that the GSE region has demonstrated good year-on-year growth in terms of the number of businesses, the number of employees and sales/turnover values between 2019 to 2022, with increases across the board, as further demonstrated in the table below.

	2019/20	2020/21	2021/22
Total Sales/Turnover	£22.78bn	£24.96bn	£27.78bn
Total No. of DEE Companies	6,778	7,197	8,011
Total No. of Employees	222,901	240,012	271,928

2.1.5 Scalability

Scalability refers to the combination of the:

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- Existence of appropriate available market
- Scalability of technology within a company, area or market
- Affordability of technology
- Availability of appropriate skill sets in the locality
- Historic growth
- Accessibility of networks and chains of supply

All of these factors are taken into consideration when grading scalability.

The scalability of the sector has been calculated by attributing a scalability factor of 'Low,' 'Medium' or 'High' per product or service at the Local Authority level, which has been given the corresponding value of 1 = Low; 2 = Medium and 3 = High. The average of those values was then taken for the products and services grouped together for each level to produce an index of scalability. The scalability index has been calculated for the 340 products and services, for the Activity Codes at Level 3 of the dataset, for each Local Authority, with the average being used to plot the potential for scalability against the GVA (*GVA means the gross value added and is the value of the transactions minus raw materials etc. and represents the profit made*) of the sector at Level 2.

Findings show that the sub-sectors demonstrating the highest scalability vs. GVA within the region are Information Dissemination, Hot Water and Photovoltaic.

The Ventilation and Air-tightness sub-sector presents a very high GVA and medium scalability. Information dissemination has been demonstrated as the most scalable sub-sector, albeit with a small GVA. Hot Water is reasonably large in terms of GVA and has good scalability compared with similar-sized sub-sectors such as Energy Saving Lighting and Technical Services. The Hot Water sub-sector which includes Hot Water Systems, also offers good scalability.

2.1.6 Policy vs. No-Policy Analysis

At the request of the GSENZH, policy vs. no policy analysis was undertaken to provide detail to policy makers of the likely impact of current policy, and also to provide the likely baseline minimal growth of the sector if those policies were not in place.

The 'No Policy' forecast provides a baseline growth, which represents an average of the forecasts from within the sector and provides:

- the likely trajectory of the sector without intervention for the 5-year forecasts
- the minimum size the sector would need to be to achieve Net Zero 2050 commitments

The 'Current Policy' forecast uses the policies and implications drawn from the Heat & Buildings Strategy (2021), Net Zero Strategy (2021), the Prime Minister's Ten Point Plan (2020), Industrial and Clean Growth Strategies (2016), Energy White Paper (2020), Energy Security Policy (2021) and Industrial Decarbonisation Strategy (2022). These have been overlaid on the baseline 'No Policy' forecasts, to provide insight into the impacts of those policies and provide:

- the impact of current policies on the likely trajectory of the sector for the 5-year forecasts
- the size the sector would need to be to achieve Net Zero 2050 commitments under current policy

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The impact of policy on the sector is both direct through funding, and indirect such as the increase in consumer awareness through increased reporting on policies, which drives an organic increase in demand for energy efficiency.

No policy vs. current policy Net Zero 2050 growth forecasts for sales/turnover:

Current Sales/Turnover (2021/22, 2022/23)	Growth forecast to reach Net Zero 2050	
	No Policy	Current Policy
£27.78bn	£152.79bn (+£125.01bn)	£205.57bn (+£177.79bn)

No policy vs. current policy Net Zero 2050 growth forecasts for employment:

Current Employment (2021/22, 2022/23)	Growth forecast to reach Net Zero 2050	
	No Policy	Current Policy
271,928	951,748 (+679,820)	1,223,676 (+951,748)

No policy forecasts for sales and employment predict a more gradual growth for both Sales & Employment, with year-on-year growth for sales starting at 11.8% and increasing to 17.7% and employment starting at 9.1% and increasing to 11.3% through the forecasting period. This compares with a large annual growth with current policy, which forecasts growth between 2021/22 and 2022/23 of 117.7% for sales and 71.5% for employment followed by annual growth more in-line with the no policy forecasts, with the growth between 2022/23 and 2023/24 of 13.4% for sales and 9.9% for employment, increasing to 18.7% and 14.6% respectively.

Achieving Net Zero 2050 commitments without policy intervention is expected to require 5.5x the sales and 3.5x the employment, which is forecast to increase to 7.4x the sales and 4.5x the employment with policy intervention.

Ultimately, the data gathered demonstrates Net Zero 2050 to be a realistic commitment when accounting for the whole Greater South East DEESC. However, given the compliance restrictions on supplier accessibility to working under government funded schemes, the real picture is very different when accounting for Trustmark registered and MCS certified Suppliers only. From the research undertaken and data gathered during this project, it has been proven that the actual compliant DEESC accessible to the region for the delivery of government funded schemes consists of only 25.08% of the whole region's DEESC at a total of 2,009 Trustmark registered Suppliers out of a total of 8,011 available across the region's whole DEESC. Furthermore, the GSENGH's existing approved DEESC procured via the in-house Trades Dynamic Purchasing System (DPS) consists of only 1% of the region's whole DEESC at a total of 80 suppliers.

As such, if we were to adjust the growth forecasts allowing for only 25.08% of the supply chain being available to compliantly deliver energy efficiency measures (EEM) under government funded schemes, or even the 1% currently approved to deliver measures within the region, Net Zero 2050

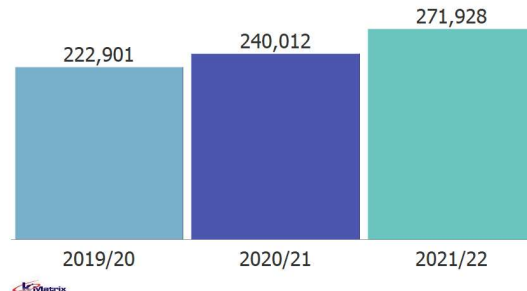
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is not deemed to be achievable based on the predicted domestic energy efficiency sector sales/turnover levels without significant industry intervention and potential policy changes. Recommendations of potential interventions and next steps have been reported upon within the 'Conclusions and Next Steps' section of this report.



2.1.7 Current Provision

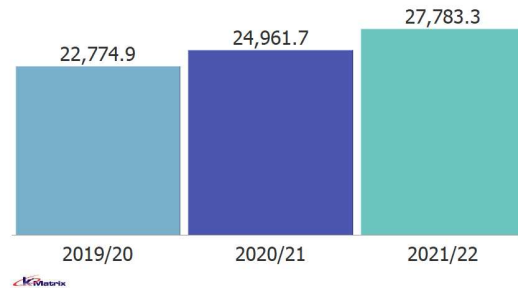
Employment in GSENGH's DEESC in 2021/22 was 271,928, up from 222,901 in 2019/20. Annual growth rate in employment was 7.7% between 2019/20 and 2020/21 and 13.3% between 2020/21 and 2021/22. This compares with the UK average for the same period of 8.1% and 12.5% respectively.



Employment numbers 2019/20 to 2021/22

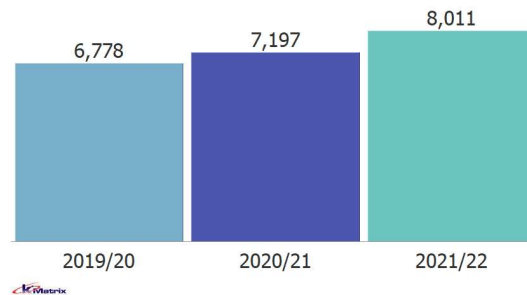
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Sales in GSENGH's DEESC in 2021/22 were £27.78bn, up from £22.78bn in 2019/20. Annual sales growth was 9.6% between 2019/20 and 2020/21, and 11.3% between 2020/21 and 2021/22. This compares with the UK average for the same period of 10.4% and 10.2% respectively.



Value of sales (£m) 2019/20 to 2021/22

The number of companies in GSENGH's DEESC in 2021/22 was 8,011, up from 6,778 in 2019/20. The annual growth rate in the number of companies was 6.1% between 2019/20 and 2020/21 and 11.3% between 2020/21 and 2021/22. This compares with the UK average for the same period of 20.6% and 10.4% respectively.



Number of companies 2019/20 to 2021/22

2.1.8 Market Analysis

Market analysis was undertaken to determine the challenges and opportunities within the DEESC across the Greater South East region when delivering current and future government funded schemes, along with researching any perceived barriers to entry.

The activities that were undertaken as part of the market analysis were:

1. 5 Forces Analysis
2. Stakeholder Consultation
3. Sector & Industry Mapping

The reason multiple activities were carried out was to ensure that several levels of data were collected from different sources, ultimately providing the GSENGH with robust data and 'on the ground' real-time feedback, aimed to help to inform future strategy and policy.

A key lesson learnt from the market analysis aspect of this research study was that, should any further research be carried out in future, it is important for a wider more varied research base to be invited. Consultation session attendees were mainly 'turnkey' contractors, which may have skewed

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the findings in terms of identifying the preference for the turnkey style delivery model. Additionally, although suppliers and contractors present at the session identified no issues with accessing materials, feedback across industry media suggests that, although the situation is improving, there are still delays and difficulties being faced in relation to certain types of materials.

Key findings from the stakeholder consultation session were:

1. **Attractiveness to Contractors** – the general consensus was that the length of current and previous schemes was too short, resulting in a lack of attractiveness to sub-contractors and also constraining innovation across the supply chain.

The main reasons cited were:

- No steady flow of guaranteed work
 - Cost and resource required to meet compliance requirements not worthwhile to contractors when only short-term contracts are being offered
 - Contractors are expected to commence delivery with very short notice, with scheme level administration and mobilisation taking up a significant duration of valuable delivery time (e.g., administration and mobilisation takes a minimum of 3-4 months, meaning a third of scheme delivery time is lost)
 - Innovative time to be developed and introduced. With the scheme lengths being relatively short, there isn't enough time to develop and introduce innovation both in terms of products and/or processes.
2. **Specification changes** – it was widely suggested that amendments to the specification (*notably the introduction of PAS2035:2019*) stalled delivery somewhat due to lack of familiarisation with the new requirements relating to this. It was discussed during the session that Contractors were not provided with sufficient notice of the changes prior to them being implemented.
 3. **Pricing** – it was suggested that pricing and the effect of inflation is a concerning factor for Contractors when delivering Government schemes. Most Contractors bid for the contracts on a 'rate card' or price per deliverable basis, but with prices rising so quickly and regularly across the UK of late, Contractors' profit margins are dramatically decreasing due to rising costs. Additionally, Contractors are finding it more difficult to install the required EEMs within certain properties (mainly EPC F and G rated) due to rising costs limiting the measures they can reasonably install within the scheme 'cost caps'.
 4. **Economic impact** – the impact of short schemes is restricting economic growth and development in terms of local employment opportunities. Contractors are reluctant to employ more resource due to uncertainty of the availability of future work, thus resulting in lower levels of local market growth. Additionally, it was noted that the shorter scheme lengths are also limiting the opportunities for companies to offer apprenticeships within the Energy Efficiency sector due to the uncertainty of the availability of future contracts.
 5. **Preferred delivery model** – the majority of feedback steered towards the Turnkey Solution being the preferred delivery model for Contractors. However, this was likely due to the attendees present at the session mainly being Turnkey Contractors. During the consultation session, Contractors outlined the main reasons for this as:

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- Smoother workflow, resulting in more efficient project delivery as all stages of delivery are managed by one party
- Higher levels of quality assurance as all stages are managed by one party
- Less risk for the Contractor as they are not relying on an external party for successful delivery of prior stages of the contract e.g., Retrofit Assessments completed by one party with installation to then be carried out by another, relying on the accuracy of the earlier assessment for successful delivery

6. **Material availability** – it was noted that material availability and lead times are not currently an issue, with Contractors experiencing no issues accessing materials. Lead times have also reduced significantly of late which is positive.

2.1.9 Resource & Upskilling

It has been determined through this research that, although there doesn't seem to be a lack of labour availability within the region's overall DEESC, the challenges faced actually lie with the type of schemes being delivered and the subsequent scheme compliance requirements which are significantly restricting the GSENZH's access to sufficient supply chain:

- Challenge 1 – lack of Trustmark registered and/or MCS certified supply chain
- Challenge 2 – lack of attractiveness of working on government funded schemes

The majority of the data gathered, and research undertaken during this project is based on the whole DEESC within the Greater South East and not specifically the Trustmark and/or MCS registered/certified DEESC only. As such, it is advised that further research is carried out into actual capacity of the Trustmark and/or MCS registered/certified supply chain only as these registrations/certifications are only some of the minimum compliance requirements of the supply chain when delivering Government funded schemes. Using data collected at the time of this research activity, there are currently 1,396 MCS certified companies (17.43% of the whole GSE DEESC) and 2,009 Trustmark registered companies (25.08% of the whole GSE DEESC) within the Greater South East region, which provides some idea of the actual reduction in capacity which should be calculated on this basis.

Analysis was also undertaken to ascertain the number of apprenticeship starts within the GSE region during the academic year 2021/2022. The data source used for this information was [GOV.UK Apprenticeship Statistics](https://www.gov.uk/apprenticeship-statistics).

The level of granular detail available was limited somewhat, meaning domestic energy efficiency only trades were not able to be segregated from the headings below. However, the data has been refined down to the specialisms most relevant to domestic energy efficiency within the Construction, Planning & Built Environment and Engineering & Manufacturing Technologies sectors.

LEP Area	Construction, Planning & the Built Environment	Engineering & Manufacturing Technologies
EM3 LEP	450	860

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GLA LEP	1,690	3,020
Berks LEP	250	440
NA LEP	720	1,040
CPCA LEP	300	450
Herts LEP	380	590
Bucks LEP	160	270
Ox LEP	270	520
SEM LEP	580	1,220
C2C LEP	410	730
SE LEP	1,660	2,910
HUB TOTAL	6,870	12,050
UK TOTAL	73,190	127,180

Using this data, the total number of apprenticeships across England for the specialisms most relevant to domestic energy efficiency within the Construction, Planning & Built Environment and Engineering & Manufacturing Technologies sectors was 200,370. From this data, the highest number of apprenticeship starts was seen within 'Construction Skills' at 57,350 and the most notable lowest number of starts were within Building Energy Management Systems, Building Services Engineering Ductwork Craftspersons and Installers and Smart Meter Installations (Dual Fuel). Other notable statistics which relate directly to the domestic energy efficiency sector and the energy efficiency measures approved to be delivered under government funded schemes were the number of Smart Meter Installers at a total of 2,120, Refrigeration Air Conditioning and Heat Pump Engineering Technicians at 1,390 and Insulation Technicians/Operatives at a total of 320.

The reason this type of analysis was undertaken was to help the GSENGH to understand the level of apprenticeship enrolments within the region which could potentially increase future capacity to deliver within the DEESC, and thus determine the level of potential additional future labour capacity within the Construction, Planning & Built Environment and Engineering & Manufacturing Technologies sectors.

Additional research was undertaken using supply chain questionnaires, in order to ascertain the challenges faced with regards to the desire to deliver domestic energy efficiency services under government schemes, additional research was conducted with several businesses on attractiveness levels to the domestic energy efficiency sector and how this can be increased.

When gathering feedback from 19 domestic energy efficiency measure installers, there were some common themes emerging from their feedback, outlining the issues they have experienced in their sector.

When asked about PAS2035 compliance, feedback from respondents highlighted that there is a level of bureaucracy and administration surrounding the specification. Many feel that "there is just too much paperwork" involved, and others feel that the specification is currently "ridiculously convoluted". From our research, feedback confirmed that another common issue Installers are experiencing relate to the costs associated with compliance. **31%** of respondents expressed their

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concern that cost is a real issue for them, with one respondent stating that “greater access to financially supported training” would help them significantly.

After evaluating the responses gathered from the questionnaire, it is clear to see that a large proportion of installers are trying to increase the number of employees they have in the coming two years. **83%** of respondents answered that they intend on seeing a net increase of their employees by 2+ employees in the next two years, with **11%** of respondents hoping to improve their workforce by an additional 200 employees.

A key point identified with regards to upscaling is that there are various barriers for many installers to making the change and taking action to upscale, and most of that is due to the regulation associated with the framework, costs and lack of support, and the time lag related to training staff. The main constraint installers are facing in the UK is that there are just too few competent and compliant staff to meet the current and future demand. Part of this is because of a noticeable skills gap which has been due to both a time lag associated with training as well as the impact of Brexit. The underlying message is that the current labour market is too short in its supply; one installer explained it as, “installers do not want to work in the Energy Efficiency industry due to the boom-and-bust nature of it. Many new recruits are need but again with the current short term funding programmes it is seen by many as not a long-term career”. Another installer highlighted the impact Brexit has had on the labour market, notably for External Wall Installers. There is a “lack of qualified external wall insulation installers. Mainly these are Eastern European teams – there are insufficient homegrown installers and Brexit has reduced the number of EU teams available”.

3 Conclusion & Next Steps

The growth required in terms of sales/turnover and employment levels in order to meet Net Zero 2050 ambitions is significant, as detailed further within section 2.1.6. Sales/turnover levels are required to increase to £152.79bn (no policy) or £205.57bn (current policy) in order to achieve Net Zero 2050. Similarly, employment levels would need to increase to 951,748 (no policy) or 1,223,676 (current policy) to achieve Net Zero 2050.

Using the latest historic GSE region annual sales growth rate of 11.3% and keeping this rate consistent each year for forecasting purposes, the table below has been developed to demonstrate forecast sales growth rates. Further calculations undertaken confirm that a minimum annual sales growth rates below would be required to fulfil Net Zero 2050 commitments when accounting for current policy:

- 7.15% when taking into account the GSE region’s whole DEESC
- 12.38% when taking into account the GSE region’s current Trustmark registered DEESC only
- 25.59% when taking into account the GSE region’s current Trustmark registered DEESC only

The following table details the forecast sales/turnover levels using an annual growth rate of 11.3%, and allowing for a reduction in capacity based on the region’s compliant and accessible domestic energy efficiency supply chain only:

Year	Whole GSE region DEESC	GSE region Trustmark registered supply chain only <i>(currently 25.08% of whole supply chain)</i>	GSE region Trustmark registered supply chain only <i>(currently 1% of whole supply chain)</i>	Target Sales/Turnover required to achieve Net Zero 2050
2023	£30.92bn	£8.63bn	£0.34bn	£205.57bn
2025	£38.30bn	£10.69bn	£0.43bn	
2030	£65.42bn	£18.26bn	£0.73bn	
2050	£619.57bn	£155.39bn	£6.20bn	

Using the latest historic GSE region annual employment growth rate of 13.3% and keeping this rate consistent each year for forecasting purposes, the table below has been developed to demonstrate forecast sales growth rates. Further calculations undertaken confirm that the minimum annual employment growth rates below would be required to fulfil Net Zero 2050 commitments when accounting for current policy:

- 5.35% when taking into account the GSE region’s whole DEESC
- 10.49% when taking into account the GSE region’s current Trustmark registered DEESC only
- 23.47% when taking into account the GSE region’s current Trustmark registered DEESC only

The following table details forecast employment levels using an annual growth rate of 13.3%, and allowing for a reduction in capacity based on the region’s compliant and accessible DEESC only:

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Year	Whole GSE region DEESC	GSE region Trustmark registered supply chain only (currently 25.08%)	GSENZH Trades DPS approved supply chain only (currently 1% of whole supply chain)	Target Employment required to achieve Net Zero 2050
2023	308,094	87,547	3,491	1,223,676
2025	395,497	112,383	4,481	
2030	738,403	209,822	8,366	
2050	10,165,326	2,549,464	101,653	

Growth forecasts and calculations have been carried out based on the whole DEESC within the region and separately based on the region’s current Trustmark registered DEESC and GSENZH Trades DPS approved supply chains only, thus demonstrating actual potential future growth rates required to compliantly deliver works under government funded schemes.

From this research activity, it has been highlighted that although no general lack of labour availability has been demonstrated within the DEESC, there are key issues to take note of, with feedback and data gathered during this research highlighting several barriers to successful delivery of government funded schemes, including:

- a lack of appropriately compliant supply chain
- a reluctance from the DEESC of spending the time and resource in becoming compliant
- the DEESC favouring private sector works over public sector works due to less ‘red tape’ and lower expenses

A reluctance for the supply chain to spend the time and resource becoming Trustmark registered, combined with a significant burden of additional reporting requirements when delivering Government funded schemes presents a key challenge to realistically achieving Net Zero 2050 commitments. When accounting for the region’s Trustmark registered suppliers only, Net Zero 2050 is not deemed as an achievable commitment based on the industry’s predicted sales/turnover levels. However, should the opportunity to deliver Government funded schemes be opened up to the whole DEESC rather than only Trustmark registered suppliers, Net Zero 2050 has been demonstrated as an achievable commitment based on the data gathered during this research activity.

Investment growth levels within the GSE region slowed between 2020/21 and 2021/22 and failed to demonstrate the same trend as UK levels. Although some growth was still demonstrated during this period, it is recommended that further research into the reasons for the lower levels of investment is carried out to ascertain why investment in this region was significantly less than the UK average 2020/21 to 2021/22 (2.6% GSENZH region vs. 14.1% UK).

The Ventilation & Air-tightness (*including Insulation*) and Hot Water sub-sectors demonstrated good levels of scalability, and it is therefore recommended to focus on the installation of Ventilation, Heat Recovery Systems, Insulation, Windows & Doors, Roofing and Hot Water Systems as a priority as these areas have demonstrated the greatest opportunity to upscale. The Ventilation & Air-tightness sub-sector is also presently the largest sub-sector by sales/turnover and by number of companies/employees, experiencing a 21.9% growth since 2019/20 along with the highest growth in investment, with Hot Water representing the 9th largest sub-sector, experiencing a 22.7%

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growth since 2019/20. The Ventilation & Air-tightness sub-sector is demonstrating strong sales/turnover levels across the region, with good levels of private investment in this area and the opportunity to upscale to meet future demand. Focusing on Ventilation & Air-tightness measures also aligns well with the 'fabric first' approach recommended under Domestic Energy Efficiency government funded schemes.

In conclusion, the findings from this research have demonstrated that Net Zero 2050 is not an achievable commitment based on the data gathered during this research study and the forecast growth levels anticipated when accounting for the region's Trustmark registered supply chain only. However, should access to the region's whole DEESC become available should compliance requirements be amended/relaxed, then Net Zero 2050 is demonstrated as achievable based on the growth rates forecast. Further consideration needs to be taken as to the current economic conditions, and whether growth levels will continue as predicted as this may be a significant limiting factor.

Moving forward, consideration needs to be given as to:

1. How can the DEESC be incentivised to become compliant, and how can we overcome the existing barriers preventing suppliers from doing so?
2. What action needs to be taken to ensure sufficient capacity to deliver should forecast and/or minimum required growth rates not be achieved?
3. What is the breakdown in trade types of the Trustmark registered supply chain within the region? This may have a significant impact on actual capacity to deliver as the trade types registered may not be permitted in terms of preliminary EEMs to be installed under government funded schemes.
4. How can the region's full Trustmark registered supply chain be incentivised to onboard onto the GSENZH Trades DPS, to enable them to deliver works under government funded schemes within the region?

Based on the data and evidence gathered during this research activity, it is recommended to:

1. **Consult with BEIS** regarding the supply chain's concerns about:
 - a. Compliance requirements including cost and other perceived obstacles
 - b. Short scheme length, including how the scheme length limits opportunities for economic growth and innovation (*recommend long-term schemes rather than current short schemes*)
 - c. Late notice specification changes
 - d. Hosting national, collaborative supply chain engagement sessions to gain real-time feedback
2. Conduct regular regional **supply chain consultation** sessions to ensure real time feedback is being considered and, where practical, acted upon:
 - a. engage the wider DEE on a regular (minimum quarterly) basis, to ensure that feedback is continuous, and issues are discussed as and when they arise in order to work towards solutions before the impact becomes significant
 - b. engage with BEIS on this, to arrange collaborative national engagement sessions in addition to those with the regional supply chain

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3. **Further analysis** on the region's Trustmark registered supply chain only, including analysis of actual capacity to deliver and obstacles to doing so.

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