Research to support the development of a Green Deal Competency Framework

Final Report

January 2012
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A Green Deal Competency Framework

1. Executive Summary

Overview of research

The Green Deal is the Coalition Government’s flagship policy for improving the energy efficiency of buildings in Great Britain and will be available from autumn 2012. It will establish a new financial mechanism to permit a range of measures, such as insulation, heating or lighting, to be installed in people’s homes and businesses at no upfront cost.

Green Deal is based on the principle that many energy efficiency related changes to properties pay for themselves. Householders and businesses will be able to obtain finance to fund appropriate energy efficiency measures through the Green Deal, which will be paid back through the savings on fuel bills resulting from their installation. To ensure that real savings can be made, the energy saving measures recommended for properties will need to be both appropriate to the age and construction of the property and correctly installed.

Central to the delivery of the Green Deal will be three core parties:

- **Green Deal Provider**: will offer the plan to consumers enabling them to finance work recommended by an accredited adviser and undertaken by an accredited installer.

- **Green Deal Accredited Advisor/Assessor**: will carry out property energy assessments, produce an Energy Performance Certificate (EPC) which will make recommendations as to the eligible energy efficiency measures using the Green Deal funding mechanism, to be passed to the Green Deal Provider. The assessor will also give advice to the occupier of the property on energy saving behaviour and improvements.

- **Green Deal Accredited Installer**: will survey properties for the measures that they have expertise in specifying and installing and will install the measures according to the agreed manufacturer instructions and quality standards.

Properties will only be eligible for the Green Deal if they meet the Golden Rule. This requires that expected financial savings resulting from installing a measure, or package of measures, must be equal to or greater than the cost of repayment over the term of the Green Deal Plan. The Energy

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1. Energy Act 2011
2. The Energy Performance Certificate (EPC) provides information on how to make properties more energy efficient and reduce carbon dioxide emissions. All homes bought, sold or rented require an EPC.
Company Obligation (ECO) will integrate with the Green Deal and can operate in cases where the Golden Rule is not met. This means that energy companies will have an obligation to meet Government targets to encourage energy efficiency. The ECO will focus on meeting the needs of the most vulnerable and those with low incomes.

Installation costs for eligible measure(s) will be paid for by the Green Deal provider in the first instance. The money will then be recouped via energy suppliers, by adding the charge to the consumer’s electricity bill. Green Deal payments will be shown on the bill as a separate charge.

Core to the Green Deal scheme is the intention that the consumer will notice a reduction in fuel consumption, which will compensate for these charges over a period of time. Actual cash savings, however, cannot be guaranteed by the Government since only individuals and businesses are able to control how much energy they actually consume in their own property. However consumers will be provided with advice on how to change behaviour to maximise the benefits of the energy efficiency measures.

The remit of the Green Deal Skills Alliance (GDSA), comprising the Sector Skills Councils ConstructionSkills, Asset Skills and SummitSkills, is to develop new training and accreditation for the energy assessment, advice and installation workforce. In 2011 the GDSA was awarded £500,000 of funding from the Employer Investment Fund (EIF) to build an infrastructure to support the implementation and delivery of the Green Deal.

The purpose of this research is to identify skills and knowledge required to deliver the Green Deal, the extent to which the existing workforce possess these and capacity of training provision to deliver them via current courses. This will inform the GDSA’s development of a Green Deal Competency Framework, National Occupational Standards and qualifications and training required to deliver the Green Deal. The work has also tested potential implementation scenarios for the Green Deal, which were developed by the GDSA in conjunction with insights from the Department of Energy and Climate Change (DECC).

This research has been informed by a multi-faceted methodology spanning desk-based research into the principles and operation of the Green Deal and a review of relevant literature on skills and knowledge needs; a survey of 425 employers and training providers and in-depth qualitative interviews carried out with 38 industry stakeholders.

**Key findings**

The majority of stakeholders interviewed for this research anticipate that the most likely scenario for the implementation of the Green Deal will be that large-scale providers will dominate the market. Stakeholders consider that these organisations are likely to recruit or train their own workforce to
There are concerns among some respondents that this anticipated scenario for the Green Deal could result in a workforce without the necessary breadth and depth of skills and knowledge if organisations – especially those that may be entering the sector for the first time – do not have training in place that is fully fit for purpose. An additional concern among stakeholders and employers is the potential risk of mis-selling to the consumer. Respondents note that where a Green Deal provider has a vested interest in selling its own products and solutions it would be difficult to offer impartial and objective advice whilst at the same time seeking to sell its own offer.

Employers – and SMEs in particular – are uncertain about the extent to which sub-contracting opportunities may be offered to them. This stems in part from low levels of awareness of the Green Deal among the existing workforce – just over half of the employers surveyed for this research had heard of the scheme prior to the interview.

This research indicates that the Green Deal is expected to offer scope for job creation as well as the safeguarding of existing jobs (where, for example, organisations choose to diversify and enter this market). However employers and industry stakeholders also note that a critical success factor for the Green Deal will be consumer demand. Stakeholders state that unless there is a sustained promotional effort stemming from the Government and/or Green Deal providers, the result may be only short bursts of activity rather than the wide-reaching programme that is intended – which would then impact on job creation.

Similarly respondents note that the extent of consumer demand is likely to dictate the extent to which there will be up-skilling and training among the existing workforce. Whilst it was not within the scope of this research to investigate the extent of consumer demand for the Green Deal, it is clear that unless employers and training providers perceive a market need, they are unlikely to respond with investment into training and skills development. This is particularly pertinent in the context of the current economic climate. This research indicates that costs of training and limited funding available from the Government (for colleges and businesses) are the biggest barriers for employers when accessing training provision.

Respondents have identified a range of skills and knowledge needs for the Green Deal that need to be taken into consideration for the development of National Occupational Standards (NOS), qualifications and the Green Deal Competency Framework. However research indicates that there are gaps within the existing workforce relating to a number of these highest priority skills and knowledge needs for the Green Deal.

In particular findings point to insufficient knowledge among the existing workforce about types of
building fabrics/ages (especially pre-1919 and 1920-1950) and the different impacts of energy efficiency measures on these different types of building stock.

These concerns stem from a perception that current training provision relates predominantly to new build and focuses on generic skills, resulting in deficiencies around older and historic buildings. Respondents also consider provision lacks specialist detail in relation particularly to solid wall insulation, environmental technologies, roof insulation, building regulations and energy performance assessment. Another concern among respondents is that training is also heavily focused on theory with insufficient practical content.

Furthermore within current training provision Green Deal specific qualification units are still in development, therefore at present nothing bespoke is available for the workforce. Such provision will need to include a greater emphasis (than is offered at present) on softer skills and behaviours such as communication, sales and customer service as well as explain the fundamental principles and operation of the Green Deal, in order to ensure a fully competent workforce.

Although the majority of employers and stakeholders consider that the existing workforce will – for the most part – need to enhance current skill levels to deliver the Green Deal, rather than acquire brand new skills, it should be taken into consideration that training providers as well as the workforce will need to become accredited.

This research estimates that just over a fifth of the built environment workforce holds core job roles required for the delivery of the Green Deal, equating to over 800,000 employees. If just 10% of this available pool seeks to invest in skills development to deliver the Green Deal there would still be a requirement to train and accredit approximately 80,000 employees. Even if there is low initial consumer demand for the Green Deal, the ECO will be a catalyst of change requiring a skilled and accredited workforce.

In summary therefore, the scale of the challenge to not only up-skill, but also accredit training providers and the workforce in time for the launch of the Green Deal in October 2012 cannot be under-estimated. The GDSA’s task of completing, testing and rolling out NOS and the Green Deal Competency Framework is an urgent priority – particularly if – as it should be – it is complemented by Government activities to promote the Green Deal among the general public.
Summary of research recommendations

Promotion of the Green Deal

- The Green Deal Skills Alliance should continue its activities to promote the Green Deal and raise awareness of this among the workforce, to increase their knowledge and understanding of the scheme and to illustrate to them how they could secure business development opportunities. Such promotional activities should also inform the workforce about relevant training and how to access this.

- The Green Deal Skills Alliance should consider lobbying the Government to promote the Green Deal to consumers, as increasing demand for Green Deal measures is likely to increase the scope for skills and knowledge development among the workforce. This could also help to reduce the risk of mis-selling as consumers will have a clearer understanding of what the process should be.

Green Deal Common Knowledge/Competency Framework

- The process of full development of the Competency Framework should be an urgent priority for the Green Deal Skills Alliance, in view of the limited time available to complete, refine and roll this out in time for the launch of the Green Deal.

- Assessment of competence should be underpinned by regular CPD which focuses particularly upon emerging technologies and new products/systems relating to energy efficiency measures. The Competency Framework should also be reviewed and updated on a regular basis to ensure new technologies are taken into account.

- It will be important for the Green Deal Skills Alliance to ensure – as far as possible – that gaining accreditation to deliver the Green Deal is not cost prohibitive for SMEs, particularly as they comprise the majority of the existing workforce.

Training provision

- A detailed UK-wide mapping exercise should be undertaken as soon as possible, to identify the scale of existing training provision that is able to deliver skills and knowledge required for the Green Deal.

- Securing accreditation of training providers should be considered an urgent priority to ensure there will be capacity to train the workforce in time for the launch of the Green Deal.
The Green Deal Skills Alliance should consider lobbying for additional funding where possible to support training for SMEs, to ensure that they are not excluded from this market due to costs.

The Green Deal Skills Alliance should promote available and up-coming training provision among the workforce; this should include where possible assessments of quality – for example highlighting courses that will provide the necessary depth and breadth of skills and knowledge.

**National Occupational Standards (NOS) and qualifications development**

Work required to complete development of NOS to underpin qualifications development should be addressed as an urgent priority to ensure qualifications and Apprenticeship Frameworks are in place in time to up-skill and accredit the workforce in time for the launch of the Green Deal – a significant challenge.

The Green Deal Skills Alliance should liaise with training providers and Awarding Organisations to develop provision and Apprenticeship Frameworks that:

- fully address the requirements of competence;
- offer ‘bite-size’ standalone units that enable enhancement of existing skills whilst keeping costs low;
- where possible include the provision of site visits and/or physical facilities that will allow practical experience to be gained using a range of products/systems upon different building fabrics and ages;
- incorporate an element of regional tailoring to focus on building fabrics that are prevalent in the local area.

The Green Deal Skills Alliance should work with other Sector Skills Councils to ensure that relevant NOS are mapped across into other sectors as appropriate, as the scope of the workforce could extend beyond their own sector footprints.

**Generic**

The Green Deal Skills Alliance should lobby for the creation of a Standard Occupational Classification (SOC) code for Energy Assessors. This will be essential for future mapping of the scale and capacity of the workforce as the low carbon agenda continues to increase in importance.
2. Introduction

2.1 Context to the research

Since the international climate change agreement of the Kyoto Protocol adopted in 1997, climate change has become an increasingly dominant factor in legislation, policy and governmental initiatives. The Copenhagen Accord in 2009 resulted in international agreement to reduce carbon emissions and attempt to limit increases in global temperatures. A range of countries have since pledged climate change targets to honour this agreement.

In the UK, the Climate Change Act 2008 legislated for a reduction in carbon emissions acknowledging the need to become more energy efficient across all sectors, in both domestic and commercial properties. Whilst there are still uncertainties about the pace and different impacts relating to climate change, the global recession has actually heightened the need for action in the UK because the transition to a low carbon economy is emerging as an opportunity for economic growth in itself. It should also not be forgotten that there are also significant politico-economic drivers to reduce carbon emissions emanating from the need to reduce our dependence on imported oil and other fossil fuels.

The remit of the Green Deal Skills Alliance (GDSA), comprising the Sector Skills Councils ConstructionSkills, Asset Skills and SummitSkills, is to develop new training and accreditation for the energy assessment, advice and installation workforce. In 2011 the GDSA was awarded £500,000 of funding from the Employer Investment Fund (EIF) to build an infrastructure to support the implementation and delivery of the Green Deal.

The Green Deal is the Coalition Government’s flagship policy for improving the energy efficiency of buildings in Great Britain and will be available from autumn 2012. It will establish a new financial mechanism to permit a range of measures, such as insulation, heating or lighting, to be installed in people’s homes and businesses at no upfront cost. The Green Deal is based on the principle that many energy efficiency related changes to properties pay for themselves. Householders and

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3 For example Norway increased its targets for reductions in emissions to 30-40% and Japan to 25% (against 1990 levels), Department for Energy and Climate Chance (DECC) (2010) Beyond Copenhagen The UK Government’s International Climate Change Action Plan
4 Local Government Association (2009) Creating Green Jobs. The Climate Change Risk Assessment published in January 2012 by the Department for Environment, Food and Rural Affairs also notes potential opportunities of climate change such as higher crop yields
5 Energy Act 2011
businesses will be able to obtain finance to fund appropriate energy efficiency measures through the Green Deal, which will be paid back through the savings on fuel bills resulting from their installation.

The core aims of this research were to identify specific skills and knowledge that will be required by workers to deliver the Green Deal; assess the scale of the Green Deal workforce and the skills and knowledge they have compared with what is required; and to assess the capacity of training providers to deliver them. The work has also included an analysis of a number of Green Deal implementation scenarios and their likely impact on skills development. An additional requirement was to identify what could enable the supply chain to engage with and deliver the Green Deal. Finally the project has included an evaluation of six Green Deal pilot training programmes.

This work will provide data that will enable the GDSA to develop a Green Deal Competency Framework, National Occupational Standards and qualifications and training required to deliver the Green Deal.

2.2 The Green Deal

At a local level, the aim is that the Green Deal will enable homes and business to increase their energy efficiency. At the national level the initiative is intended to enable the UK to reduce greenhouse gas emissions. The potential for harnessing economic opportunity underpins the vital importance of the Green Deal but, clearly, these benefits will only accrue if its impact on skills needs is fully understood and addressed. The Secretary of State for Energy and Climate Change has described the Green Deal as “a massive economic and job opportunity which could help Britain’s economy turn the corner”.

The roles of the core parties involved in delivering the Green Deal are outlined below:

- **Green Deal Provider**

The provider will offer a Green Deal Plan to consumers, which enables them to finance work recommended by an accredited adviser and undertaken by an accredited installer.

- **Green Deal Accredited Advisor/Assessor**

The accredited assessor will carry out an energy assessment on a property whose occupants have requested Green Deal funding. The assessor will produce the Energy Performance Certificate (EPC)
which will make recommendations as to the eligible energy efficiency measures using the Green Deal funding mechanism. They will pass the EPC to a Green Deal Provider who will use accredited installers to carry out the required work. The assessor will also give advice to the occupier of the property on energy saving behaviour and improvements.

✓ **Green Deal Accredited Installer**

The accredited installer of each eligible measure will be responsible for surveying the property for the measures that they have expertise in specifying and installing. They will install the measures according to the agreed manufacturer instructions and quality standards.

To ensure that real savings can be made, the energy saving measures recommended for properties will need to be both appropriate to the age and construction of the property and correctly installed. Clearly therefore, a competent property assessment and installation workforce is essential for the success of the Green Deal.

At the time of writing the Green Deal will provide funding to install the following energy efficiency measures:

Table 1: List of Green Deal Measures (at July 2011)

| Heating, ventilation and air conditioning | Condensing boilers  
|                                          | Heating controls  
|                                          | Under-floor heating  
|                                          | Heat recovery systems  
|                                          | Mechanical ventilation (non-domestic)  
|                                          | Flue gas recovery devices  
| Building fabric | Cavity wall insulation  
|                                          | Loft insulation  
|                                          | Flat roof insulation  
|                                          | Internal wall insulation  
|                                          | External wall insulation  
|                                          | Draught proofing  
|                                          | Floor insulation  
|                                          | Heating system insulation (cylinder, pipes)  
|                                          | Energy efficient glazing and doors  
| Lighting | Lighting fittings  
|                                          | Lighting controls  

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9 DECC (July 2011), *What Measures does the Green Deal cover?* (not intended to be an exhaustive list and subject to refinement following the analysis of DECC's Green Deal and Energy Company Obligation consultation which was launched on 23rd November 2011 and closed on 18th January 2012. These measures therefore may not directly match all of the content of the PAS (Publicly Available Specification) 2030: Improving the Energy Efficiency of Existing Buildings given that the detailed specification and measures of the Green Deal are still subject to consultation.
The assessment of a property to determine whether it is eligible for the Green Deal can be summed up as the following three stages:

- **Stage one** - Is the measure eligible?
- **Stage two** - Is the measure suitable for the property?
- **Stage three** - Does the measure meet the **Golden Rule?**

The Golden Rule is key to the Green Deal. It requires that the expected financial savings resulting from installing a measure, or package of measures, must be equal to or greater than the cost of repayment over the term of the Green Deal Plan.

The installation costs for the eligible measure(s) will be paid for by the Green Deal provider in the first instance. The money will then be recouped via energy suppliers, by adding the charge to the consumer’s electricity bill. Green Deal payments will be shown on the bill as a separate charge.

The intention of the Green Deal scheme is that the consumer will notice a reduction in fuel consumption, which will then compensate for these charges over a period of time. Actual cash savings, however, cannot be guaranteed by the Government since only individuals and businesses are able to control how much energy they actually consume in their own property. However, consumers will be given advice on how to change behaviour to maximise the benefits of the energy efficiency measures.

The Energy Company Obligation (ECO) will integrate with the Green Deal and can operate in cases where the Golden Rule is not met. Energy companies will have an obligation to meet Government targets to encourage energy efficiency. The ECO will focus on meeting the needs of the most vulnerable and those with low incomes. Measures provided through the ECO will be expected to meet the same levels of quality and accreditation as those delivered through the Green Deal.

### 2.3 Research methodology

This research commenced in September 2011 and had to be completed by the end of January 2012 to align with the timescales of the GDSA, for completing development of National Occupational
Standards, qualifications and the Green Deal Competency Framework preparatory to its launch in October 2012. A combination of primary and secondary research methodologies have been used to generate robust and comprehensive data to inform this report. Desk-based research at the outset of the project was carried out to establish detail around general policy and strategy linked to the Green Deal, drivers for climate change, skills and knowledge requirements for a low carbon economy already identified, and Government guidance as to how the scheme will operate which is captured within the report in Section 2.2 above.

Interviews subsequently took place with 38 industry stakeholders identified by the GDSA (see Appendix 2 for details).

Against a background of significant change within the external environment at the time the research was taking place\textsuperscript{10} the employer survey gathered some 400 completions spanning respondents in England, Wales and Scotland. An online survey was also developed for training providers. It was recognised that only informed respondents would be capable of providing reliable and valuable feedback and we found that there were very few in the provider realm who felt sufficiently knowledgeable to respond with confidence. Nevertheless we acquired good feedback from twenty five providers across the sample target-frame (contact details were supplied by the GDSA).

The sample frame for the employer survey was developed in conjunction with the GDSA and was designed to span all GDSA sector footprints where business activities were in scope of the Green Deal process as described above. Table 2 below shows the activities and Standard Industrial Classification (SIC) codes used to develop the sample frame.

\textsuperscript{10} Notably the changes to the Feed-in Tariff announced by the Government (reducing the tariff by half) while the survey was taking place
Table 2\textsuperscript{11}: SIC codes and business activities in scope to this research

<table>
<thead>
<tr>
<th>Lead SSC</th>
<th>SIC 2007 code</th>
<th>Business Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConstructionSkills</td>
<td>41.20</td>
<td>Construction of commercial and domestic buildings</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>43.29</td>
<td>Other construction installation</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>43.34</td>
<td>Painting and glazing</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>43.91</td>
<td>Roofing activities</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>71.11; 74.90\textsuperscript{12}</td>
<td>Architectural activities; Other professional, scientific and technical activities n.e.c</td>
</tr>
<tr>
<td>SummitSkills</td>
<td>43.21</td>
<td>Electrical Installation</td>
</tr>
<tr>
<td>SummitSkills</td>
<td>43.22</td>
<td>Plumbing, heating and air conditioning</td>
</tr>
<tr>
<td>Asset Skills</td>
<td>N/A</td>
<td>Energy assessment and advice</td>
</tr>
</tbody>
</table>

Of the 400 respondents to the employer survey, over half were SMEs with between 1 and 10 employees, reflecting the high proportion of SMEs that comprise the sector footprints for this work. Just over 90\% of organisations interviewed operated from one single site, with just 8\% having multiple sites. Figures 1 and 2 below show the breakdown of organisations interviewed, by size and type of business activity.

**Figure 1: Breakdown of employers organisations interviewed, by size**

\textsuperscript{11} The sample frame also included Asset Skills business activities of ‘renting and operating of own or leased real estate’ or ‘management of real estate on a fee or contract basis’ however where interviews took place within these sub-sectors respondents had extremely limited knowledge and understanding of the Green Deal and the majority were unable to provide detailed responses thus when establishing the size of the workforce these activities have been excluded

\textsuperscript{12} SIC 2007 codes 71.11 and 74.90 are grouped together in this and subsequent Tables. This is because the employer survey contacts were selected using SIC 2003 categories where these activities are combined.
Concurrently evaluation was undertaken of six Green Deal pilot training programmes, which were developed in conjunction with the GDSA with the main objective of testing initial draft qualification units. These units were developed by the GDSA in conjunction with an expert steering group including employers, training providers and representatives from the Department of Energy and Climate Change (DECC). Pilots were delivered by providers identified by the GDSA that had capacity to test out the training. Training took place towards the end of 2011 in the following locations: Kilmarnock (Scotland), Liverpool, Tredegar (South Wales), Taunton, Crumlin (Northern Ireland) and London.

2.4 Report structure

This report firstly presents a summary of key research findings in the Executive Summary, which is followed by a fuller introduction to the work, methodology used and the context for the research in section 2.

As the Green Deal has not yet been launched the GDSA also sought insights from this work around potential opportunities and risks of the most likely implementation scenarios, as these could inform how skills and knowledge needs may be impacted. Therefore these scenarios are considered first of all in section 3.

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13 Whilst Northern Ireland was not in scope for the survey the GDSA included this location for delivery of the pilot training
Section 4 of the report presents an analysis of research data into skills and knowledge needs for the Green Deal. This work has utilised Pye Tait's skills scoring method to determine the highest priority skills and knowledge needs for the workforce, the extent to which the existing workforce possesses these, and where there are gaps. Detailed data in response to these questions are also included at Appendices 3 and 4. This section also identifies occupations (in addition to the core job roles of assessor and advisor as explained above in section 2.2) likely to require skills and knowledge relevant to the delivery of the Green Deal, and ways in which competence is expected to be assessed.

The capacity of existing training provision to deliver skills and knowledge required for the Green Deal is assessed in section 5, which also presents a summary of the evaluation of the pilot training programmes. Appendix 5 provides an estimation of the scale of the Green Deal workforce in Great Britain to illustrate the potential market that will require training. Appendix 6 outlines dwelling estimates in the UK to give an indication of the numbers and types of properties that may be eligible for Green Deal measures.

Finally the conclusions and recommendations stemming from this research are presented in section 6.
3. Implementation Scenarios for the Green Deal

3.1 Anticipated scenarios for the operation of the Green Deal

Industry stakeholders and employers interviewed for this research were asked to consider a number of different scenarios as to how the Green Deal is likely to operate, and were asked to rate the extent of likelihood of each one. These implementation scenarios were developed by the GDSA and refined in conjunction with insights from DECC. The intention was to understand which scenario for the implementation of the Green Deal is considered the most likely, and to then consider how this could impact skills and knowledge needs.

These scenarios spanned:

1. SMEs will operate independently to offer the Green Deal by securing finance from a third party
2. SMEs will operate as Green Deal providers (i.e. the provider of the finance)
3. The Green Deal will be delivered by ‘one-stop-shop’ large-scale providers that recruit their own in-house workforce
4. The Green Deal will be delivered by large-scale providers that will deliver via a model of sub-contracting
5. The Green Deal will be delivered by large-scale providers that will deliver through a mix of recruiting their own in-house workforce AND via sub-contracting
6. Housing Associations or Local Authorities will deliver the Green Deal either outsourcing delivery or delivering via an in-house workforce

3.1.1 Stakeholder views

The majority (just over 80%) of the stakeholders interviewed for this research anticipate that it will be large-scale providers that will dominate the delivery of the Green Deal – and that these organisations will either recruit or train their own workforce to deliver; sub-contract to small and medium size organisations/ independents to deliver. The strongest expectation among stakeholders was that the implementation of the Green Deal will be a mix of both – i.e. scenario 5. Stakeholders
point out that these large organisations already have their own finance divisions or links into finance providers, as well as dedicated business development teams so it seems they are well placed to market the Green Deal to a wide-ranging target and existing customer base.

From the perspective of key industry stakeholders the major players expected to dominate the market include:

- Tesco
- Asda
- Sainsburys
- B&Q
- Marks & Spencer
- John Lewis
- British Gas

To a much lesser extent stakeholders consider that the larger Local Authorities (and those with a strong commitment to the low carbon economy), and partnerships of social landlords may come together to implement the Green Deal, and that if such a route was taken it would be more likely to offer sub-contracting opportunities to local SMEs. Stakeholders noted that whilst Local Authorities are likely to take action in support of the retrofit programme - especially by those active in the low carbon agenda such as Birmingham\(^1\), Greater Manchester and Newcastle - such action does not necessarily have to be funded through the Green Deal.

### 3.1.2 Employer views

The findings from the employer survey illustrate that the industry’s workforce are less certain than key stakeholders about the most likely scenario for the implementation of the Green Deal; no one scenario has emerged as particularly strong compared with the others. This may be partly attributed to the limited awareness of the Green Deal and how it will operate among the existing workforce. Although the sample frame of the 400 employers interviewed for this research originate from the GDSA sector footprints and are therefore already operating in the construction and energy industries, just over half had not heard of the Green Deal before.

Employers were not asked to provide a preference in relation to the implementation scenarios being tested but a large number independently offered their views on what they would want to happen, as opposed to what they expect will happen. The strongest preference among employers – and SMEs in particular - would be for Housing Associations and Local Authority consortia to operate as Green Deal providers, as they would understand the refurbishment needs of the local housing stock thus

\(^1\) For example Birmingham’s commitment to becoming a low carbon city

providing opportunities via sub-contracting, to local SMEs.

3.2 Potential impacts of the most likely implementation scenario

One of the core opportunities that may arise from a scenario of larger organisations dominating the Green Deal market is the scope for job creation and business growth. It must be strongly emphasised that the extent to which both opportunities and risks of this scenario come to fruition is heavily dependent on the extent of consumer demand for the Green Deal. This critical success factor is discussed in more detail in Section 3.2.1 below.

3.2.1 Job creation

As stated above the extent to which jobs will be created as a result of the Green Deal is dependent on the level of interest and thus uptake of the scheme. However it should also be noted that Green Deal is not the only driver of change – the Energy Company Obligation (ECO) as explained in section 2.2 will be another means of providing energy efficiency measures for properties not able to meet the Golden Rule.

There is an expectation among industry stakeholders that if large organisations dominate the Green Deal they are likely to train and up-skill their existing workforce as a first port of call. However stakeholders anticipate there will be a need to recruit new staff into larger organisations that do not already operate in this market, with job roles likely to span not just energy assessment and installation of energy measures, but also administration, audit and project management.

Stakeholders also acknowledge that sub-contracting offers significant attractions as this may be a faster route to market, and companies such as British Gas are already accustomed to the sub-contracting model. This may therefore result in job creation for smaller organisations already operating in the industry able to take advantage of sub-contracting opportunities. Stakeholders also perceive a small proportion of roles for those with low skills – for example via entry level jobs such as ‘door knocking’ to book appointments for assessors – if the market grows.

Despite this a number of stakeholders express caution about the numbers of jobs that could be created, pointing out that unless there is a sustained promotional effort stemming from the Government and/or Green Deal providers, the result may be only short bursts of activity rather than the wide-reaching programme that is intended.

A strong message from respondents is the greater likelihood that there will be enhancement of existing roles and multi-skilling among the existing workforce (particularly among SMEs) rather than substantial creation of new jobs. For example companies that have to date offered insulation could move into offering solar panels.
Stakeholders and employers acknowledge that independent workers and companies will have to invest in training and up-skilling to have any chance of capitalising on the revenue potential of the Green Deal. This in itself would have a positive impact by potentially safeguarding jobs that may otherwise have been reduced in number due to the economic downturn. Energy Assessors will be required to re-qualify to continue to practice after 1st April 2012, and subsequently complete additional training in order to become accredited Green Deal Assessors. Industry stakeholders acknowledge the huge scale of this challenge, however among employers there is a strong perception that only minor up-skilling will be required in order to deliver the Green Deal – on the basis that existing skill-sets can be quickly and easily enhanced.

“The Green Deal will create some new jobs, yes - but this is more about enhancement of existing skills and safeguarding existing jobs”

Large utilities employer

3.2.2 Potential impact on business turnover

Figure 3 below shows that a relatively high proportion of employers (nearly 30%) interviewed for this research anticipate the Green Deal could result in growth of business turnover by over 20% by the year 2014. For example those in the industry working in “traditional” roles – for example builders, plasters and electricians – can see scope for additional work that would arise from refurbishment projects funded through the Green Deal and/or ECO.

Again however this must be set in the context of the unknown factor around the extent of consumer uptake of the Green Deal, and these figures are based on a ‘best case scenario’ of high levels of uptake.
3.2.3 Potential skills development

As stated in Section 3.1.1, stakeholders strongly predict that the Green Deal will be delivered by large-scale providers that will deliver through a mix of recruiting their own in-house workforce and via sub-contracting.

Respondents consider that this scenario will result in an urgent need to train in-house workers with appropriate depth and breadth of skills and knowledge needed to deliver the Green Deal. For those with no prior industry experience this is expected to be a huge learning curve, with skills and knowledge needs unlikely to be filled through short training courses.

For the existing workforce - predominantly comprising SMEs - multi-skilling and skills ‘clustering’ will be crucial. In particular this will be a vital element for Green Deal assessors; employers note that the consumer will expect this one person to be able to answer all of their questions.

Whilst the existing workforce is expected to up-skill in order to be able to capitalise upon the opportunities of the Green Deal, it is anticipated that there may be a delay as SMEs wait to find out how popular Green Deal is likely to be, and whether the cost of investing in up-skilling/accreditation...
will provide them with a return. This could result in a shortfall of qualified assessors at the point of
the scheme’s launch in October 2012. DECC’s Impact Assessment of the Green Deal suggests a
steady rise in demand for solid wall insulation between 2013 and 2023”. If this comes to fruition
there needs to be sufficient capacity in the workforce.

“People in the industry will up-skill because they want to be as employable as possible”

Stakeholder

“Tesco et al already very good on customer service and will be able to offer effective training on the
softer skills. All they need to do is add the technical skills and knowledge. For the existing
construction workforce typically it’s the other way around”

Employer

Regional variations
Regional variations in relation to skills development are expected to be predominantly dictated by
differences in building stock. For example in the Cotswolds many properties are constructed of
stone; whereas in East Anglia there are more timber frames. Knowledge of these different fabrics
will be extremely important and these regional differences should be taken into consideration for
informing the design and development of training provision.

Employers interviewed for this research were asked to estimate likely consumer demand for the
range of measures associated with the Green Deal, rating the extent of demand from 1 to 10, with
10 being the highest. Figure 4 below provides an indication of the types of energy efficiency
measures employers expect to be in high demand across the different regions, which could influence
the need for different types of training. For each region the rating (where 10 is the highest level of
demand) is shown in brackets next to the measure.

However it should be taken into consideration that the findings in Figure 4 are based upon employer
perceptions and give an approximation only as it was not within the scope of this research to
investigate the extent of interest in the Green Deal among the general public.

15 Based on ‘High Scenario’ i.e. high capital costs and low energy and carbon prices (DECC Green Deal Impact Assessment)
Figure 4: Estimated consumer demand for Green Deal measures (by industry employers)

Source: Pye Tait Survey of Employers, 2011 Base 391 responses

3.2.4 Potential risks and issues

The main concerns that respondents associate with the anticipated implementation scenario – that the Green Deal will be delivered by large-scale providers that will deliver through a mix of recruiting their own in-house workforce and via sub-contracting – can be summarised as follows:

- SMEs could be ‘squeezed out’ of the market;
- There may be a high risk of mis-selling where a Green Deal provider has a vested interest in selling its own products and solutions (there are concerns among stakeholders that the ‘one-stop shop’ cannot offer impartial and objective advice whilst at the same time seeking to sell...
its own offer);

- The limited time available to train accredited Green Deal Assessors and Installers before the scheme is launched in October 2012;

- Large organisations that are not already active in the construction/energy sectors are thus unlikely to have the depth/breadth of skills and knowledge within its workforce, and if training is not fit for purpose it could potentially therefore result in work that is not fit for purpose (the worst case scenarios being that the intervention causes more problems to buildings than are fixed).

Considering these in turn:

- **SME’s may be ‘squeezed out’ of the market**

  The biggest concern among SMEs is, perhaps unsurprisingly, that they may not be in a position to capitalise upon the potential business opportunities of the Green Deal if large players seek to dominate the market. If these organisations simply train their existing workforce and/or recruit additional staff, there may be very limited scope for SMEs to take a share of the market via sub-contracting.

  This is illustrated by just a very small number of the many comments made around this issue by employers and stakeholders alike:

  “I am concerned, along with many people in the industry that big energy companies will monopolise the Green Deal”

  “SMEs will not get a look in”

  “Risk is these big players will dominate the market and SMEs won’t get much of a share. The Tesco’s etc. will set up their own training academies and deliver it themselves”

  “Control of Green Deal by large organisations with poorly trained staff”

  “The majors are likely to monopolise the market, with small companies forced to sub to them rather than being free to compete”

In a scenario where SMEs are able to capitalise via sub-contracting, a major concern among the existing workforce is whether they will be paid quickly enough, implying this process is not streamlined, and perhaps dependent on the speed at which the Green Deal is implemented for the customer. Small businesses and independent operators say they would struggle without large cash reserves.
SMEs on the whole would prefer to see the scheme tightly controlled and regulated, with fixed pricing where possible for assessments. This is due to a concern that large companies will offer this first stage in the Green Deal process for free, and that subsequently SMEs, if sub-contracted to deliver this element, may be compelled to operate on some kind of ‘no sale, no fee’ basis – which may not be sustainable.

➢ **Potential risks of mis-selling**

Employers state that the potential risks of mis-selling could relate to training provision - notably among organisations not already active in the GDSA sector footprints which therefore do not employ people from these industries. The main concern among employers is that the range of advice and installation of measures associated with the Green Deal are so diverse that it could be difficult to receive comprehensive training that would be fit for purpose among people with no prior knowledge.

A number of stakeholders and employers have criticised short courses on energy assessment as being “blatantly not enough to give the breadth and depth of information needed”. Although such courses pre-date the Green Deal and therefore do not claim to offer the skills and knowledge that will be needed for its delivery, respondents emphasise the importance of avoiding a similar approach for Green Deal training provision.

SMEs in particular have concerns about the capacity of the ‘one-stop-shop’ provider to provide impartial advice to the consumer – stating that the primary objective for them must be to sell their own products and services.

➢ **Time required to train and accredit Green Deal Assessors and Installers**

Industry stakeholders express concern about the limited amount of time and funding available for training organisations to become UKAS accredited and thus enable the workforce to gain accreditation before the Green Deal is launched in October 2012.

The estimated scale of the Green Deal workforce shown in Appendix 5 highlights the potential scale of this challenge - findings suggest that just over a fifth of the total built environment workforce currently includes the four job roles considered core to delivering the Green Deal.

➢ **Potential risks of Green Deal funded work that is not fit for purpose**

Many stakeholders (see selected quotes below) have emphasised that without the right knowledge of the wide range of building fabrics and ages, and the different impacts that different energy efficiency measures could have, solutions could be implemented that will be detrimental rather than effective. This could potentially cause structural damage as well as either a limited or zero impact upon carbon emissions. The importance of this issue must be very strongly emphasised given the

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16 United Kingdom Accreditation Service
proportion of 1920-1950 and pre-1919 dwellings in the UK\textsuperscript{17} - the highest proportion of the latter being in Wales (nearly 30\% of all dwellings).

“Pre-war buildings are always predicted to have structural problems and this is not taking the long view. It is a danger that energy assessors will not consider what is best for the building”

“Risks are that if not careful installers could carry out inappropriate modifications to old houses – such as exterior insulation. This would cause moisture to be trapped causing condensation and very quickly – serious decay problems”

“Cannot emphasise too strongly the importance of knowledge of existing building fabrics”

3.3 Issues for consideration in relation to the implementation of Green Deal

3.3.1 Consumer demand

A significant concern among all respondents is whether the Green Deal will engage the consumer. Whilst this research was not required to investigate the extent of consumer demand, it is clear that respondents consider this to be a critical success factor – noting that without up-take there will be no need for investment into up-skilling and accreditation. Furthermore the GDSA wish to understand factors that could engage the supply chain to up-skill in preparation to deliver the Green Deal, making consumer demand relevant for consideration here.

Public apathy is perceived to be a major problem, as the following stakeholder comments illustrate:

“People don’t want to become greener...the public response (to the Green Deal) isn’t likely to be anywhere near what the Government wants”

“Would someone insulate their loft rather than go on holiday? Unlikely. The consumer will not be convinced of a payback”

“Insulation companies are actually predicting a fall in insulation in 2012 and beyond irrespective of Green Deal. Unless there is a big fiscal incentive – for example a lower rate of VAT or a drop in council tax, cannot see a huge take up”

This shows that unlike some stakeholders, employers working in the industry do consider customers will still be interested in loft insulation – although published data do not necessarily support this view. The Association for the Conservation of Energy in January 2012 for example predicted a

\textsuperscript{17} See Appendix 5
“complete collapse in the insulation market”\(^{18}\) and DECC’s own impact assessment has pointed to a sharp decline in loft insulations between 2013 and 2018, and for cavity wall insulations between 2013 and 2021\(^{19}\). The Committee on Climate Change has expressed concern that the Green Deal does not include any kind of obligation on the part of the householder to take up energy efficiency measures. Respondents also consider that the finance being attached to the property could be off-putting to potential house purchasers and thus put consumers off taking up the Green Deal.

Stakeholders note that previous schemes focusing on the provision of energy efficient home improvements have not brought about significant consumer demand. Consumer research carried out by DECC points to positives of the Green Deal around warmer/more comfortable homes and the scope to carry out major improvements without the need for upfront capital expenditure\(^{20}\).

However this research also states that consumers would have limited motivation to carry out energy improvements unless costs savings would be higher than the projections provided to those surveyed. It also highlighted that savings could not be guaranteed; furthermore the financing mechanism of an on-going payment on the energy bill was frequently referred to as a ‘debt’ and thus less appealing to potential customers of the Green Deal.

The Government therefore announced in November 2011 that £200million will be available as an incentive to the public to take up the Green Deal when it is launched in October 2012 – the extent to which this will influence consumer behaviour remains to be seen.

“It (Green Deal) could revolutionise the market or be a complete waste of time if homeowners are not interested in the scheme”

Employer

### 3.3.2 Unknown factors

A high proportion of respondents interviewed for this research report that a lack of information and clarity around the Green Deal makes it difficult to take decisions – notably whether SMEs choose to invest in relevant training. The recent amendments announced to the Feed-in Tariff as well as the short-lived Home Information Pack scheme introduced by a previous Government have left many employers wary of similar modifications - or even a withdrawal of the Green Deal. Not all respondents believe that the scheme will go ahead as planned.

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\(^{18}\) Association for the Conservation of Energy (January 2012), *Dead CERT: Framing a sustainable transition to the Green Deal and the Energy Company Obligation*

\(^{19}\) Based on ‘High Scenario’ i.e. high capital costs and low energy and carbon prices within DECC’s Green Deal Impact Assessment

\(^{20}\) DECC (2011) *Survey of Potential Consumer Demand for the Green Deal; Consumer Research among Tenants and Landlords into the Green Deal*
Employers have expressed a desire to know and understand much more about the Green Deal, how it will operate – for example what happens if a consumer defaults on the finance payments – and most importantly, whether the Government will market it to consumers. DECC’s own consumer research has highlighted a need to showcase more clearly the potential energy and costs savings, and for the Green Deal to be promoted through high profile channels.

In particular employers are seeking more information about training for the Green Deal, and the costs/accessibility of this. SMEs note that any form of accreditation could be a challenge if this requires significant investment into initial and on-going training and up-skilling.

“Simply put, a person will not spend £1,000 to become trained unless they know there is a definite market opportunity. At the moment the Green Deal is still classed as the unknown”

Stakeholder comment

3.3.3 Mechanics of the scheme

In addition to the concerns already flagged up around potential mis-selling of Green Deal solutions, employers and stakeholders have questioned how the quality of Green Deal work will be adequately regulated. A number of employers have stated the need for independent regulation of the Green Deal to include financial penalties for mis-selling.

Some respondents also question whether older buildings will meet the Golden Rule – and whether factors around human behaviour and attitudes of consumers towards energy consumption will be taken into consideration when measuring savings made through Green Deal21. A small number of employers questioned whether fit-for-purpose software has been or will be developed that will provide an accurate assessment of this.

21 DECC is currently carrying out research into this issue
4. Skills and Knowledge Required for Green Deal

According to the majority of employers and stakeholders the existing workforce will – for the most part – need to enhance current skill levels, rather than acquire brand new skills. Respondents also acknowledge that there are gaps and shortages in skillsets among the existing workforce that need to be addressed, but that the emphasis within training will need to be on the application of existing skills within the context of Green Deal – making the acquisition of knowledge about the Green Deal a high priority.

This section provides an assessment of the skills and knowledge needs for the delivery of the Green Deal based upon the views of industry stakeholders, employers and training providers.

4.1 Skills needs for delivery of Green Deal

Skills required to implement the Green Deal will be a mix of technical skills – such as physical installation of measures – combined with softer skills around customer service and engagement. In particular the role of the energy assessor will require skills to carry out a comprehensive and effective property assessment as well as the communication style to be able to explain to, and advise, the customer on the most effective solutions. Understanding the customer journey will enable the workforce to offer appropriate quality of customer service.

Specific skills needs for the energy assessor and installers have been identified as:

**Technical:**
- Assessment/surveying of building fabric performance in relation to estimated energy and costs savings, and identification of the most effective solution for different building fabrics and ages
- Calculation of realistic predictions of energy/cost savings and reduction in carbon emissions for different types of building fabric/age dependent on energy efficiency measure installed
- Installation – of solar, ground and air source heat pumps, biomass heating systems and insulation of all types (particularly in the context of needs of different building fabrics/ages)
- Maintenance of energy efficiency measures once installed
- Health & safety – notably personal protection, working at heights and dealing with asbestos found in buildings
### Customer-related:
- Customer service
- Customer care

### Generic:
- Project management and estimating skills to schedule and complete projects to time and budget
- Use of software required in property assessment, and estimation of cost/energy savings
- Basic skills – literacy, numeracy and ICT

### 4.2 Knowledge needs for delivery of Green Deal

It will be essential that the workforce can identify the right solutions for different building types in line with appropriate building regulations according to a significant majority of respondents. They will need:

- detailed knowledge of the full range of building fabrics and ages;
- and, critically, how energy efficiency measures will impact upon them.

Installers and assessors alike will require detailed knowledge and understanding of different renewable energy sources, and what will be appropriate in older buildings – notably pre-1919 and 1920-1950 stock – and more importantly, what could be detrimental. Many stakeholders note that current training provision does not fully cater for repair and maintenance of such stock – yet in England pre-1919 stock comprises just over a fifth of all dwellings (21%)²².

Knowledge and understanding of the Green Deal and how it will operate has also been identified as a crucial requirement for the workforce involved in its delivery. Nearly half of the 400 employers interviewed for this research had heard of the Green Deal prior to the interview. These individuals were asked to rate the level of their understanding of the Green Deal (from 1 to 10 with 10 being the highest); analysis of the results show an average of 5.3, indicating only a moderate level of knowledge.

Specific knowledge needs for the workforce have been identified as:

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²² Based on 2009 data; see Appendix 5 for full breakdown of dwelling estimates across the UK by ownership and age of building stock
### Principles and operation of the Green Deal:
- Green Deal – what it is, how it will operate especially the Golden Rule, the financing process and how it can be marketed to customers
- Potential conflicts of interest in relation to the delivery of the Green Deal (i.e. where assessors and installers work for the same organisation) and how these should be communicated/addressed

### Technical:
- ‘Hierarchy’ of energy efficiency measures\(^{23}\)
- Range of different energy efficiency products and systems on offer from manufacturers – relative strengths and weaknesses, price points, how materials (e.g. cladding, linings, adhesives) interact with other products, systems and materials already in the building
- How different energy efficiency measures will impact dependent on the types of building fabric/age
- The range of renewable energy sources, how they work and emerging technologies (biomass most frequently cited by employers)
- Dampness levels and how they impact on insulation needs
- Knowledge and understanding of U values

### Customer-related:
- Energy efficiency behaviours – how the consumer can be educated to save energy and money\(^{24}\)
- Understanding of different customer needs including those of more vulnerable clients, to identify the most appropriate solutions

### Generic:
- Knowledge and understanding of the appropriate building regulations and control mechanisms
- Awareness of remit among other occupations in the wider workforce – i.e. how could the work of a kitchen fitter impact on previously installed energy efficiency measures, and how would this be taken into account at design and planning stage

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\(^{23}\) As an example - understanding there may be a need to insulate a loft prior to installing a condensing boiler as without the first element energy and cost savings potential is far less effective

\(^{24}\) For the measures implemented by the Green Deal (and ECO) to be as energy efficient as possible (thus contributing as much as possible to a reduction in carbon emissions), consumers must be educated to use them correctly, and adapt their own behaviours. For example understanding the impact of switching off lights, fixing dripping taps etc.
Respondents note the importance of more than just skills and knowledge for the Green Deal workforce. There is an urgent need to educate the consumer – expected to have relatively low levels of understanding of energy efficiency measures – as well as the workforce about energy efficient behaviours. Green Deal installers may have a major role to play in ensuring the correct use of the measures once installed – consumer behaviour could easily undermine the investment if used incorrectly. Attitudes and behaviours of the Green Deal workforce towards consumers will be a fundamental part of customer care; consumers will need to receive impartial and high quality advice. Furthermore the workforce will need to demonstrate a clear commitment to high quality standards and lifelong learning in the form of Continuing Professional Development (CPD).

Over 90% of the employers interviewed for this research report the need for regular updating of skills and knowledge to deliver the Green Deal, with on-going CPD vital to maintain knowledge of technology and product development. This is of particular importance because the low and zero carbon agenda dictate rapid change notably around emerging technologies. Therefore if assessors are not kept up-to-date with such developments they may not be in a position to give the best advice to the consumer, and installers may lack knowledge of the new products and systems that could be fitted in consumers’ homes.

### 4.3 Implications for National Occupational Standards and qualifications development

Findings from the research indicate that the following specific skills, knowledge, attitudes and behaviours must be included in National Occupational Standards, the Competency Framework and qualifications development, which are summarised in the table below:

**Table 3: Skills, knowledge, attitudes and behaviours required for the competent Green Deal workforce**

<table>
<thead>
<tr>
<th>Green Deal &amp; Customer-Specific Knowledge and Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Deal – what it is, how it will operate especially the Golden Rule, the financing process and how it can be marketed to customers(^{25})</td>
</tr>
<tr>
<td>Customer care that is Green Deal specific – including understanding of different customer needs including those of more vulnerable clients, to identify the most appropriate solutions</td>
</tr>
<tr>
<td>Energy efficiency behaviours – how the consumer can be educated to save energy and money</td>
</tr>
<tr>
<td>Potential conflicts of interest in relation to the delivery of the Green Deal (i.e. where assessors and installers work for the same organisation) and how these should be communicated and addressed</td>
</tr>
<tr>
<td>Awareness of remit among other occupations in the wider workforce – i.e. how could the work of a kitchen fitter impact on previously installed energy efficiency measures</td>
</tr>
<tr>
<td>Commitment to agreed standards of quality and on-going personal development and training</td>
</tr>
</tbody>
</table>

\(^{25}\) This should be a standalone unit that can be incorporated into existing qualifications/training courses as well as becoming part of new qualifications
Skills

Assessment/surveying of building fabric performance in relation to estimated energy and costs savings, and identification of the most effective solution for different building fabrics and ages

Use of specialist software required in property assessment, and estimation of cost/energy savings

Installation – of solar, ground and air source heat pumps, biomass heating systems; insulation of all types (particularly in the context of needs of different building fabrics/ages)

Project management and estimating skills to schedule and complete projects to time and budget

Calculation of realistic predictions of energy/cost savings and reduction in carbon emissions for different types of building fabric/age dependent on energy efficiency measure installed

Maintenance of energy efficiency measures once installed

Health & safety – notably personal protection, working at heights and dealing with asbestos found in buildings

Basic skills – literacy, numeracy and ICT

Technical Knowledge

Knowledge and understanding of the building fabrics across all different types of stock/ages including dampness levels and how they impact on insulation needs

Knowledge and understanding of impacts of different energy efficiency measures on all types of building fabric/age including hard to treat and pre-1919, including costs/energy savings, reduction of carbon emissions and U values

Knowledge and understanding of ‘hierarchy’ of energy efficiency measures and how they apply to different building fabrics/ages

Range of different energy efficiency products and systems on offer from manufacturers – relative strengths and weaknesses, price points, how materials (e.g. cladding, linings, adhesives) interact with other products, systems and materials already in the building

The range of renewable energy sources, how they work and emerging technologies (biomass most frequently cited by employers)

Knowledge and understanding of U values

Knowledge and understanding of the appropriate building regulations and control mechanisms

Knowledge and understanding of relevant building regulations and other forms of control e.g. road closure permits, and how to apply them

Knowledge and understanding of relevant policy and legislation around climate change targets relating to construction

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26 As an example - understanding there may be a need to insulate a loft prior to installing a condensing boiler as without the first element energy and cost savings potential is far less effective
4.4 Extent to which the workforce possesses relevant skills and knowledge for Green Deal

4.4.1 Priority skills and knowledge needs among the existing workforce

This research has used a technique developed by Pye Tait Consulting that allows not only for specific skills and knowledge to be identified and “scored” by respondents, but also for the respondents to assess whether demand for these is expected to increase, remain the same, or reduce in the future. This technique has focused on advisors/assessors and installers - being the primary occupations expected to deliver Green Deal work.

A detailed explanation of how this technique has been applied to this work and full data charts are included in Appendix 3. Summarised below are the key messages relating to priority skills and knowledge needs for installers and assessors/advisors. This is based upon the findings of the skills scoring which has identified below average current skills/knowledge where there is also an estimated higher than average future need.

The priority skills and knowledge needs are similar for installers and assessors/advisors, with the most urgent requirements to be addressed being:

- Understanding of biomass boilers
- Understanding of micro-combined heat and power
- Understanding of micro and small scale wind turbines
- Knowledge of Government guidance about the way in which the Green Deal operates
- Knowledge of the Green Deal funding mechanism

Additionally skills and knowledge needs specifically for installers relate to:

- Understanding of cavity wall insulation
- Knowledge of ‘hierarchy’ of energy efficiency measures

Additionally skills and knowledge needs specifically for advisors/assessors relate to:

- Understanding of flue-gas heat recovery systems
- Understanding of gas-fired warm air heating systems
- Knowledge of other similar funding mechanisms such as the Renewable Heat Incentive or Feed-in Tariffs
- Knowledge of ‘hierarchy’ of energy efficiency measures
4.4.2 Proportion of the workforce with relevant skills and knowledge for Green Deal

Appendix 4 provides detailed estimates of the proportion of the workforce (of employer organisations surveyed for this research) that have and do not have relevant skills and knowledge for Green Deal. A summary of these findings are presented below:

Employers believe that installers within the existing workforce have high skills and knowledge levels relating to:

- ✓ Health and safety awareness
- ✓ Customer service standards
- ✓ Awareness of conducting risk assessments
- ✓ Understanding of heating controls
- ✓ Site planning and project management in relation to installation of energy efficient measures

Employers are of the opinion that advisors/assessors within the existing workforce have high skills and knowledge levels relating to:

- ✓ Health and safety awareness
- ✓ Customer service standards
- ✓ Awareness of conducting risk assessments
- ✓ Site planning and project management in relation to installation of energy efficient measures
- ✓ Understanding of heating controls
- ✓ Understanding of heating system insulation

4.4.3 Immediate training needs

To put data from sections 4.4.1 and 4.4.2 into context, Appendix 5 provides detailed estimates of the scale of the Green Deal workforce in Great Britain.

In summary, this research estimates that just over a fifth of the total built environment workforce includes the job roles considered core to delivering the Green Deal – assessors and installers. The estimated number of staff currently undertaking these job roles in Great Britain is 808,019. In addition this work has estimated the number of employees that have the skills to carry out assessment and installation work – even where it is not currently their main job role – an additional 392,466 employees.

This highlights that there is a substantial pool of employees with the potential to be trained and accredited to deliver the Green Deal – and such training needs to be achieved within a relatively
short space of time in time for the scheme’s launch in October 2012. Furthermore these are estimated figures\(^27\) and as such are conservative in nature.

Focusing on the two core delivery job roles for the Green Deal – the Assessor/Advisor and Installer, it is possible to identify immediate training needs. The following tables show the proportion of the workforce surveyed for this research that do not possess skills and knowledge identified as high priority needs for the delivery of the Green Deal and therefore would require up-skilling as an urgent priority.

Table 4: Assessor/Advisors – Training Needs

<table>
<thead>
<tr>
<th>Skill/Knowledge</th>
<th>Proportion of workforce surveyed that do not have these skills/knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation/understanding of micro &amp; small scale wind turbines</td>
<td>35.3%</td>
</tr>
<tr>
<td>Installation/understanding of micro-combined heat &amp; power</td>
<td>34.3%</td>
</tr>
<tr>
<td>Installation/understanding of biomass boilers</td>
<td>32.2%</td>
</tr>
<tr>
<td>Knowledge of the Green Deal funding mechanism</td>
<td>25.3%</td>
</tr>
<tr>
<td>Knowledge of Government guidance about the way in which the Green Deal operates</td>
<td>24.6%</td>
</tr>
<tr>
<td>‘Hierarchy’ of energy efficiency measures</td>
<td>19.4%</td>
</tr>
<tr>
<td>Knowledge of air quality and ventilation requirements for buildings</td>
<td>12.8%</td>
</tr>
<tr>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures in hard to treat buildings</td>
<td>11.8%</td>
</tr>
<tr>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures for buildings constructed pre and post 1919</td>
<td>11.5%</td>
</tr>
<tr>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures across different types of building fabrics</td>
<td>10.2%</td>
</tr>
</tbody>
</table>

\(^27\) Estimates are bound by the constraints of the Standard Occupational Classification (SOC) system – for example there is no SOC for Energy Assessors and as such estimates may not reflect the true figure. Asset Skills suggest the total number of Energy Assessors is approximately 12,000 (around 4,000 being active)
Table 5: Installers – Training Needs

<table>
<thead>
<tr>
<th>Skill/Knowledge</th>
<th>Proportion of workforce surveyed that do not have these skills/knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of micro &amp; small scale wind turbines</td>
<td>46.8%</td>
</tr>
<tr>
<td>Installation of micro-combined heat &amp; power</td>
<td>45.3%</td>
</tr>
<tr>
<td>Installation of biomass boilers</td>
<td>41.9%</td>
</tr>
<tr>
<td>Installation of cavity wall insulation</td>
<td>33.2%</td>
</tr>
<tr>
<td>Knowledge of the Green Deal funding mechanism</td>
<td>32.7%</td>
</tr>
<tr>
<td>Installation of energy efficient glazing and doors</td>
<td>32.2%</td>
</tr>
<tr>
<td>Installation of external wall insulation</td>
<td>31.2%</td>
</tr>
<tr>
<td>Knowledge of Government guidance about the way in which the Green Deal operates</td>
<td>31.2%</td>
</tr>
<tr>
<td>Installation of internal wall insulation</td>
<td>30.2%</td>
</tr>
<tr>
<td>Installation of floor insulation</td>
<td>30%</td>
</tr>
<tr>
<td>‘Hierarchy’ of energy efficiency measures</td>
<td>19.7%</td>
</tr>
<tr>
<td>Knowledge of air quality and ventilation requirements for buildings</td>
<td>16.1%</td>
</tr>
<tr>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures for buildings constructed pre and post 1919</td>
<td>15.3%</td>
</tr>
<tr>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures in hard to treat buildings</td>
<td>15.1%</td>
</tr>
<tr>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures across different types of building fabrics</td>
<td>11%</td>
</tr>
</tbody>
</table>

4.5 Occupations that require skills and knowledge for delivery of Green Deal

Whilst, for the most part, skills and knowledge requirements apply to assessors and installers, employers and stakeholders surveyed for this research identified a number of additional occupations requiring an understanding of Green Deal, how it operates and how this may impact on the work/advice they are offering to their customers. These occupations and the knowledge they are likely to require are listed in Table 6 below.
Table 6: Other occupations and the type of Green Deal knowledge they will require

<table>
<thead>
<tr>
<th>Occupations</th>
<th>Knowledge of Green Deal required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architects and designers</td>
<td>• to understand how to minimise energy costs;</td>
</tr>
<tr>
<td></td>
<td>• to identify alternative solutions for customers;</td>
</tr>
<tr>
<td></td>
<td>• to know whether to invest in renewables when changes to fabric are restricted by legislation.</td>
</tr>
<tr>
<td>‘Traditional’ roles in construction e.g. builder, plasterer, electrician</td>
<td>• to understand the impact of their work on energy efficiency measures and vice versa;</td>
</tr>
<tr>
<td></td>
<td>• to identify potential business opportunities arising from refurbishment projects;</td>
</tr>
<tr>
<td></td>
<td>• to inform whether a need to demolish and rebuild.</td>
</tr>
<tr>
<td>Kitchen fitters</td>
<td>• to understand the impact of their work on energy efficiency measures and vice versa.</td>
</tr>
<tr>
<td>Surveyors</td>
<td>• to assess impact of measures on different building fabrics and ages.</td>
</tr>
<tr>
<td>Plumbing and heating engineers</td>
<td>• to understand the impact of their work on energy efficiency measures and vice versa;</td>
</tr>
<tr>
<td></td>
<td>• to identify potential business opportunities arising from refurbishment projects.</td>
</tr>
<tr>
<td>Local authority planning departments</td>
<td>• to understand relevancy of energy efficiency measures for building regulations and control.</td>
</tr>
<tr>
<td>Project and site managers</td>
<td>• to identify alternative solutions for customers;</td>
</tr>
<tr>
<td></td>
<td>• to inform whether a need to demolish and rebuild;</td>
</tr>
<tr>
<td></td>
<td>• to assess impact of measures on different building fabrics and ages;</td>
</tr>
<tr>
<td></td>
<td>• to understand how to minimise energy costs;</td>
</tr>
<tr>
<td></td>
<td>• to know whether to invest in renewables when changes to fabric are restricted by legislation.</td>
</tr>
</tbody>
</table>

4.6 Assessment of competence

Respondents agree that it will be extremely important for the Green Deal workforce to be effectively assessed to demonstrate competence in carrying out the work. The use of the term ‘competence’ in this context should not refer solely to skills and knowledge, but also to the behaviours and attitudes displayed - which are a necessary factor in ensuring capability.

Stakeholders emphasise the importance of on-going learning and updating of skills, knowledge, attitudes and behaviours that will be required to develop and maintain competence – particularly for delivering Green Deal work which is likely to be subject to a great many contextual changes as new technologies emerge.
A small number of stakeholders suggest a Green Deal ‘kitemark’ (which is part of existing DECC proposals) will be an ideal way of ‘badging’ competence – which, like the Gas Safe\textsuperscript{28} registration scheme, can provide reassurance to the consumer. Such a scheme could also require that the workforce undertakes on-going CPD.

Furthermore if competence can only be ascertained through insurances that prove expensive to the existing workforce this could be a barrier.

**4.7 Competency Framework**

The Green Deal Competency Framework’s assessment of competence should not be restricted to skills and knowledge – the behaviours and attitudes among the workforce particularly relating to customer care, quality standards and approach towards educating the consumer to change their behaviours – are equally valid. Competencies required to effectively perform any role can be summed up as the integrated knowledge, skills, judgment, and attributes that are needed and usually relate to the minimum standards required.

Development of a Competency Framework typically requires significant time in order to ensure a full understanding of the roles that will be incorporated into the framework, and to design relevant competencies for each one. Findings from this research indicate that there may be additional occupations (see section 4.5) that need to be taken into account when the Competency Framework is developed – rather than a sole focus on the core job roles – Assessors and Installers.

Each core competency within the framework may be underpinned by a number of statements relating to skills, knowledge, behaviours and attitudes. The choice of core competencies can be designed to reflect what is most important for effective delivery of the role (research data describes this in more detail in section 3). Figure 5 below shows an example structure of a Competency Framework including some suggested competencies likely to be relevant for the Green Deal (based upon research findings). Please note this not is intended to illustrate the full range of competencies, and presents a headline structure only showing competencies within three core clusters.

\textsuperscript{28} Formerly CORGI
Figure 5: Example Competency Framework
5. Capacity of Training Providers to deliver Skills and Knowledge needed for Green Deal

5.1 Suitability and scope of current training provision

5.1.1 Extent to which existing provision is able to offer relevant skills and knowledge

When reading this section it should be taken into consideration that just over half the employers and a third of the training providers surveyed had not heard of the Green Deal before, and this limited their ability to provide comprehensive responses as to the suitability of existing training provision.

Employers and training providers were asked to rate the extent to which current training provision is equipped to deliver skills and knowledge relevant to the Green Deal (from 1 to 10, where 10 is the highest). Employers had a more optimistic perception of the ability to deliver Green Deal training than the training providers themselves. The average employer rating is 5.9; while training providers suggested an average of 4.6.

Table 7 below shows how employers rated the suitability of training provision by region.

Table 7: Employer rating of the suitability of existing training provision to deliver skills and knowledge for Green Deal

<table>
<thead>
<tr>
<th>Region</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>East of England</td>
<td>7.08</td>
</tr>
<tr>
<td>North East</td>
<td>6.58</td>
</tr>
<tr>
<td>East Midlands</td>
<td>6.44</td>
</tr>
<tr>
<td>Wales</td>
<td>6.16</td>
</tr>
<tr>
<td>Scotland</td>
<td>6.04</td>
</tr>
<tr>
<td>West Midlands</td>
<td>5.91</td>
</tr>
<tr>
<td>South West</td>
<td>5.73</td>
</tr>
<tr>
<td>South East</td>
<td>5.69</td>
</tr>
<tr>
<td>North West</td>
<td>5.67</td>
</tr>
<tr>
<td>Yorkshire &amp; the Humber</td>
<td>5.50</td>
</tr>
<tr>
<td>London</td>
<td>5.26</td>
</tr>
</tbody>
</table>

Source: Pye Tait Survey of Employers, 2011 Base 395 responses

29 The awareness of the Green Deal should be taken into consideration; half of the 400 employers surveyed had not heard of the Green Deal before and based their responses upon an explanation of the scheme provided by the interviewer
Just over a third of employers surveyed (36.7%) consider that existing Apprenticeship Frameworks are suitable to deliver skills and knowledge required for Green Deal, while just over a quarter (26.3%) do not. However the remaining 37% of employers stated they did not know which is perhaps unsurprising given that half the employers surveyed had not heard of the Green Deal prior to the interview.

5.1.2 Barriers for employers in accessing training provision

Perhaps unsurprisingly in the context of the economic downturn, costs of training and limited funding available from the Government (for colleges and businesses) are the biggest barriers for employers when accessing training provision. Stakeholders have emphasised the importance of ensuring the existing workforce do not have to pay what they would perceive to be a lot of money to progress into Green Deal delivery – and that to enhance existing skillsets it should not need to be expensive.

“Training should be tailored to a small company...training costs can’t be the same for small businesses employing a handful of people”

“The training available never seems to be enough. Once you do one course that soon becomes irrelevant in favour of the new one”

“Training is out there but small businesses find it hard to access it due to time and cost constraints. It needs to be subsidised”

Employer comments

Respondents have expressed concern that the costs of initial training and on-going CPD required to deliver the Green Deal could be a barrier for SMEs, particularly in the context of the economic downturn and withdrawal of funding for schemes such as Train to Gain. Employers note there is more onus placed upon companies to fund their own training - thus for them the potential benefits that could be gained need to outweigh the cost of investment.

5.1.3 Employer preferences for accessing training provision

Employers and SMEs in particular are seeking more training available online that will enable a bite-size approach to attaining bolt-on skills whilst keeping the impact on costs and resources to a minimum. Flexible delivery that includes out-of-hours training is of high priority to small employers and independent professionals. A similar approach would be welcomed for CPD. The majority of

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30 376 employers responded to this question
31 However there was no consensus among stakeholders as to what would constitute “a lot of money” to the workforce; this will vary among individual organisations
stakeholders advocate a menu of training options (for example standalone units rather than a full course) to allow the workforce to quickly and easily enhance their existing skillset in a cost effective manner.

This approach would be particularly important for Green Deal in light of the fact that the external environment continues to change; rapid technology developments in the UK and internationally will necessitate regular update training on new products, materials and systems in relation to energy efficiency measures.

However it must be taken into account that customer interaction will form a substantial part of the delivery of Green Deal – this is something that could be difficult to assess remotely. One way of overcoming this would be through the use of web-based platforms such as Skype.

5.2 Gaps in training provision

The majority of respondents state that the biggest gap in training provision is Green Deal specific courses – as these are still in development there is nothing as yet that is bespoke for the workforce. Such provision would need to include a greater emphasis (than is offered at present) on softer skills such as communication, sales and customer service. Many employers note that without more information about Green Deal, other associated initiatives and marketing of training courses, it is difficult for them to identify relevant provision as well as understand what “good” looks like in the context of the courses that already exist. Furthermore employers – and SMEs in particular – are concerned that investment into training will have a limited shelf life as new technologies, products and systems are being regularly developed.

Employers have also reported issues around the facilities that training providers have to train the workforce “properly” – for example biomass boilers, solar panels etc., and in an ideal scenario, an entire ‘eco-house’ for learners to work on. Furthermore many employers argue that tutors do not possess up-to-date knowledge of the latest technologies and other new developments relating to the ‘green’ agenda.

Another concern among employers and stakeholders is the high proportion of training provision they perceive to relate to new build only, resulting in deficiencies in the skills needed to work with older and historic buildings.

Many employers also report a lack of specialist provision relating in particular to solid wall insulation, environmental technologies, roof insulation, building regulations and energy performance assessment.

A lack of specific Green Deal content within Apprenticeship Frameworks is another gap that
employers recognise must be addressed quickly. Respondents also raised concerns around:

- Lack of specialist skills (coverage focused only on general building work) – needs to include renewable energies
- Training too focused on theory with insufficient practical content

The on-going work of the Green Deal Skills Alliance (GDSA) will develop a Green Deal Competency Framework, National Occupational Standards (NOS) and qualifications specific to Green Deal – which are intended to be in place by Spring 2012. The GDSA also intends to give tailored support to training providers across the UK to help enhance capacity.

Around a third of training providers surveyed for this research intend to offer provision that will include general awareness of the Green Deal and how it will operate; nearly half would offer this via bite-size courses leading to achievement of QCF units. Employers intending to provide training relevant to the Green Deal are most likely to invest into skills and knowledge specific to the principles and operation of the Green Deal, solar thermal and solar PV.

However the majority of all research respondents note that providers are most likely to react to the direction of the market and may not take a proactive approach to developing provision or gaining Green Deal accreditation. Furthermore the GDSA faces a significant challenge to finalise its Competency Framework, NOS and undertake liaison required with Awarding Organisations and training providers to ensure Green Deal specific qualifications are in place by the spring of 2012.

The capacity of training provision will depend not only on what skills and knowledge need to be delivered, but on how many people will need training over what period of time. The potential scale of the Green Deal workforce as estimated in Appendix 5 highlights just how significant this challenge is – with 21% of the built environment workforce estimated to hold job roles specific to the Green Deal. Many stakeholders note that it is far from certain that training provision would be able to up-skill the workforce in time to meet high levels of demand (should this be the case) for the Green Deal upon its launch in October 2012.

“If there is a need for large-scale mobilisation (of the workforce) we cannot meet it”

Training provider

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32 Some employers noted that renewable energies have, in recent years, started to receive coverage
5.3 Evaluation of Green Deal pilot training programmes

5.3.1 Overview of training

Six pilot training programmes have been funded with an objective of testing draft units developed by the Green Deal Skills Alliance and identifying improvements that may need to be made for final units and ways in which training should be rolled out more widely. Between November and December 2011 training took place across the following locations:

Table 8: Overview of pilot training programmes

<table>
<thead>
<tr>
<th>Location</th>
<th>Training Provider</th>
<th>Length of Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crumlin, Northern Ireland</td>
<td>Action Renewables</td>
<td>2 days</td>
</tr>
<tr>
<td>Kilmarnock, Scotland</td>
<td>The Wise Group</td>
<td>3 days</td>
</tr>
<tr>
<td>London</td>
<td>Parity Projects</td>
<td>5 days</td>
</tr>
<tr>
<td>Tredegar, South Wales</td>
<td>British Gas Academy</td>
<td>1 day</td>
</tr>
<tr>
<td>Liverpool</td>
<td>Liverpool Community College</td>
<td>2 days</td>
</tr>
<tr>
<td>Taunton</td>
<td>Somerset College</td>
<td>2 days</td>
</tr>
</tbody>
</table>

Evaluation was carried out based upon interviews with participants (during the training and afterwards), assessment of training materials, observations of training delivery and group discussions among participants and trainers.

5.3.2 Strengths of pilot training

Overall participants agree that the pilot programmes have substantially improved their knowledge and understanding of the Green Deal, bearing in mind however that some aspects around its operation are yet to be clarified by the Government. Participants acknowledge that trainers could therefore not be expected to answer all of their questions where official communications do not provide a response.

However it should be taken into consideration that while pilot training programmes have been well received on the whole, they were fully funded and therefore offered for free to participants. The environments in which they were conducted may not be reflective of other locations or set-ups across the country which could impact on the success of a wider roll-out.
Particular areas of strength relating to the pilot courses can be summarised as follows:

- Clear explanation of context and drivers for the Green Deal e.g. environmental concerns, policy and climate change legislation and targets for the UK as well as other catalysts such as the ECO
- Comprehensive explanation of the Green Deal itself including occupations involved in its delivery, timelines to launch, the customer journey processes (including detailed diagrams), the way in which finance will be provided and administered and the Golden Rule
- Clarification of terminology and information provided about specialist software such as fuel poverty, U values and SAP
- Detailed technical information provided around different types of energy efficiency measures, installations of energy efficiency measures and in some cases – how these could impact older buildings, and the aspects to be taken into consideration when dealing with ‘traditional’ buildings
- Effective use of ‘real life’ projects – for example showcasing buildings where energy efficiency measures had been implemented, and the projected impacts of these on cost/energy savings and reduction of carbon emissions. Also a means to illustrate the differences between energy efficiency measures and impacts on different building fabrics – even where houses in the same area are seemingly identical
- List of ‘trigger points’ illustrating different catalysts for customer investment into energy efficiency measures e.g. prior to sale of a house
- Consideration of how Green Deal could influence business development – for example a number of participants acknowledged that builders and painters could pick up work arising from retrofit projects, and from an SME perspective training raised awareness of potential business opportunities, and how Green Deal can be marketed to target customers
- Where participants came from a mix of sub-sectors this enabled useful discussion of how Green Deal could work/provide opportunities across different industries
- Coverage of relevant building regulations
- Consideration of customer service skills/knowledge of the customer journey relating to Green Deal

“An eye opener to the Green Deal and possible new avenues available to businesses”

“This has filled in the gaps”
5.3.3 Areas for consideration

Feedback from the evaluation process indicates the following aspects need to be taken into consideration for on-going development and roll out of training provision relation to Green Deal:

Training materials

Training materials were comprehensive and included questions to test knowledge. A number of participants have suggested that a textbook that could be provided at the outset would be more eco-friendly than handouts – however this may become out of date very quickly. Training support materials to be accessed online would also be welcomed.

Length/delivery of training

Delivery of pilot courses ranged from between 1 and 5 days. For the most part, attendees would prefer to be offered a menu of options where units are offered on a standalone basis. This would enable shorter ‘chunks’ of training that could be provided for example, on Saturday mornings or during evenings without requiring SMEs to take time out of their working day. Wherever possible participants would like the option of e-learning – but recognise that in some cases the value of classroom based training would be a more effective route (for example demonstration of specialist software).

Costs of training

Participants’ views on the likely costs of training differed greatly, with a spectrum ranging from £200 to £1500. On the whole attendees acknowledged the difficulties of predicting what they would expect to pay for this kind of training, as they were unable to set this into the context of potential business revenue that could result from the investment.

Suggested additions to training

A number of suggestions relate to specific information about how Green Deal will work that had not been fully clarified at the time of training. For example – how would workers become accredited and how much will this cost; what CPD will be needed; how will the Golden Rule apply to different types of building (with real life case studies) and how does the independent assessor receive payment, and from whom. Several participants suggested that site visits would be extremely useful to see the energy efficiency measures installed/working in practice. Attendees also suggested it would be useful to understand how potential conflicts of interest (for example where the assessor and installer work for the same organisation) will be identified, declared and overcome. From a customer perspective, not all customer service training was specifically tailored to the Green Deal,
and attendees would like the principles of customer service to be taught in the context of Green Deal. This could also include information on marketing the Green Deal to target customers.

“I understand that logistically site visits would not be easy but they would be beneficial by enabling sight of the practical implications of these technologies”

Participant comment

Entry criteria

Participants on the pilot training courses already work in the industry and for the most part had a good understanding of the core principles around energy assessment and installations. Whilst the more generic training – notably the principles and operation of the Green Deal, and customer service units – could readily be standalone and accessible to a wide range of individuals, the more technical units will need appropriate entry criteria to be established to make training applicable to different occupations and sub-sectors as well as those with no prior sector knowledge. This will also reduce repetitive and/or unnecessary content (depending on the participant perspective), and also reduce costs for those people that only need short, bolt-on skills to enhance their existing skills and knowledge. Shorter courses could be tailored to different industries.
6. Research Conclusions and Recommendations

6.1 Research Conclusions

Implementation of the Green Deal

The majority of industry stakeholders expect that the implementation of the Green Deal is likely to be dominated by large-scale organisations – some that are already operating in energy/construction-related sectors – and some that will be entering the market. The examples most frequently cited as the future ‘big players’ in the Green Deal market include Tesco, Marks & Spencer, B&Q, Sainsburys and John Lewis – although this is not an exhaustive list. This may operate at the expense of sub-contracting opportunities for SMEs if such organisations choose only to up-skill or recruit an in-house workforce. However stakeholders perceive there may be a mix of in-house teams in addition to a sub-contracting model once the Green Deal is launched.

Skills and knowledge required to deliver the Green Deal

Respondents have identified core skills and knowledge common to all occupations delivering the Green Deal as:

- Knowledge and understanding of different building fabrics and ages
- Knowledge of Government guidance about the way in which the Green Deal operates
- Knowledge of the Green Deal funding mechanism
- Knowledge of ‘hierarchy’ of energy efficiency measures and how they would impact on different building fabrics/ages
- Knowledge of other similar funding mechanisms such as the Renewable Heat Incentive or Feed-in Tariffs

Extent to which the workforce has skills and knowledge necessary to deliver the Green Deal

Research data (see section 4) indicate that the workforce possesses high levels of skills and knowledge in relation to predominantly generic aspects such as health & safety, customer service, risk assessments and project management. However research findings indicate that there may be insufficient knowledge among the existing workforce of building fabrics/ages and the different impacts of energy efficiency measures on the different types of building stock. This presents the risk of exacerbating problems rather than bringing about improvements, if such gaps in knowledge are
not urgently addressed. Furthermore employers perceive significant gaps in knowledge relating to the principles and operation of the Green Deal itself.

Capacity of training provision to deliver skills and knowledge needed to deliver the Green Deal

Employers appear reluctant to invest in up-skilling without being able to perceive a clear market demand, yet at present the extent of consumer interest remains ambiguous. As those delivering Green Deal will need to be accredited, the extent to which the workforce will seek accreditation – and thus ensure sufficient capacity within the workforce – is largely dependent on consumer appetite. However it should be emphasised that other drivers of change - notably the Energy Company Obligation (ECO) - will also require a skilled and knowledgeable workforce able to advise on and install a wide range of energy efficiency measures.

Therefore up-skilling the workforce is an urgent priority – however research data (see section 5) indicates a number of concerns among respondents in relation to the capacity of existing training provision to meet this demand. Gaps in provision relate to knowledge of the full spectrum of building fabrics and ages and standalone units about the principles and operation of the Green Deal itself. There are also concerns about the extent to which tutor knowledge is up-to-date – particularly of emerging technologies, and the availability of physical facilities needed to teach relevant skills and knowledge.

Aspects to take into consideration that may enable the supply chain to engage with and deliver the Green Deal

There is still a degree of uncertainty among employers, training providers and – to a lesser extent – industry stakeholders, about what the Green Deal is, precisely how it will operate, and in some cases whether it will actually come into being. This is due in part to: the absence of necessary details from the Government\(^{33}\), low levels of awareness of the scheme among the existing workforce, and the wariness of many employers about the Government’s commitment to it, not least on account of recent amendments to the Feed-In Tariff, a similar initiative.

Employers are therefore seeking additional details that will clarify the Green Deal as soon as possible, and for this to include information on sources of training and accreditation, and the costs of this. Employers are likely to welcome a flexible approach to delivery of training that would enable low cost and accessible up-skilling – for example online and out of working hours – where possible. Training should also give access to facilities such as biomass boilers to accurately represent the

\(^{33}\) For example the Department of Energy and Climate Change has only recently closed its Green Deal consultation (18\(^{th}\) January 2012) and results have not yet been published
working environment, taught by tutors with up-to-date knowledge of the latest technologies, products and systems.

Employers have indicated a preference for Housing Associations and Local Authority consortia to operate as Green Deal providers as they perceive this scenario would provide opportunities to take a market share via sub-contracting. Additionally SMEs would prefer to see the scheme tightly controlled and regulated, with fixed pricing where possible.

6.2 Recommendations

Promotion of the Green Deal

- The Green Deal Skills Alliance should continue its activities to promote the Green Deal and raise awareness of this among the workforce, to increase their knowledge and understanding of the scheme and to illustrate to them how they could secure business development opportunities. Such promotional activities should also inform the workforce about relevant training and how to access this.

- The Green Deal Skills Alliance should consider lobbying the Government to promote the Green Deal to consumers, as increasing demand for Green Deal measures is likely to increase the scope for skills and knowledge development among the workforce. This could also help to reduce the risk of mis-selling as consumers will have a clearer understanding of what the process should be.

Green Deal Common Knowledge/Competency Framework

- The process of full development of the Competency Framework should be an urgent priority for the Green Deal Skills Alliance, in view of the limited time available to complete, refine and roll this out in time for the launch of the Green Deal.

- Assessment of competence should be underpinned by regular CPD which focuses particularly upon emerging technologies and new products/systems relating to energy efficiency measures. The Competency Framework should also be reviewed and updated on a regular basis to ensure new technologies are taken into account.

- It will be important for the Green Deal Skills Alliance to ensure – as far as possible – that gaining accreditation to deliver the Green Deal is not cost prohibitive for SMEs, particularly as they comprise the majority of the existing workforce.

Training provision

- A detailed UK-wide mapping exercise should be undertaken as soon as possible, to identify the scale of existing training provision that is able to deliver skills and knowledge required
for the Green Deal.

- Securing accreditation of training providers should be considered an urgent priority to ensure there will be capacity to train the workforce in time for the launch of the Green Deal.

- The Green Deal Skills Alliance should consider lobbying for additional funding where possible to support training for SMEs, to ensure that they are not excluded from the market due to costs.

- The Green Deal Skills Alliance should promote available and up-coming training provision among the workforce; this should include where possible assessments of quality – for example highlighting courses that will provide the necessary depth and breadth of skills and knowledge.

**National Occupational Standards (NOS) and qualifications development**

- Work required to complete development of NOS to underpin qualifications development should be addressed as an urgent priority to ensure qualifications and Apprenticeship Frameworks are in place in time to up-skill and accredit the workforce in time for the launch of the Green Deal – a significant challenge.

- The Green Deal Skills Alliance should liaise with training providers and Awarding Organisations to develop provision and Apprenticeship Frameworks that:
  
  - fully address the requirements of competence;
  - offer ‘bite-size’ standalone units that enable enhancement of existing skills whilst keeping costs low;
  - where possible include the provision of site visits and/or physical facilities that will allow practical experience to be gained using a range of products/systems upon different building fabrics and ages;
  - incorporate an element of regional tailoring to focus on building fabrics that are prevalent in the local area.

- The Green Deal Skills Alliance should work with other Sector Skills Councils to ensure that relevant NOS are mapped across into other sectors as appropriate, as the scope of the workforce could extend beyond their own sector footprints.

**Generic**

- The Green Deal Skills Alliance should lobby for the creation of a Standard Occupational Classification (SOC) code for Energy Assessors. This will be essential for future mapping of the scale and capacity of the workforce as the low carbon agenda continues to increase in importance.
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- (November 2011), *Consumer Research among Tenants and Landlords into the Green Deal*
- (November 2011), *Consumer Needs and Wants for the Green Deal (homeowners and small businesses)*

Department for Environment, Food and Rural Affairs (2012) *Climate Change Risk Assessment*

Energy Bill: *Green Deal Impact Assessment*

Green Deal and Energy Company Obligation: *Impact Assessment*

Low Carbon Cluster (2009), *Sector Skills Assessment Report*

Pro Enviro (2010), *Skills for a Low Carbon and Resource Efficient Economy*

Publicly Available Specification (PAS) 2030, Improving the Energy Efficiency of Buildings

SummitSkills (2010), *Potential Training Demand in Environmental Technologies in Building Services Engineering*
Appendix 2: Stakeholder Organisations

The stakeholders interviewed for this research are listed in the table below:

Table 9: List of stakeholders interviewed

<table>
<thead>
<tr>
<th>Association of Greater Manchester Authorities</th>
<th>Energy Action Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Energy</td>
<td>English Heritage</td>
</tr>
<tr>
<td>Black Country Housing Group</td>
<td>EoN Energy</td>
</tr>
<tr>
<td>British Board of Agreement</td>
<td>Federation of Master Builders</td>
</tr>
<tr>
<td>British Gas</td>
<td>Greater Manchester Chamber of Commerce</td>
</tr>
<tr>
<td>British Institute of Facilities Management</td>
<td>Green Energy Centre</td>
</tr>
<tr>
<td>Building Research Establishment</td>
<td>Green Wealth Solutions</td>
</tr>
<tr>
<td>Carillion</td>
<td>Insulated Render and Cladding Association</td>
</tr>
<tr>
<td>Centre for Sustainable Energy</td>
<td>Manchester City Council</td>
</tr>
<tr>
<td>Chartered Institute of Architectural Technologists</td>
<td>National Energy Action</td>
</tr>
<tr>
<td>Chartered Institute of Building</td>
<td>National Energy Services</td>
</tr>
<tr>
<td>Conference on Training in Architectural Conservation</td>
<td>National Housing Federation</td>
</tr>
<tr>
<td>Construction Industry Research and Information Association</td>
<td>Parity Projects</td>
</tr>
<tr>
<td>Construction Products Association</td>
<td>Penwith Housing Association</td>
</tr>
<tr>
<td>East Midlands Centre for Constructing the Built Environment</td>
<td>Royal Institution of Chartered Surveyors</td>
</tr>
<tr>
<td>East Midlands Housing Association</td>
<td>Scottish and Southern Energy</td>
</tr>
<tr>
<td></td>
<td>Severn Wye Energy</td>
</tr>
<tr>
<td></td>
<td>Wise Group</td>
</tr>
<tr>
<td></td>
<td>Worcester Bosch</td>
</tr>
</tbody>
</table>

34 N.B. Multiple stakeholders participated in the research from the Chartered Institute of Building and Association of Greater Manchester Authorities
Appendix 3: Skills and Knowledge Scoring

The charts that follow are based on scores given for 35 specific skills and knowledge requirements identified and agreed by the Green Deal Skills Alliance.

Employers were asked to give each element of knowledge and skill two scores relating to the current level of skill and knowledge in their workforce, and the extent to which that particular skill or knowledge would be required in the light of the introduction of the Green Deal.

When plotted on a scattergram the resulting average scores provide a visual representation of their relative importance. On each scattergram we have drawn additional horizontal and vertical lines for the average score given by employers for each axis (the diagonal line illustrates the “trend” of the data).

The two “average” lines create four quadrants on the chart which have been used to identify high priority and (relatively) lower priority skills/knowledge needs as follows:

<table>
<thead>
<tr>
<th>Top left quadrant</th>
<th>Top right quadrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below average current skill/knowledge</td>
<td>Higher than average current skill/knowledge</td>
</tr>
<tr>
<td>Higher than average future need</td>
<td>Higher than average future need</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bottom left quadrant</th>
<th>Bottom right quadrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below average current skill/knowledge</td>
<td>Higher than average current skill/knowledge</td>
</tr>
<tr>
<td>Below average future need</td>
<td>Below average future need</td>
</tr>
</tbody>
</table>

While there may be skills and knowledge in other areas of the charts which, on detailed consideration, may be considered to require attention, the highest priority skills and knowledge are those contained in the top left-hand quadrant in each case - that is, those in which current skills are considered by employers to be below average, but where the future need for those skills is above average.

Skills and knowledge clustered in the bottom right quadrant are those in which employers consider their workforce to be sufficiently competent and for which they predict a limited need with respect to the Green Deal.
Figure 6: Skills and Knowledge Levels – Installers
Figure 7: Skills and Knowledge Levels – Advisors/Assessors
<table>
<thead>
<tr>
<th></th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understanding of condensing boilers</td>
</tr>
<tr>
<td>2</td>
<td>Understanding of heating controls</td>
</tr>
<tr>
<td>3</td>
<td>Understanding of under-floor heating</td>
</tr>
<tr>
<td>4</td>
<td>Understanding of flue-gas heat recovery systems</td>
</tr>
<tr>
<td>5</td>
<td>Understanding of gas-fired warm air heating systems</td>
</tr>
<tr>
<td>6</td>
<td>Understanding of electric storage heaters</td>
</tr>
<tr>
<td>7</td>
<td>Understanding of cavity wall insulation</td>
</tr>
<tr>
<td>8</td>
<td>Understanding of loft insulation</td>
</tr>
<tr>
<td>9</td>
<td>Understanding of roof insulation</td>
</tr>
<tr>
<td>10</td>
<td>Understanding of internal wall insulation</td>
</tr>
<tr>
<td>11</td>
<td>Understanding of external wall insulation</td>
</tr>
<tr>
<td>12</td>
<td>Understanding of draught-proofing</td>
</tr>
<tr>
<td>13</td>
<td>Understanding of floor insulation</td>
</tr>
<tr>
<td>14</td>
<td>Understanding of heating system insulation</td>
</tr>
<tr>
<td>15</td>
<td>Understanding of energy efficient glazing and doors</td>
</tr>
<tr>
<td>16</td>
<td>Understanding of lighting fittings</td>
</tr>
<tr>
<td>17</td>
<td>Understanding of lighting controls</td>
</tr>
<tr>
<td>18</td>
<td>Understanding of ground and air source heat pumps</td>
</tr>
<tr>
<td>19</td>
<td>Understanding of solar thermal</td>
</tr>
<tr>
<td>20</td>
<td>Understanding of solar PV</td>
</tr>
<tr>
<td>21</td>
<td>Understanding of biomass boilers</td>
</tr>
<tr>
<td>22</td>
<td>Understanding of micro-combined heat and power</td>
</tr>
<tr>
<td>23</td>
<td>Understanding of micro and small scale wind turbines</td>
</tr>
<tr>
<td>24</td>
<td>Site planning and project management in relation to installation of energy efficient measures</td>
</tr>
<tr>
<td>25</td>
<td>Health and safety awareness</td>
</tr>
<tr>
<td>26</td>
<td>Customer service standards</td>
</tr>
<tr>
<td>27</td>
<td>Awareness of conducting risk assessments</td>
</tr>
<tr>
<td>28</td>
<td>Knowledge of Government guidance about the way in which the Green Deal operates</td>
</tr>
<tr>
<td>29</td>
<td>Knowledge of the Green Deal funding mechanism</td>
</tr>
<tr>
<td>30</td>
<td>Knowledge of other similar funding mechanisms such as the Renewable Heat Incentive or Feed-in Tariffs</td>
</tr>
<tr>
<td>31</td>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures across different types of building fabrics</td>
</tr>
<tr>
<td>32</td>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures for buildings constructed pre and post 1919</td>
</tr>
<tr>
<td>33</td>
<td>Knowledge of advantages and drawbacks of installing energy efficient measures in hard to treat buildings</td>
</tr>
<tr>
<td>34</td>
<td>Knowledge of air quality and ventilation requirements for buildings</td>
</tr>
<tr>
<td>35</td>
<td>Knowledge of ‘hierarchy’ of energy efficiency measures e.g. where ground source heat pumps would have little or no effect unless insulation was addressed first etc.</td>
</tr>
</tbody>
</table>
Appendix 4: Proportion of the workforce with skills and knowledge needed for Green Deal

Figures 8 to 10 below show the proportion of the workforce\(^{35}\) with skill/knowledge levels rated at 1 (i.e. no skill) and the proportion rated at 10 (i.e. fully skilled) for advisors/assessors and installers respectively. These only include the skills and knowledge where 30% or more respondents provided a rating of 1 or 10 – i.e. the highest proportions of zero or fully skilled employees from those surveyed. Data are taken from the survey of employers.

Figure 8: Proportion of INSTALLER workforce perceived to have zero skills/knowledge

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\(^{35}\) i.e. the workforce of the employers surveyed for this research. Whilst this research has been able to provide an estimate of the scale of the Green Deal workforce (see Appendix 3), we have not attempted to upscale and thus estimate the proportion of the full workforce that has or does not have skills and knowledge to deliver Green Deal as results would not be sufficiently conclusive.
Figure 9: Proportion of INSTALLER workforce perceived to be fully skilled/knowledgeable
Figure 10: Proportion of ADVISOR/ASSESSOR workforce perceived to be fully skilled/knowledgeable

Less than 30% of respondents rated advisors/assessors to have zero skills and knowledge across all categories so there is no separate chart in relation to this.
Appendix 5: Scale of the Green Deal Workforce in Great Britain

Defining the Green Deal sector and core occupations

It is possible to define the main business activities (sub-sectors) of the built environment that are likely to be core to delivering the Green Deal, and thence estimate the size of the potential Green Deal workforce in England, Wales and Scotland.

In order to establish the business activities in scope to this research, a detailed review was undertaken of recognised Standard Industrial Classification (SIC) codes relevant to the Sector Skills Councils comprising the Green Deal Skills Alliance (GDSA): ConstructionSkills, SummitSkills and Asset Skills.

The UK Standard Industrial Classification (SIC) system provides an internationally-agreed taxonomy of defined economic sectors. These are published as 21 major categories, each of which contains four further levels of disaggregation. The SIC system is employed by the Office for National Statistics (ONS), the UK Commission for Employment and Skills (UKCES) and all Sector Skills Councils.

A key challenge to the identification of relevant SIC codes for this research was the lack of any UK or internationally-recognised codes relating to the Green Deal and the drivers behind it, namely: low/zero carbon; energy efficiency and renewables. We therefore carried out a review of secondary sources to profile the SIC codes covering the Green Deal sector workforce.

The codes and business activities within scope to this research (based on the SIC 2007 system) are presented in Table 10 below, along with the corresponding population of total enterprises in Great Britain\(^\text{36}\). Following the Table is an explanation of how the total number of enterprises was derived for each code.

\(^{36}\) Great Britain is defined as England, Wales and Scotland.
Table 10*: SIC codes and business activities in scope to this research

<table>
<thead>
<tr>
<th>Lead SSC</th>
<th>SIC 2007 code</th>
<th>Business Activity</th>
<th>Total GB enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConstructionSkills</td>
<td>41.20</td>
<td>Construction of commercial and domestic buildings</td>
<td>39,345</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>43.29</td>
<td>Other construction installation</td>
<td>5,890</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>43.34</td>
<td>Painting and glazing</td>
<td>12,900</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>43.91</td>
<td>Roofing activities</td>
<td>6,595</td>
</tr>
<tr>
<td>ConstructionSkills</td>
<td>71.11; 74.90</td>
<td>Architectural activities; Other professional, scientific and technical activities n.e.c</td>
<td>37,075</td>
</tr>
<tr>
<td>SummitSkills</td>
<td>43.21</td>
<td>Electrical Installation</td>
<td>36,210</td>
</tr>
<tr>
<td>SummitSkills</td>
<td>43.22</td>
<td>Plumbing, heating and air conditioning</td>
<td>28,730</td>
</tr>
<tr>
<td>Asset Skills</td>
<td>N/A</td>
<td>Energy assessment and advice</td>
<td>463</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>167,208</strong></td>
</tr>
</tbody>
</table>

In the case of all ConstructionSkills and SummitSkills activities– the corresponding figures for the total number of enterprises in Great Britain was drawn from the Office for National Statistics (ONS) ‘UK Business Activity, Size and Location Guide 2011’. This was possible as ONS publishes business enterprise data in line with the SIC code system.

In the case of Asset Skills, the activity of ‘Energy assessment and advice’ could not be clearly coded using the SIC system and the total enterprise figures are therefore drawn from undertaking the following company and trade description name keyword searches via the business intelligence MINT UK database of registered companies:

- Energy Assessor;
- Energy Assessment;
- Energy Advisor
- Energy Advice;
- Energy Inspector;
- Energy Inspection;
- Energy Evaluation;
- Energy Efficiency.

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37 The sample frame also included Asset Skills business activities of ‘renting and operating of own or leased real estate’ or ‘management of real estate on a fee or contract basis’ however where interviews took place within these sub-sectors respondents had extremely limited knowledge and understanding of the Green Deal and the majority were unable to provide detailed responses thus when establishing the size of the workforce these activities have been excluded.

38 SIC 2007 codes 71.11 and 74.90 are grouped together in this and subsequent Tables. This is because the employer survey contacts were selected using SIC 2003 categories where these activities are combined.
Establishing the size of the Green Deal sector workforce in Great Britain

Based on the above, there are around **167,000 organisations** in Great Britain\(^39\) whose principal activities are core to the delivery of the Green Deal.

It is important to note that this represents the total number of organisations with the ‘potential’ to deliver the Green Deal. It does not take into account issues and variables such as willingness, knowledge, skills and training levels within these organisations which are reported on separately within this report.

As can be seen from Table 11 below, the findings of the employer survey suggest there is an average of 24.54 full time equivalent (FTE) employees per organisation. The total workforce - for the entire in-scope sectors - in Great Britain can therefore be estimated at around 3.8 million full time equivalent employees.

### Table 11: Estimated workforce in Great Britain (business activities relevant to this research)

<table>
<thead>
<tr>
<th>Business Activity</th>
<th>Total number of enterprises</th>
<th>Average FTE per organisation</th>
<th>Estimated total FTE in Great Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction of commercial and domestic buildings</td>
<td>39,345</td>
<td>42.86</td>
<td>1,686,327</td>
</tr>
<tr>
<td>Other construction installation</td>
<td>5,890</td>
<td>14.42</td>
<td>84,934</td>
</tr>
<tr>
<td>Painting and glazing</td>
<td>12,900</td>
<td>12.88</td>
<td>166,152</td>
</tr>
<tr>
<td>Roofing activities</td>
<td>6,595</td>
<td>6</td>
<td>39,570</td>
</tr>
<tr>
<td>Architectural activities; Other professional, scientific and technical activities n.e.c</td>
<td>37,075</td>
<td>26.21</td>
<td>971,735</td>
</tr>
<tr>
<td>Electrical Installation</td>
<td>36,210</td>
<td>18.06</td>
<td>653,953</td>
</tr>
<tr>
<td>Plumbing, heating and air conditioning</td>
<td>28,730</td>
<td>8.44</td>
<td>242,481</td>
</tr>
<tr>
<td>Energy Advice/Assessment</td>
<td>463</td>
<td>5.52</td>
<td>2,556(^40)</td>
</tr>
<tr>
<td><strong>Overall average</strong></td>
<td><strong>167,208</strong></td>
<td><strong>25.54</strong></td>
<td><strong>3,847,708</strong></td>
</tr>
</tbody>
</table>

\(^39\) Great Britain is defined as England, Wales and Scotland.

\(^40\) The total number of Energy Assessor Enterprises is based on the total number organisations searchable under this description using MINT UK (identified using this approach as there is no SIC code). Our resulting estimate of the Energy Assessor workforce may be below the true figure, as some qualified Energy Assessors are likely to be either: 1) inactive; or 2) active within an organisation registered under a different principal activity or Standard Industrial Classification (SIC) code, such as ‘Construction’. Data supplied by Asset Skills suggest that the number of Energy Assessors is in the region of 4,000 (that are active).
Core Green Deal job roles

The total FTE workforce across all employers surveyed as part of this research is 8,373\textsuperscript{41} staff. This includes all occupations.

The following four specific job roles are considered core to the Green Deal workforce:

- Energy Assessor
- Energy Advisor
- Insulation Installer
- Renewable Technology or Building Services Engineering Installer

Whilst the introduction of the Green Deal could see a proliferation of these specific job roles, at present they may be undertaken to greater or lesser extents as a part of an individual’s wider job description. Indeed the precise terminology used to define these types of activities may vary from one organisation to another.

It is possible to calculate the proportion of the total workforce of surveyed employers currently involved in undertaking these activities as part of their existing job role. This information can then be up-scaled to estimate the total 'workforce pool' in Great Britain from which the future Green Deal workforce can be drawn. i.e. The workforce which has the potential to be up-skilled and equipped to undertake these specialist activities as part of a more focussed job role in the future, should the resulting demand from the Green Deal warrant it.

As can be seen from Table 12 below, the findings suggest that 21\% of the total built environment workforce currently undertakes, to a greater or lesser extent, the types of activities aligned to the four job roles considered core to delivering the Green Deal in the future.

\textsuperscript{41} A small number of employers responding to the survey with >999 staff have been excluded from this analysis to avoid unfairly skewing the findings.
Table 12: Estimated proportion of core Green Deal job roles in the built environment workforce

<table>
<thead>
<tr>
<th>Occupation</th>
<th>No. staff in these job roles across all surveyed organisations</th>
<th>% of the total workforce of surveyed organisations (8,373 FTE)</th>
<th>Estimated no. staff undertaking these job roles in Great Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Assessor</td>
<td>294</td>
<td>3.5%</td>
<td>134,670</td>
</tr>
<tr>
<td>Energy Advisor</td>
<td>145</td>
<td>1.7%</td>
<td>65,411</td>
</tr>
<tr>
<td>Insulation Installer</td>
<td>544</td>
<td>6.5%</td>
<td>250,101</td>
</tr>
<tr>
<td>Renewable Technology or Building Services Engineer Installer</td>
<td>775</td>
<td>9.3%</td>
<td>357,837</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,758</strong></td>
<td><strong>21.0%</strong></td>
<td><strong>808,019</strong></td>
</tr>
</tbody>
</table>

The estimate of the total number of staff occupying these roles in Great Britain as a whole is established by taking the percentage figures in the middle column, and applying these to the total GB workforce figure of 3,847,708.

- 35% of employers responding to the survey reported a total of 961 employees who would have the skills to carry out energy assessment/installation where it is not currently their main job role;

- This figure of 961 employees represents 10.2% of the total workforce of the 8,373 organisations responding to the survey;

- For Great Britain, this estimate can be up-scaled to some 392,466 employees of the total GB workforce of 3,847,708 individuals.
Appendix 6: Dwelling Estimates in the UK

The following table shows the dwelling estimates for the UK, illustrating ownership among the public and private sectors. *Please note figures relating to England were produced in 2010, whereas data for Scotland and Wales are 2009 figures. A full breakdown of data is not available for Northern Ireland.*

Table 13: Dwelling estimates in the UK

<table>
<thead>
<tr>
<th>Region</th>
<th>Total number of dwellings*</th>
<th>Local Authority owned</th>
<th>Housing Association/Social Landlord owned</th>
<th>Other public sector</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>North East</td>
<td>1,159,600</td>
<td>128,157</td>
<td>145,452</td>
<td>1,441</td>
<td>884,600</td>
</tr>
<tr>
<td>North West</td>
<td>3,102,700</td>
<td>153,028</td>
<td>425,375</td>
<td>1,905</td>
<td>2,522,400</td>
</tr>
<tr>
<td>Yorkshire &amp; the Humber</td>
<td>2,283,400</td>
<td>239,817</td>
<td>183,785</td>
<td>4,162</td>
<td>1,855,600</td>
</tr>
<tr>
<td>East Midlands</td>
<td>1,949,600</td>
<td>186,075</td>
<td>125,523</td>
<td>4,028</td>
<td>1,634,000</td>
</tr>
<tr>
<td>West Midlands</td>
<td>2,348,300</td>
<td>210,746</td>
<td>239,755</td>
<td>5,819</td>
<td>1,892,000</td>
</tr>
<tr>
<td>East of England</td>
<td>2,502,600</td>
<td>163,433</td>
<td>231,745</td>
<td>8,419</td>
<td>2,099,000</td>
</tr>
<tr>
<td>London</td>
<td>3,300,500</td>
<td>421,645</td>
<td>370,300</td>
<td>6,337</td>
<td>2,502,200</td>
</tr>
<tr>
<td>South East</td>
<td>3,660,700</td>
<td>181,216</td>
<td>310,129</td>
<td>20,665</td>
<td>3,148,700</td>
</tr>
<tr>
<td>South West</td>
<td>2,385,500</td>
<td>101,728</td>
<td>210,593</td>
<td>12,715</td>
<td>2,060,400</td>
</tr>
<tr>
<td>Scotland</td>
<td>2,482,000</td>
<td>323,000</td>
<td>272,000</td>
<td>N/A</td>
<td>1,887,000</td>
</tr>
<tr>
<td>Wales</td>
<td>1,344,400</td>
<td>110,599</td>
<td>110,649</td>
<td>N/A</td>
<td>1,123,191</td>
</tr>
</tbody>
</table>

*rounded up or down to nearest whole number

Table 14 shows the proportion of dwellings in each nation that were constructed pre-1919.42

Table 14: Proportion of pre-1919 dwellings per nation (2009 figures)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of pre-1919 dwellings</th>
<th>Proportion of pre-1919 dwellings of the total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>4,794,000</td>
<td>21.2%</td>
</tr>
<tr>
<td>Scotland</td>
<td>449,000</td>
<td>18.2%</td>
</tr>
<tr>
<td>Wales</td>
<td>380,000</td>
<td>28.2%</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>106,510</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

42 All data from 2009, taken from: English Housing Survey; Living in Wales Property Survey; Northern Ireland House Condition Survey and Scottish House Condition Survey