Green Construction Board
Scoping study for a low carbon existing homes or buildings support mechanism

Report

25th February 2013

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Summary and recommendations
Aim and approach

The upgrade of the energy efficiency of the UK’s existing building stock is moving from a phase of large scale but piecemeal, relatively ‘easy wins’, such as loft and cavity insulation, towards an increasingly challenging phase of more expensive, more complete and in some cases more technically complex and intrusive solutions. If the UK is to meet the testing carbon budgets enshrined in the Climate Change Act then a continued programme of significant whole scale refurbishment impacting over 12 million homes and a major proportion of non-domestic buildings is required.

Aim

The Green Construction Board (GCB) commissioned this scoping study to analyse the need for a coordination and delivery support mechanism to remove outstanding barriers to the delivery of low carbon solutions in the refurbishment sector and to develop a suitable approach to implementation, including the delivery model, structure, governance, funding and any specific areas of risk or opportunity.

The recommended approach should not duplicate or undermine successful activities in the sector; rather it should make full use of the depth and range of available information, analysis and expertise.

The aim of this project was not to assess the suitability of specific organisations to provide any necessary support.

Approach

This scoping study is based around desktop analysis and extensive consultations with a broad range of stakeholders representing the construction industry, clients and housing providers, the Government and a range of industry research and representative bodies.

Two multi-stakeholder workshops were held:

- Workshop 1 examined the need, priorities and characteristics for a support mechanism
- Workshop 2 focussed on the potential structure, governance and success factors

In addition, two online surveys were issued, one-to-one interviews were held with interested parties and a wide range of written and / or verbal evidence received.
Summary of findings

The large scale refurbishment of buildings in the UK represents an opportunity to achieve a combination of important economic, social and environmental goals. Depending on the scale of investment, a programme to improve the energy efficiency of the existing building stock could provide:

- **Economic growth**
  - Through the creation of between 17,000 and 117,000 jobs by 2027
  - By establishing the UK as a world leader amongst developed economies in successfully transforming its building stock
- **Social benefits**
  - A successful retrofit programme could lift 9 out of 10 households out of fuel poverty
  - Saving occupiers money and improving the quality of the built environment
- **Climate change mitigation**
  - Carbon savings of between 2 and 6 MtCO$_2$e per annum by 2027
- **Improved security of energy supply**
  - Savings in capital investment in the national energy supply infrastructure

At present the refurbishment supply chain, building owners and occupiers and NGO’s have concerns that, as currently constituted, the sector will fail to maximise these opportunities. These concerns result from key gaps or risks present in the current situation. The engagement exercises revealed a clear desire for a support mechanism to help industry, Government and other stakeholders to work collaboratively to address these gaps/risks.

Role of a support mechanism

To help achieve the benefits bulleted above, an existing buildings support mechanism should deliver the following services:

- A neutral space for dialogue between Government, industry and other stakeholders
- Trusted and balanced advice
- Enablement of improved industry capacity to deliver to high standards of quality and cost effectiveness by prioritising, co-ordinating and disseminating support, information and evidence

In so doing the support mechanism would fill a similar role to that occupied by the Zero Carbon Hub (ZCH), albeit within a significantly different context. Whilst the ZCH is widely perceived as an example of a successful support mechanism, there are a number of important differences between the function provided by the ZCH and the situation for existing buildings. These impact the applicability of this model for existing buildings, some of the key issues and their implications are described below.

<table>
<thead>
<tr>
<th>Context</th>
<th>Zero Carbon Hub situation</th>
<th>Applicability to existing buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Clear remit to help develop and deliver a single policy goal with a reasonably short and definitive timescale (i.e. by 2016) Working with a pre-existing and highly developed sector with to shape the way in which their core activities are delivered.</td>
<td>The goal of existing building refurbishment is clear however there is currently no clear short term imperative (e.g. regulation). The current market for many of the activities required (e.g. solid wall insulation) is nascent.</td>
</tr>
<tr>
<td>Funding</td>
<td>Funding provided by both government and private sector (via NHBC). This enabled the ZCH to largely avoid the need for sponsorship or subscriptions (although substantial in kind contributions of time and knowledge were</td>
<td>Unclear that any single source of private investment will be forthcoming. Any private funding may therefore need to be sought from a range of organisations (e.g. membership / subscription model) this would impact perceived independence and also result in a fund raising</td>
</tr>
</tbody>
</table>
The proposed scope, governance, structure, working practices and funding of the support mechanism attempts to provide an effective solution that reflects the specific context of existing buildings refurbishment.

Scope

Two key elements of scope were considered; firstly, whether a support mechanism should consider only domestic buildings or if it should also include non-domestic buildings, and secondly, the extent to which the support mechanism should consider demand for energy efficient refurbishment in addition to supply.

Including non-domestic buildings within the support mechanism

There are substantial technical, commercial and practical differences between refurbishment activity in the domestic and non-domestic sectors and as a result there will inevitably be a need for separate coverage of these two parts of the industry. However, a comprehensive approach (e.g. efficiencies, common voice, and joint working) delivers such benefit that a single support mechanism is recommended, but one with distinct operating units focusing on the four separate challenges of delivery of retrofit and the provision of technical underpinnings for dwellings and non-domestic buildings. Furthermore, there will be overlaps and synergies, including several building types that bridge the gap between domestic and non-domestic (e.g. large apartment blocks, halls of residence and small commercial spaces); a joint support mechanism would be better placed to support refurbishment of these buildings.

Providing support on demand in addition to supply

Supply and demand are inextricably interlinked and, perhaps, the single biggest measure to support the development of the refurbishment supply chain would be strong evidence of widespread demand from customers. Nonetheless, it is not the role of a support mechanism to explicitly consider how demand can be stimulated and the range of regulatory or fiscal measures that might be applied to encourage uptake. Rather, this is a role for Government (to set the policy landscape) and individual businesses (operating competitively in the market).
It is, however, very important that the support mechanism helps speed the development of a mature and robust sector, one which can demonstrate, as an industry, the performance and quality needed to inspire confidence. This will minimise the risk of customer demand being undermined.

Key functions

The key functions required from the support mechanism are to:

- Develop a coordinated UK refurbishment strategy and route map for delivering long term policy goals with short/medium term targets
- Provide a forum for discussions about the nature and development of the programme between Government, industry and other stakeholders
- Provide access to centralised repository of robust, transparent and up to date data (e.g. information on levels of refurbishment activity, examples of success and the performance of work undertaken)
- Provide access to information and guidance relevant to a range of audiences
- Identify and help channel activities that will develop an appropriately skilled, innovative and efficient supply chain capable of delivering high quality and cost effective work
- Identify requirements and, where well placed, define solutions to key technical, commercial and other barriers. For example, a pattern book of robust whole house refurbishment details and a standardised approach to measuring and reporting performance

The support mechanism need not undertake all of the above requirements directly, but it should as a minimum, work to coordinate and disseminate information and provide a single source point for guidance, examples, data and other information that use consistent terminology and a recognised approach.

The support mechanisms’ ability to address the above functions will be dependent on the level funding available. This is covered in more detail below.
Governance, structure and working practices

Following review of a range of models for industry support bodies and multi-criteria analysis of different options, it was concluded that the support mechanism should ideally:

- Comprise an elected council, a small board and administrative function
- Be a community interest company / co-operative or Public Private Partnership (PPP)
- Operate for at least 5 years providing free access to information
- Be able to undertake some procurement of services to support task group activities but with major expenditure (e.g. on monitoring programmes or primary research) undertaken by others
- Have a budget sourced from a combination of public and private funds
- Deliver a series of time-limited task groups together with ongoing co-ordination, convening and dissemination activities in line with the agreed routemap
- Be accessible (both electronically and via physical events) by anyone seeking information on refurbishment in the UK
- Provide an active interface with Government and represent industry in a neutral (non-lobbying) manner.

Figure 1 presents an overview of the structure of the support mechanism.

Many of the above features are common with those seen in the ZCH albeit given the complexity of the landscape and the number of active participants it would be extremely difficult to create a ZCH equivalent for existing buildings. However, there are many characteristics demonstrated by the ZCH that should be adopted by an existing buildings support mechanism. These include: strong leadership, effective communication and adherence to a clear timeline.

The elected stakeholder council would need to comprise representatives from across a range of vested sectors. For example, the Federation of Master Builders (FMB) representing SMEs, the Construction Products Association, Manufacturer representatives, industry bodies (e.g. SWIGA), local government, members of academia, representatives for private and social housing and non-domestic landlords.

The Government representatives should be

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1 Assembly of the required information will require careful management of commercial and confidentiality considerations. If a support mechanism is able to gather a critical mass of information it should be possible to draw out key conclusions and benchmarks whilst still respecting the confidentiality of primary data.

2 Business, Society and Public Services: a social productivity framework, 2012. 2020 Public Services Hub at the RSA.
from all relevant departments. It is anticipated that it would be at official level, with clear ministerial support. DECC (Energy Efficiency Deployment Office (EEDO)) would be well placed to lead and would coordinate inputs from CLG, BIS and others.

**Funding**

As part of the study a cost benefit exercise was undertaken. The scale of opportunity (i.e. the number of properties requiring attention) and the equivalent value (in terms of cost / environmental impact) was used to determine an ‘ideal budget’. The following diagram (Figure 2) sets out the ‘essential’ to ‘desirable’ requirements of the support mechanism, the approximate annual budget and what the associated outputs/benefits and risks each segment would bring.

**Figure 2: Review of funding required**

<table>
<thead>
<tr>
<th>Essential</th>
<th>APPROX ANNUAL BUDGET (PER SEGMENT)</th>
<th>BENEFITS / OUTPUTS</th>
<th>RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritising, co-ordinating and disseminating information</td>
<td>£400k–£700k</td>
<td>• Programme management against agreed routemap • Identifies priority issues for collective action • Single source of clear and coherent information</td>
<td>• Limited space to address outstanding technical issues • Relies on others to deliver key elements of work</td>
</tr>
<tr>
<td>Developing solutions</td>
<td>£500k–£1M</td>
<td>• Addresses outstanding technical, commercial and other issues • Better value by co-ordinating and shaping the work of others</td>
<td>Requires considerable funding</td>
</tr>
<tr>
<td>Delivery of key services (training, skills, etc)</td>
<td>+£500k</td>
<td>• Helps actively deliver programme • Increased co-ordination as work is integrated within one body</td>
<td>Requires considerable funding • May begin to replicate the work of others</td>
</tr>
</tbody>
</table>

**Explanation of segments:**

- **Prioritising, coordinating and disseminating** – This would involve management of an agreed industry routemap and prioritising and coordinating activities to deliver this. This work would be undertaken by others. Some form of data management tool e.g. website / portal is required in order to serve as a central repository for trusted and transparent data. This portal could enable the user to understand what bodies are present in the landscape and what expertise / guidance is available. A mechanism of this scale would need money to invest in the IT infrastructure of the database and appropriate personnel to rationalise and manage the data. The approximate budget for this would be £400,000 – £700,000 p.a.; this would provide ‘core funding’ for the support mechanism.

- **Developing solutions** – this segment refers to the support mechanism commissioning work and undertaking technical studies in house. To address this, a wider group of staff would be necessary comprising a mix of project managers and technical specialists. The approximate budget for this would be £500,000 – £1,000,000 p.a. It is likely that a range of solutions will be required, but that the budget for these be separated from ‘core funding’ and that funding be raised following a clear business case (from the support mechanism) or terms of reference (from Government)

- **Delivery of key services** – this segment would include delivery of some of the solutions developed by the support mechanism, for example up skilling practitioners. The approximate budget for this would be over
£500,000 p.a. but funding should only be made available where there is a clear gap in the capacity or willingness of others to act.

**Do any existing bodies fulfil the requirement?**

There are many organisations with an interest in energy efficiency in existing buildings. SWOT analysis identified various strengths within the sector, however whilst a number of organisations have a coordinating role, there are fewer bodies actively involved in developing solutions or in the implementation of these solutions (e.g. undertaking primary research or data gathering).

A review of current bodies against the key risks identified in this study showed that there were gaps in their current coverage. Particular gaps related to: development of coordinated delivery strategies, developing confidence in the refurbishment process, and ensuring clear leadership and vision from Government.

Furthermore, none of the existing bodies exhibited all of the characteristics identified by consultees as being desirable in a support mechanism. In particular, there is no single ‘go to’ organisation and there is generally a lack of strategic relations with Government.

Nonetheless, with support it could be possible for some of the existing bodies reviewed to develop the desired characteristics, either by extending their scope appropriately, or through partnerships with other relevant bodies.

One body, the Energy Efficiency Partnership for Buildings (EEPB) presented a comprehensive evidence base and analysis of the sector from their perspective and subsequently (and jointly with the National Refurbishment Centre (NRC)) stated a desire to fulfil the support mechanism role (see Appendix C). The EEPB and NRC recognise that at present no single body would be able to deliver the necessary support mechanism but they feel that with appropriate Government (Ministerial) engagement and ownership together with and a combination of public and private funds they could jointly meet the requirement.

The merits of the EEPB’s proposal have not been scrutinised by this scoping study. However, our perspective is that if any pre-existing body forms the new entity, it is essential that it is covered by a specific governance structure dedicated to its role, rather than being constrained by those in place within the bodies that help to form it. We would also recommend it is (and can be seen to be) completely independent of other bodies, even its parent bodies. It should respect that it is being given a fresh mandate and, by reviewing all aspects its working practices and resources, it performs its role with a transformative vigour.

**Terms of reference**

The crux of this study was to form terms of reference for the support mechanism. This is set out below:

**Vision**

A successful retrofit programme that is good for people, the economy and the built environment.

**Mission**

To facilitate the delivery of large scale refurbishment of UK buildings by being a body recognised by industry, Government, and customers as a trusted source of reliable information, innovation and inspiration.

**Values**

- Transparent
- Trusted
- Collaborative
• Evidence based
• Appropriately detailed
• Independent
• Discrete
• Forward looking
• Accessible/ open

Scope and function
To support the delivery of refurbishment activities for both domestic and non-domestic buildings by providing:
• a sector routemap and current programme for delivery of large scale refurbishment that incorporates meaningful short and medium term targets consistent with the recommendations of the Committee on Climate Change (CCC) and against which progress can be measured
• a forum whereby all of the stakeholders involved in the refurbishment programme can communicate in a structured and constructive manner to create and sustain a joint view of the associated challenges, solutions and performance
• prioritisation, coordination and dissemination of support, information and evidence to the sector comprising:
  – the skills and capacity needed to deliver high quality and cost effective work
  – guidance on and examples of good practices that are suitable for a range of audiences
  – evidence of performance and progress
  – provision of access to up to date, robust datasets

Where necessary to address key barriers, the support mechanism will define a business case and seek funding for time limited task groups to investigate and provide clear recommendations as to the most appropriate solution.

Funding
Dependent on the scale of intervention required. Core funding of £400,000 - £700,000 would be necessary for the support mechanism to undertake a prioritisation, co-ordination and dissemination role, additional funding would be required to deliver solutions to technical barriers and investment in these activities should be determined by the merits of the associated business case.

Resources
A selected board responsible to an elected council and with co-ordinated cross-departmental oversight, sponsorship and active engagement from Government.

The support mechanism will retain some internal expertise for delivering its ongoing work programme but will typically convene task groups to investigate priority challenges and provide suitable evidence and recommendations. It will be resourced and mandated to commission specific pieces of work where there is a requirement to do so and where it is best placed to lead.

Success factors
• Recognisable and single start point for accessing information and knowledge, including:
  – robust and reliable information and guidance – covering technical, commercial and practical aspects
  – benchmarking and other continuous improvement information about progress and performance
• Improved communications – particularly within the sector and between the sector and Government
• Improved industry capacity to deliver to high standards of quality and cost effectiveness – including through skills, innovation and continuous improvement.
Work programme

The support mechanism should be in place for a minimum of 5 years (subject to satisfactory performance). After this period the need, remit and funding of the body should be reviewed.
Recommendations

**Recommendation 1:** The GCB and Government should work to initiate an existing buildings support mechanism and seek commitment to its support for at least 5 years.

**Recommendation 2:** The support mechanism should encompass both domestic and non-domestic buildings, but should incorporate capacity to support the specific needs of each sector.

**Recommendation 3:** The support mechanism must:

- Develop and own an industry sector routemap for delivering large scale refurbishment with meaningful short / medium term targets consistent with the recommendations of the Committee on Climate Change (CCC).
- Provide a forum for Government, industry and other stakeholders to constructively and collaboratively create and sustain a joint view of the challenges, solutions and performance of the refurbishment programme.
- Prioritise, co-ordinate and disseminate support, information and evidence to the sector.

**Recommendation 4:** Funding will be dependent on the scale of intervention, as a minimum core funding of £400,000 - £700,000 p.a. will be required. Private investment may be forthcoming (this is desirable subject to any impacts on the body’s independence). It is likely that public funding will be necessary for at least the early period of the support mechanism’s existence. It should be noted that engagement interviews revealed that some organisations can be sponsoring up several dozen organisations (in the existing buildings sector) at any one time, these organisations expressed that they would be happy to focus their spending on a single entity.

**Recommendation 5:** Any existing or new body wishing to take on the role of the support mechanism should be able to demonstrate how it will provide:

- Appropriate governance in the form of a multi stakeholder council or other representative body.
- Independent / balanced information.
- A strong leadership team with expertise in communication, strategy and programme management.
- Freely available access to information.
- Support to the whole of the UK for both both domestic and non-domestic sectors, but with separate coverage of these two parts of the industry. Supporting the delivery of retrofit and the provision of technical underpinnings will require significantly different approaches for different building types, although there will be overlaps and synergies.
## Next steps

### Key actions and timescales

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility</th>
<th>Q4 2012/13</th>
<th>Q1 2013/14</th>
<th>Q2 2013/14</th>
<th>Q3 2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review recommendations – remit and governance structure</td>
<td>GCB and government</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Review strategic fit with other GCB workstreams</td>
<td>GCB and government</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree approach to consultation on proposed strategy</td>
<td>GCB, BIS, DECC, CLG</td>
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<tr>
<td>Review consultation feedback</td>
<td>GCB</td>
<td></td>
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<tr>
<td>Establish cross-departmental government steering group</td>
<td>DECC</td>
<td></td>
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<tr>
<td>Determine available funding</td>
<td>Government working group</td>
<td></td>
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<tr>
<td>Determine the mandate and operational input that can be given by Government departments</td>
<td>Government working group</td>
<td></td>
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<tr>
<td>Agree remit of support mechanism and determine procurement strategy</td>
<td>Government working group</td>
<td></td>
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<tr>
<td>Prepare business case for Government approval and identify funding</td>
<td>Government working group</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Develop detailed scope of work for both single or joint organisation approach</td>
<td>Government working group</td>
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<tr>
<td>Prepare tender documents</td>
<td>Government</td>
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<tr>
<td>Issue tender and review responses</td>
<td>Government</td>
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</table>
Evidence base
1.0 Introduction

The upgrade of the energy efficiency of the UK’s existing building stock is moving from a phase of large scale but piecemeal, relatively ‘easy wins’, such as loft and cavity insulation, towards an even more challenging phase of more expensive, more complete and in some cases more technically complex and intrusive solutions. If the UK is to meet the challenging carbon budgets enshrined in the Climate Change Act then a continued programme of significant scale whole house refurbishment impacting over 12 million homes and a major proportion of non-domestic buildings is required.

Against this backdrop, the Green Construction Board (GCB) commissioned a scoping study to analyse the need for a coordination and delivery support mechanism to remove outstanding barriers to the delivery of low carbon solutions in the refurbishment sector and to develop a suitable approach to implementation including the delivery model, structure, governance, funding and any specific areas of risk or opportunity.

The recommended approach should ensure that it does not duplicate or undermine successful activities in the sector; rather it should aim to make full use of the depth and range of available information, analysis and expertise.

The aim of this project was not to assess the suitability of specific organisations to provide any necessary support.

1.1 Background

The need for a support mechanism or ‘hub’ to support the delivery of the UK refurbishment programme was identified in the work of the Innovation and Growth Team (IGT) in 2010. Further proposals for a knowledge hub for existing homes or buildings were contained in the DECC Energy Efficiency Strategy (2012). Within this Strategy, Government set out some key barriers to deploying energy efficiency. These include:

- **Embryonic market** – the market remains underdeveloped due to a lack of financial products to support investment in energy efficiency (leading to high transactional costs).
- **Information** – Lack of access to trusted and appropriate information
- **Misaligned financial incentives** – it is not always the case that those responsible for making energy efficiency improvements receive the benefits of their actions.
- **Undervaluing Energy Efficiency** – the lack of salience of energy efficiency increases the impacts of hassle costs and behavioural barriers.

It should be noted that in response to the above the Strategy sets out how DECC is working to strengthen the evidence base through a range of initiatives including supporting the development of a knowledge hub for the refurbishment of existing homes.

The European Energy Efficiency Directive (2012/27/EU) requires each Member State to inter alia establish a long term strategy for mobilising investment in renovation of domestic and commercial buildings.

Other pertinent areas to consider include:

**The ‘perception gap’**

In commissioning this project, the GCB recognised that there is currently a ‘perception gap’ between Government and the industry in relation to the refurbishment programme. Simply put, this is a result of the Government believing that necessary measures are largely in place (or will soon be in place) to support the development of a strong refurbishment sector capable of delivering upwards of 240,000 domestic refurbishments per year and a

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radical improvement in the energy efficiency of our non-domestic stock. The industry (i.e. materials manufacturers, contractors, installers, etc) are less confident in the sector’s capacity to deliver at the scale envisaged and the levels of customer demand (even the willingness to accept heavily subsidised support via the Energy Company Obligation (ECO) scheme).

A diverse sector and a crowded landscape

Existing buildings and their refurbishment is inherently a highly complex and diverse area encompassing buildings of vastly different use, ownership, occupation, age, performance, complexity, size, construction methods, etc. The diversity of the sector means that different technical, commercial and service solutions are applicable and, in reality, a number of separate sectors exist with different supply chains and different clients (building owners and occupiers) with widely varying needs and financial wherewithal.

Reflecting the diversity of the sector, a very wide range of industry bodies exist. In conducting this project over 20 non-delivery organisations were identified that have a role or remit relating to refurbishment of existing buildings. Collectively these organisations contain a substantial quantity of expertise and information together with wide ranging networks. However, the very diversity of the sector can make it difficult to access information, develop a collective view and operate in a co-ordinated and focussed manner.

1.2 Approach

This scoping study is based around desktop analysis and extensive consultations with a broad range of stakeholders representing the construction industry, clients and housing providers, the Government and a range of industry research and representative bodies.

Two multi-stakeholder workshops were held to discuss:

- need, priorities and characteristics
- structure, governance and success factors

In addition, two online surveys were issued, one-to-one interviews were held with interested parties and a wide range of written and / or verbal evidence received.
2.0 The opportunity

The large scale refurbishment of buildings in the UK represents an opportunity to achieve a combination of important economic, social and environmental goals. Depending on the scale of investment (see Box 1), a programme to improve the energy efficiency of the existing building stock could provide:

- **Economic growth**
  - Employment – between 17,000 and 117,000 jobs by 2027
  - International competitiveness – by establishing the UK as a world leader amongst developed economies in successfully transforming its building stock

- **Social benefits**
  - Affordable warmth – a successful retrofit programme could lift 9 out of 10 households out of fuel poverty
  - Comfort, health and quality – as well as saving energy and money, refurbishment can help improve the quality of the built environment. Providing comfortable and healthier homes.

- **Climate change mitigation**
  - Carbon savings – of between 2 and 6 MtCO₂e per annum by 2027.

- **Improved security of energy supply**
  - Savings in capital investment in the national energy supply infrastructure (this will offset some of the jobs created, but capital savings are far greater than the effect on employment)

**Box 1: Benefits of investment in energy efficiency**

The potential benefits from developing this market are substantial. Two scenarios have been examined, the first is based on DECC’s own projections for Green Deal and ECO. This could see annual investment of £1.8bn and the creation of 17,000 annual jobs. UK Gross Domestic Product (GDP) could increase by 0.12%. A second scenario is based on a higher uptake rate in line with that modelled in a recent study for Consumer Focus Cambridge Econometrics and Verco (2013) Jobs, Growth and Warmer Homes. This second scenario largely closes the carbon reduction gap for the building sector to meet the 4th carbon budget and lifts 9/10 homes out of fuel poverty. Annual capital spend is £6.3bn and 117,000 annual jobs are supported. UK GDP Product could increase by 0.41%. Further details of each scenario are shown below.

<table>
<thead>
<tr>
<th>Measure</th>
<th>High uptake (2013-2027)</th>
<th>Green Deal / ECO (2013-2027)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative capital investment (£m)</td>
<td>91,000</td>
<td>27,000</td>
</tr>
<tr>
<td>Annual capital investment (£m)</td>
<td>6,300</td>
<td>1,800</td>
</tr>
<tr>
<td>Total cumulative homes Treated ('000)</td>
<td>12,700</td>
<td>3,600</td>
</tr>
<tr>
<td>Average annual homes treated ('000)</td>
<td>726</td>
<td>240</td>
</tr>
<tr>
<td>Annual jobs created ('000)</td>
<td>117</td>
<td>17</td>
</tr>
<tr>
<td>GDP impact (%)</td>
<td>0.41</td>
<td>0.12</td>
</tr>
<tr>
<td>Annual energy bill savings per household treated (£)</td>
<td>319</td>
<td>94</td>
</tr>
<tr>
<td>Annual CO₂ reduction in 2027 (MtCO₂e pa)</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>
2.1 What could a successful support mechanism provide?

The long term goals of investment to improve the energy efficiency of buildings in the UK are well understood and include the benefits listed in Box 1. While these represent strategic goals, it is also important to consider the role a support mechanism could play in achieving these aspirations and to understand what a successful mechanism might mean to different groups. Table 2.1 summarises the success factors for key groups raised by stakeholders (at the workshops and through wider engagement).

Table 2.1 Support mechanism success factors identified as relevant to different audiences

<table>
<thead>
<tr>
<th>Government</th>
<th>Owners and occupiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Credibility of products with consumers</td>
<td>▪ Protect against rising fuel prices (both domestic and non domestic)</td>
</tr>
<tr>
<td>▪ Up take by consumers across the UK</td>
<td>▪ Costs savings</td>
</tr>
<tr>
<td>▪ Establishment of a body that can provide a single point of contact between Government and ‘the sector’</td>
<td>▪ Reducing risks associated with refurbishment</td>
</tr>
<tr>
<td>▪ Input and information to help develop coherent policy and regulation</td>
<td>▪ Preservation of property value</td>
</tr>
<tr>
<td>▪ Co-ordination of work between Government departments</td>
<td>▪ Confidence, trust and assurance</td>
</tr>
<tr>
<td>▪ A source of advice</td>
<td>▪ Knowledge of what ‘good’ looks like and how to get it</td>
</tr>
<tr>
<td>▪ Improved cost effectiveness of outcomes</td>
<td>▪ Awareness of all the benefits (e.g. comfort and quality), not just the financial benefits and technologies</td>
</tr>
<tr>
<td>▪ Create neutral space for dialogue</td>
<td>▪ Improved experience of having building work undertaken</td>
</tr>
<tr>
<td>▪ Achieving Climate Change Act carbon budgets</td>
<td>▪ Warmer, more comfortable and healthier homes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Refurbishment industry</th>
<th>Existing support bodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Effective dialogue with Government and stakeholders</td>
<td>▪ Better collaboration</td>
</tr>
<tr>
<td>▪ Creation of a stable policy environment</td>
<td>▪ Common language and standards</td>
</tr>
<tr>
<td>▪ Understanding and confidence in technologies and performance</td>
<td>▪ Coherent delivery with reduced duplication</td>
</tr>
<tr>
<td>▪ Long term profitable market</td>
<td>▪ Simpler landscape with more centralised information and a single voice</td>
</tr>
<tr>
<td>▪ Skilled workforce</td>
<td>▪ Accreditation</td>
</tr>
<tr>
<td>▪ Access to information</td>
<td>▪ Clear understanding of remit</td>
</tr>
<tr>
<td>▪ A level playing field</td>
<td>▪ Recognition of bodies’ work within the industry</td>
</tr>
<tr>
<td>▪ Clarity on expectations</td>
<td></td>
</tr>
<tr>
<td>▪ Growth of UK business in UK and in export overseas</td>
<td></td>
</tr>
<tr>
<td>▪ Establish an international reputation for UK industry</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Utilities – getting better value for money and winning trust from consumers</td>
</tr>
<tr>
<td>▪ Investors – access to information and benchmarking, understanding how to add/protect value</td>
</tr>
<tr>
<td>▪ International community – example of success</td>
</tr>
</tbody>
</table>
The above success factors illustrate that if a support mechanism is to be successful it will need to provide a range of services to different audiences. The following common themes emerge as being key outcomes of a successful support mechanism.

- Recognisable and single start point for accessing impartial information and knowledge, including:
  - robust and reliable information and guidance – covering technical, commercial and practical aspects
  - benchmarking and other continuous improvement information about progress and performance
- Improved communications between stakeholders – particularly within the sector and between the sector and Government
- Improved industry capacity to deliver to high standards of quality and cost effectiveness – including through skills, innovation and continuous improvement.
3.0 What is needed?

3.1 Overview of the ‘perception gap’

Table 3.1 (below) summarises the gaps in perception that exist between different stakeholder groups as evidenced by a range of reports. The prevailing Government view is that the Green Deal and ECO policy will be sufficient to drive the market for low carbon refurbishment, as evidenced by its own impact assessment and energy efficiency strategy. The lack of wide ranging incentives or regulation further reinforces this position.

In contrast, a number of government and industry studies\(^5\)\(^6\)\(^7\) have shown that these important policies, whilst necessary, are not sufficient on their own to reach the scale of refurbishment required to meet the carbon budgets and alleviate fuel poverty.

Perhaps not surprisingly, given that Green Deal is just launching, the public’s awareness of the policy is low\(^8\) and there is some evidence to suggest that communicating the complex offering will be a challenge. Furthermore, sceptical voices from a range of source including national media\(^9\), trade media\(^10\) and housing associations\(^11\) add to the perception that Green Deal will be too much effort and will only have limited reach and impact.

The construction, refurbishment and property industries are similarly calling for more to be done as evidenced by Building magazine’s ‘Green for Growth’ initiative. Concurrently, investors are waiting for a large scale, liquid market with demonstrable track record before committing the billions of pounds required\(^12\).

Taken together, the evidence paints a picture of wide ranging perception gaps between Government and industry, investors and the general public that need to be tackled for large scale retrofit to become a reality.

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\(^7\) Association for Conservation of Energy (2012) The impact of fuel poverty budgets in England
\(^8\) Consumer Focus (2011) Green Deal or no deal
\(^9\) The Guardian (28/01/13)
\(^10\) Inside Housing (25/01/13)
\(^11\) Sustainable Housing (May 2012) Landlords feel unprepared for the Green Deal
\(^12\) Camco (2012) North London Housing Stock Analysis and Business Plan
### Table 3.1: Nature, scale and underlying basis of perception gaps

<table>
<thead>
<tr>
<th>Sector</th>
<th>Nature of perception gap</th>
<th>Scale of gap</th>
<th>Underlying basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>▪ Green Deal and ECO will drive the market</td>
<td></td>
<td>▪ Impact assessment / energy efficiency strategy</td>
</tr>
</tbody>
</table>
| NGOs                        | ▪ Green Deal and ECO will not hit carbon or fuel poverty targets                         | High – policy needs 2-3 times the projected impact | ▪ Energy Bill Revolution  
▪ Consumer Focus               |
| Occupier / Owner            | ▪ Low awareness, too complex, too expensive                                               | High – uptake rates are critically dependent on occupant desire in a market environment | ▪ Mumsnet survey  
▪ Awareness around Green Deal |
| Construction and refurbishment industry | ▪ Policy uncertainty  
▪ More needs to be done  
▪ Uptake rates are uncertain                                                             | Medium – low number of accredited assessors, installers and providers; reported job losses | ▪ Response to Green for Growth initiative  
▪ Construction Skills  
▪ ACE report |
| Built environment professionals | ▪ Lack of widespread evidence on how buildings perform in practice  
▪ Limited available evidence highlights limitations                                     | Medium – Pay As You Save (PAYS) pilots, Technology Strategy Board competition show difficulties in practice and limits of ‘golden rule’ | ▪ Results from surveys / workshop  
▪ FutureFit report  
▪ UCL analysis of Warmfront |
| Property Industry           | ▪ Sceptical that Green Deal is for them                                                   | Medium – low Green Deal potential in social housing, private rented sector pushing back, Green Deal for non-domestic sector ill-developed | ▪ Camco report for NHF  
▪ Wilmott Dixon report  
▪ PRS working group  
▪ Green Deal Commercial Property Group Report. |
| Investor                    | ▪ Market has no track record  
▪ Policy risk since FIT changes  
▪ Scale of market not large enough to be of interest  
▪ Returns not strong enough                                                          | High – GD Finance Company (GDFC) difficulty in securing investment from private equity, GIB and capital markets | ▪ UK-GBC event  
▪ GDFC  
▪ BBP (Better Buildings Partnership)  
▪ Previous reports |

### 3.2 What are the barriers to low carbon refurbishment?

Numerous studies have examined the real and perceived barriers to low carbon refurbishment. These reports include:

- Camco for DECC (2009) *Whole House Refurbishment: Barriers and Incentives*
- Consumer Focus (2011) *Green Deal or no deal: Great British Refurb Campaign*
A number of conclusions can be drawn as to the key issues and challenges to be addressed in driving wider low-energy refurbishment of domestic properties, in particular:

- **Trust will be critical to success.** A new report by Consumer Focus ‘What’s in it for me? Using the benefits of energy efficiency to overcome the barriers’ stresses the importance of gaining and building trust in order to generate uptake. There is generally a low level of trust in utilities and other potential major providers of Green Deal services. The decline in public trust in large corporations, utilities, financiers and government has been accompanied by a tendency for people to look towards those with a shared demographic interest (such as a shared place of living, work, faith group, peer group). The ‘messengers’ will be just as important as the ‘message’ itself. People trust the experience of others who have already taken action, more than almost any other source. This word of mouth ‘social diffusion’ will be a key factor in helping to establish trust in the scheme over time.

- **Local ambassadors will play an important role.** Trusted figures within communities who can help shape opinion and encourage uptake include those involved with local and parish councils, resident and tenant associations, local community groups, faith groups and schools. Local ‘experts’ include builders and trades (who householders’ often turn to for advice in the first instance and whose opinion tends to be highly trusted) who could be potentially powerful ambassadors for the Green Deal, providing they are engaged (if not there is a danger they could undermine confidence and become ‘assassins’).

- **Local authorities will need to play a role as ambassadors for energy efficiency** (whether delivered through the Green Deal, ECO or otherwise). They are required to play such a role for domestic properties through their obligations under the Home Energy Conservation Act. Local authority energy efficiency officers could provide valuable local representation within any support mechanism, helping disseminate information and ensuring that requirements throughout the UK are understood.

- **A community based approach is likely to be more successful at delivering uptake.** The people most effective at engaging householders will be those embedded within their communities of place or interest. Experience from pilot projects around the country point towards a localised, bespoke approach to delivery, with a prominent role for local organisations such as the local authority, social enterprises, local SMEs and housing providers at all stages of the Green Deal process (including marketing, advice and installation), to be most successful. An approach which is transparent, accountable, and enables local control, will help to build trust and credibility with potential customers.

- **Marketing under the new approach of Green Deal needs to be much more effective than under the old approaches.** Previous programmes such as CERT offered simple, non-disruptive measures with low costs and fast payback periods. Even under these programmes millions of households still did not take up basic improvements such as loft and cavity wall insulation. The Green Deal will involve more complex measures with higher costs and a longer, more complicated payback system which will also need to be explained to householders.

- **Marketing will need to address not just householders but businesses and public sector too.** The Green Deal is also available to non-domestic buildings and messages and delivery routes need to take the non-domestic sector into account and in particular the information needs of domestic and non-domestic landlords.

- **Behavioural psychology can inform effective marketing and delivery.** This field of research has a lot to offer in the development of effective ways to maximise uptake under the Green Deal. For instance, the so-called
protagonists in peer groups play a strong role in influencing others and establishing new social norms. Understanding how people make decisions also raises questions about advice delivery. Treating energy as a ‘people’ issue rather than a ‘technical/building’ issue represents an important change of culture in the energy/environment sector, especially for domestic energy assessors whose focus and training to date has been highly technical. Local training on aspects of behavioural psychology for individuals and groups delivering energy advice would be valuable and could be co-ordinated by the council as part of a community engagement programme.

- **Trigger points will be key.** Green Deal will work most effectively when a ‘whole house’ approach can be delivered which combines packages of improvements, including simple as well as more disruptive measures. These are best installed at key ‘trigger points’ when someone is moving house, undergoing redecoration or major works, having a new kitchen or bathroom installed, or replacing windows.

- **Experience shows exemplar projects are highly inspirational.** Householders respond well to open show homes where they can witness a range of measures and ask questions to homeowners like themselves in a non-sales environment. This direct sharing of experience tends to be trusted and highly motivational. In a scheme in Norfolk 72% of visitors went on to make similar changes to their own homes. Projects like Bath Green Homes, Bristol Green Doors, and the national Old Home SuperHome Network show how this can be done. There is potential role for shared learning and development of exemplar schemes across the UK.

- **Financial incentives can help raise awareness and take-up.** Use of local financial incentives could be used to reward certain behaviours. Council Tax cash-back style rebates could be linked to Energy Performance Certificate (EPC) rating or cash-back vouchers could be offered against local Green Deal Assessments or installations using local Green deal installers.

- **Unavailability or poor transfer of data** relating to energy use between landlords and tenants. While efforts are being made to improve information sharing this is still in its infancy and coordinated work between landlords and tenants is relatively rare.

- **Commercial issues are complex and varied across different market segments.** These include the uneven distribution between landlord and tenant of the costs, benefits and control of energy use, the wide range in exposure of commercial landlords to energy related risks and limitations within leases concerning interventions in a building that could yield improvements in energy efficiency.

The following issues will also be key to ensuring that the Green Deal is delivered in a way which results in maximum carbon emissions reductions being delivered in practice (not just in theory), which can also be sustained over the long term:

- **Interest rate charged to the customer** – The extent of retrofit work that is financially viable under the Golden Rule is critically dependent on the interest rate charged to the customer in the Green Deal Plan. In order to maximise carbon reductions is will be essential to keep interest rates at a level that enables the value of energy savings to repay both capital and interest (ideally not more than 6-7%).

- **Householders need high quality assessment and advice.** Evidence from previous pilot schemes showed that modelled energy use in the home can differ greatly from actual use, as a result of occupant behaviour, and/or because some building elements (such as solid walls) behave differently from the assumptions used in the methodology. While the ‘in-use’ energy factors now included in the Green Deal assessment methodology will help, good quality assessment and advice will have an important role to play in helping householders

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13 For instance see latest report from Energy Saving Trust on household electricity use ‘Powering the Nation’, published June 2012

14 The ‘in-use’ factor is a percentage reduction applied to the savings estimate for qualifying Green Deal measures. The Government stated it intended to introduce such ‘in-use’ factors to the assessment process for Green Deal in its consultation response of June 2012, with the purpose of recognizing that that the theoretical performance of energy efficiency measures and the actual performance is often different.
understand implications and make appropriate investment decisions. Local advice and assessment services could play a valuable role here.

- **Assessments should ideally set out a long term plan for household energy improvement.** Most householders make improvements to their homes in a gradual, piecemeal fashion. While they may take out a package of Green Deal improvements one year, there will be other measures which could be more cost effective or less disruptive if integrated to future works (such as loft conversions or redecoration), perhaps financed independently of Green Deal. A Green Deal assessment provides a unique opportunity to create a whole-house energy plan which can be implemented over time to support long term carbon reductions.

- **Installations must be good quality and perform as expected.** There is much experience to show how incorrect installation of measures or building fabric improvements can result in significant under-performance or even long term building damage. Bad experiences will undermine confidence and under-performance will cancel out potential carbon savings as well as fuel bill savings. For example, there are particular risks associated with Bath’s historic building stock which needs careful and appropriate treatment. There is a role for technical performance monitoring (as well as behavioural change monitoring) which could be undertaken by local academic partners in the district.

- **Quality, trusted advice will be needed throughout the customer Green Deal journey and beyond.** There is a strong potential role for community groups, third sector organisations, registered housing providers and the local authority in delivering quality advice and ongoing behavioural change support. Specific roles could include ‘pre-assessment’ in-house consultations by trained community advisors, or follow up ‘after-care’ support and hand-holding, potentially with peer-group support. This activity will be crucial to sustain carbon reductions in the longer term and to prevent the ‘rebound effect’ where householders effectively offset the savings they have made by buying more electrical appliances or turning their thermostats up.

- **Shared learning on a neighbourhood or street-by street basis can raise awareness and help underpin sustained carbon reductions.** Approaches such as ‘Transition Streets’, where neighbours come together in a structured process of co-learning during meetings covering different themes, build social capital whilst introducing new ideas in an informal setting, and creating new social norms, could play a powerful role. These approaches can be powerful in delivering the transformational change in public attitude needed to underpin take-up of the Green Deal and underpinning sustained carbon reductions in the longer term.

In summary, the literature confirms that there are a number of key barriers to low carbon refurbishment that all need to be tackled together in order to achieve the scale and pace required. A series of levers and triggers have been identified that need to be utilised in concert with the policies that are in place – namely Green Deal and ECO. However, in order to bring this about at scale and with confidence, a different approach will be required from that which has delivered energy efficiency programmes to date. These issues were analysed further with a cross section of relevant stakeholders.

### 3.3 What is required to overcome the barriers?

In Section 2Error! Reference source not found., two scenarios were presented for the existing domestic property sector for delivering fabric or other energy efficiency improvements. One is DECC’s own projections for uptake of Green Deal and ECO whilst the other represents a greater uptake working towards meeting carbon reduction and fuel poverty targets.

A workshop was held with a range of key stakeholders to identify key gaps or risks to the delivery of the low carbon refurbishment at these scales. Participants were asked to describe the nature of the gap/risk, what needs to be done and who needs to be involved. The Sweett/Verco project team have then identified example activities for a support mechanism, depending upon the level of intervention provided. Generally this is set at three levels:

- **Co-ordination activities**, e.g. convening meetings, disseminating information and making links between organisations.
• Development of solutions e.g. carrying out or commissioning specific research and design
• Implementation support: e.g. delivery of an agreed solution (for example monitoring and evidence gathering, or training and certification programmes)

These themes are covered later in the report when describing the existing delivery landscape and identifying the preferred points of leverage for the support mechanism.

3.3.1 Coordinated delivery strategy

At present there is an absence of a standardised solution for undertaking energy efficiency interventions across a range of buildings, for both processes as well as products. The Green Deal, ECO and PAS 2030 go some way to addressing this but more needs to be done as experience is gained across the industry. A standard approach to energy efficiency interventions would serve to reduce average costs of works and boost consumer demand.

There is a need to develop and implement standardised approaches to a range of typical domestic scenarios. This may involve corralling existing best practice guidance; commissioning new research or practical work to testing and monitor the impact of different approaches.

To coordinate delivery, incentives must be put in place for presently separate trades to work together and co-operatively determine the most effective measures based on a common set of standardised procedures/ analyses. Interventions range from synchronisation of existing trade bodies through to research on new incentives.

Coordinated delivery is maximised where more can be done by individual tradesmen. In many small to medium interventions this is often the most cost effective and efficient means of undertaking retrofitting works. To achieve this a balanced combination of re-skilling is required (both up/deskill) through formal and informal means of knowledge sharing, coupled with a grounded re-assessment of restrictive protocols/ accreditation requirements which currently prevent many installers from undertaking simple procedures (such as moving a light switch).

Potential interventions could range from working with Construction Skills to identify requirements through to commissioning / endorsing existing programmes or running new training / accreditation programmes.

Cost benefit analysis needs to extend beyond simply Cost and Carbon. Metrics of Health and Comfort must also be considered to demonstrate the true benefits of energy efficiency measures to consumers. Support activities could range from coordinating stakeholders who would recognise the value in refurbishment works or Commissioning works on theoretical Cost Benefit Analysis (CBA) through to long term monitoring of case study schemes.

Work in this area needs to involve Good Practice providers; Building Control; all stages of the supply chain; Marketing specialists; Trade associations and Community groups.

Short term priorities: monitor early progress with Green Deal and ECO, gather and share insights across the industry

3.3.2 Customer awareness and demand

Householders are currently unaware of the full extent of benefits that energy efficiency retrofitting can provide. There is insufficient evidence in the marketplace that expresses the quality of life benefits of retrofit and hence a lack of consensus amongst consumers regarding the direction to adopt. If this is not addressed, there is a risk that there will be low confidence in Green Deal leading to low uptake. There could also be negative publicity of Green Deal works and energy efficiency in general, leading home occupiers to conclude that it’s not worth the hassle.

Action is required to address the lack of available evidence. This could include reviewing existing examples e.g. Superhomes; commissioning of further studies or a nationwide programme of demonstration / monitoring / re-implementation perhaps backed by capital funding for demonstration projects (e.g. Retrofit for the future).
Clear messages need to be disseminated to the target audience. Actions include making evidence available for other bodies to disseminate; analysing data and working with key stakeholders to generate wider understanding through to organising / owning a full information campaign through consumers and also full engagement with stakeholders such as NHS / social services.

A range of actors need to be involved including consumer brands/ recognised “Face”; utilities; retailers; trade bodies; insurers & assurance bodies; RICS and estate agents.

**Short term priorities: establish a central repository of good practice examples and gather case study material from Green Deal and ECO**

**3.3.3 Access to the right information**

The industry requires access to accurate data from previous projects demonstrating before and after performance improvements. Without such data the sector lacks sufficient information from which to assign robust baseline figures of expected performance and evaluate the appropriate solutions / improvements for individual projects based on a representative scenario/ baseline. The consequence of this could be that bad decisions could be made, poor results are experienced, wrong conclusions are drawn and building user confidence is impacted.

It has been suggested that energy companies must be obligated to accurately and usefully monitor energy use and be forthcoming with this data to inform the analysis of performance improvements following energy efficiency improvements. A support mechanism could assist this in a range of ways such as by drawing on existing resources / guidance explaining the business case for monitoring; or by working with stakeholders and Government to embed such an obligation.

This work needs to involve utility companies, consumer groups, installers and independent/ trusted analysts.

**Short term priorities: work with the Technology Strategy Board and other stakeholders to establish and develop an open-access data set of monitored data including a consolidated methodology**

**3.3.4 Confidence in the refurbishment process**

In the absence of a mature market with strong track record there is currently no guarantee of actual/ tangible performance improvements for the consumer, limiting the opportunity to carry out a realistic CBA. Without assurance of likely benefits, the risks associated with retrofitting a property and the initial cost outlays are likely to put consumers off investing. The risk is that this will lead to low uptake of works / low consumer trust and confidence thereby minimising the impact of retrofit policies.

Consensus needs to be reached on an appropriate and standardised methodology for measurement and reporting of performance. Consideration needs to be made of both social and technical aspects and effectively convey before and after analysis offering valid performance and financial benefits of interventions. Examples of how a support mechanism could help include running workshops to agree consensus on principles of methodology; Commissioning new research and engaging with Government on solutions required; developing a methodology and manage its implementation.

Workshop attendees considered that there needs to be a trusted, impartial, not-for-profit, single repository of information presenting an open source of information to the industry. A clear distinction between the domestic and non-domestic markets needs to be maintained within the information. Work areas could include agreeing open access protocols for existing data; collating data; and commissioning data / long-term active management of the database.

**Short-term priority: develop an appropriate and standardised methodology for measurement and reporting of performance**
3.3.5 Industry capacity and ability to deliver

It was acknowledged that there is currently insufficient real world evidence for policy decisions to be made to provide feedback. Concern exists regarding where, and the uncoordinated nature in which, evidence is currently held. The risk is therefore that policy decisions either can’t be made or incorrect decisions are made, making it hard to measure the effectiveness of policy.

A consensus needs to be reached over the most appropriate methodologies/mechanisms to collect, process and disseminate the information. Data needs to be collated with particular attention on areas where there is a current paucity of evidence (particularly actual/experienced performance and user experience).

As well as agreeing a methodology a support mechanism could agree a method of communication with industry, disseminate information to industry and Government and actively engage with industry to implement change i.e. high profile meetings/workshops/training/etc. Government, industry, consumer groups and experts all need to be involved.

Another area of risk is that the supply chain is currently fragmented/segregated with individual vested interests but a lack of unified direction. A disaggregated approach from industry results in people working in silos leading to duplication, conflicting policy, lack of collaboration, and lack of clear leadership resulting in poor relationship across supply chain hence consequential breakdown in forward strategy/policy/etc.

Initiatives are required to bridge the boundaries between individual trades and along different strands of the supply chain to encourage individual contractors/installers to undertake either formal or informal knowledge sharing to become multi-skilled. Information relating to Design/ Installation and Assessment must be made readily available to assist in the process. Support activities could include activities include initiatives to encourage cross sectorial activity; development of a programme and commission of works through to full development and running of a programme. Industry leaders and GCB, itself, needs to be involved.

**Short-term priority: identify specific targeted areas for cross-industry co-ordination and put in place appropriate structure to address them**

3.3.6 Ability to provide innovative and cost effective solutions

There is currently too great an emphasis on encouraging the retrofit and improvement of the most difficult properties and as such industry focus and public awareness is distorted towards a relatively small proportion of the market. Consequently elevated specification complexities and costs associated with such niche properties provide a misleading message to the majority of consumers occupying more standard dwellings.

The risk is that ‘low hanging fruit’ is being missed, real problems are not being addressed and that energy efficiency is considered too difficult so no economies of scale are achieved through a mass market.

Focus needs to be re-directed towards the 80% majority standard housing stock and therefore encourage simple/standardised measures that can be implemented on a large scale at low costs. Support may be required to collate evidence for others to disseminate.

Specific solutions need to be developed and engagement with relevant stakeholders needs to occur. Work needs to be commissioned involving funding, testing and monitoring of demonstration programmes plus disseminating results and supporting training programmes.

The industry must be better informed of agreed standards to ensure that installers are able to comprehensively advise consumers on the best solutions available to meet these standards. A support mechanism could collate and communicate standards; manage on-going review and update of standards (e.g. SAP appendix Q) or enforce standards (e.g. UKAS style testing).
A concerted effort must be made to incorporate these easy to implement standards into mainstream media as well as incentivising installers to ensure that the most appropriate interventions are made and to offer the best cost efficiencies to their customers. Support mechanism activities could include producing guidance / source material; disseminating guidance / educating practitioners or working with installers to understand incentives required.

A range of actors need to be involved including media (key people/ figureheads); utility companies; contractor representation; trade bodies, press networks; social housing groups; coordinated government representation; DCLG.

**Short-term priorities: collate and communicate best practice approaches**

### 3.3.7 Availability of robust technical solutions

It was considered that there is a lack of evidence of resultant performance to justify/ encourage the development of innovations/ technical solutions. The risk is therefore that innovation doesn’t take place resulting in a lack of appropriate measures / minimisation in supply chain and lack of investment from overseas etc.

Methodologies and protocols need to be established for measuring performance for both buildings and technologies. A support mechanism could identify what is required and how the methodology should be developed (e.g. in the way UK-GBC often works); perform or commission detailed investigation of method / protocol (e.g. ZCH) or manage protocols (e.g. BRE / SAP)

There is a need to collect and publish accurate data to support technical decisions. A support mechanism could collect data; publish and commission new data or establish and maintain datasets / provide technical support (private consultancy) / decision making.

Protocols need to be published to ensure a comprehensive roll out to the industry, be it installers, investors, consumers, insurers. A support mechanism could publish protocols (e.g. PAS 2030); manage an overall engagement with practitioners involved within protocol (e.g. like BSRIA / CIBSE); or actively maintain and evaluate protocol and its subsequent roll-out (e.g. like BREEAM / Building Regulations).

The work needs to involve those that collect and provide data (energy companies, Technology Strategy Board, ETI, consultants, Local Authorities and Registered Providers); industry, DECC and DCLG.

**Short-term priorities: Establish methodologies and protocols for measuring performance for both buildings and technologies**

### 3.3.8 Clear leadership and vision from Government

There is a lack of a clear immutable policy established in agreement with industry demonstrating the Government’s long-term intentions/ direction. This does not reassure the industry of the Government’s lasting commitment hence undermines investor confidence. The risk is that industry is not assured, investor confidence is undermined, and the supply chain stagnates / collapses. This could mean that investment in Green Deal is not forthcoming, impacting the Green Deal Finance Company and the Green Investment Bank.

To address this, a support mechanism or similar collaborative body needs to be established immediately to assist in delivering long term objectives with short and medium term targets. It needs to lead on coordination and strategic development; development of solutions to key problems and potentially support with implementation of the agreed approach.

The work needs to be a close collaboration between industry and Government departments (DECC/ BIS/ DCLG/ Treasury) with strong cross-party representation. Ministers and senior civil servants within each of the key departments need to endorse the initiative and commit to working constructively.
Short-term priorities: establish task group to set medium term objectives for the sector, bridging the gap between early stage market development of Green Deal and long term carbon budgets

3.4 Key considerations

3.4.1 Should a body cover both domestic and non-domestic sectors?

Domestic and non-domestic buildings are significantly different in many respects. Some examples include:

- Size and complexity – non-domestic buildings are typically larger and more complex
- Management – non-domestic buildings typically include some form of active management
- Key sources of energy consumption – in existing domestic buildings reducing heat loss through insulation is a key consideration, this is generally less relevant to many non-domestic buildings where effective management of energy use is more important
- Construction methods – although there are significant variations in both sectors the nature of the construction materials and technologies in domestic and non-domestic sectors varies significantly
- Customers – the nature, expertise, priorities and number of customers in each sector are very different

Notwithstanding the above differences there are strong arguments for combining both domestic and non-domestic buildings within a common support mechanism. These include:

- Areas of common interest – despite their differences, there will be a range of areas where a common approach or platform could be used to support both domestic and non-domestic buildings. As well as areas of technical similarity, both sectors include landlords, tenants and owner occupiers albeit in differing proportions and with differing responsibilities.
- Creation of a coherent view – that encompasses risks and opportunities in both parts of the market
- Sharing overheads – including administration, joint activities, IT, etc.
- Bridging the gap between the sectors – for example ensuring coverage of larger more intensively managed apartment blocks and smaller ‘house like’ non-domestic properties

If a support mechanism were to cover both domestic and non-domestic buildings then it would be important that there are clear leads for each area and that the work programmes of each area are specifically informed by, and responsive to, the stakeholders in each sector.

3.4.2 Should a support mechanism focus on supply or also include stimulation of demand?

The goals of the refurbishment programme will require:

- Sufficient levels of demand that stimulates activity - i.e. numbers of buildings being refurbished, and the extent of the measures applied. Activity will be driven by the following factors:
  - Confidence in the quality, energy savings and cost effectiveness of different options (see below)
  - Incentives / subsidy
  - Ability to access sources of finance
  - Awareness
  - Cultural attitudes
  - Perception of the potential to impact property values (positively or negatively)
- High levels of performance in supply – i.e. quality (of work and service), energy savings and cost. Performance will be driven by:
  - Development of robust and standardised solutions packages
  - Testing and evidence gathering to foster industry learning and communications
  - Development of the necessary skills
  - Innovation in technology, delivery and business models
- Accreditation of individuals and certification of solutions
- Robust tools and guidance for sharing information and communicating with customers

The above factors are inherently interlinked, in that without a supply that provides value to the customer the demand for energy efficiency services will always be limited. Therefore an industry support mechanism must have a strong focus on the customers in the various segments of the built environment (e.g. home owners, private and social landlords, owners and occupiers of non-domestic buildings). However, it is not the role of a support mechanism to explicitly consider how demand can be stimulated and the range of regulatory or fiscal measures that might be applied to encourage uptake.

### 3.5 Conclusions

#### 3.5.1 Need for a support mechanism

Review of recent literature and consultation with a wide range of stakeholders has clearly identified the need for a support mechanism to help address barriers to large scale refurbishment.

#### 3.5.2 Key functions

The key functions required from the support mechanism are to:

- Develop a coordinated UK refurbishment strategy and route map for delivering long term policy goals with short/medium term targets
- Provide a forum for discussions about the nature and development of the programme between Government, industry and other stakeholders
- Provide access to centralised repository of robust, transparent and up to date data (e.g. information on levels of refurbishment activity, examples of success and the performance of work undertaken)
- Provide access to information and guidance relevant to a range of audiences
- Identify and help channel activities that will develop an appropriately skilled, innovative and efficient supply chain capable of delivering high quality and cost effective work
- Identify requirements and, where well placed, define solutions to key technical, commercial and other barriers. For example, a pattern book of robust whole house refurbishment details and a standardised approach to measuring and reporting performance

#### 3.5.3 Scope

There are substantial technical, commercial and practical differences between refurbishment activity in the domestic and non-domestic sectors and as a result there will inevitably be a need for separate coverage of these two parts of the industry. However, benefits of a comprehensive approach (e.g. efficiencies, common voice, and joint working) are such that a single support mechanism is recommended, but with distinct operating units focusing on each area.
4.0 What defines an effective support mechanism?

4.1 The role of support mechanisms

Industry / sector support mechanisms can take a wide range of forms, from larger and highly integrated bodies (e.g. Energy Saving Trust or WRAP); to lighter weight expert advisory bodies (e.g. the GCB). The role, cost and capacity to act of different bodies varies substantially.

Research at the 2020 Public Services Hub of the RSA\(^\text{15}\) provides some useful insights into ways in which business, Government and society can come together to deliver social goals (improved building stock in this instance) in an effective manner and with limited capacity of public sector finance. This research identified that an approach whereby Government, business and society share ownership, resources and information has the potential to achieve effective progress on complex areas where the Government required active participation of business and society in the solution. Key elements of this approach include:

- **Shared spaces** – where stakeholders can come together to develop collaborative responses to Government policy objectives. Key to the success of such initiatives are:
  - Use of existing networks and resources
  - Active Government support and engagement
  - Default to a collaborative approach
- **Shared values** – trust is created through collaborative working and relationships
- **Shared resources** – including assets and information

The Confederation of British Industry echo the RSA analysis\(^\text{16}\) recommending the initiation of sector bodies that can ‘identify and develop consensus around the key themes in each sector that need to be addressed for the long term.’ These themes would help to form action plans to help grow activity and performance in the sector.

4.2 Example of the Zero Carbon Hub (ZCH)

The Zero Carbon Hub (ZCH) provides a strong example of the effectiveness of industry and stakeholder-led collaborations with active engagement of Government.

Employing a series of task groups, the ZCH was able to provide clear recommendations to Government on key topics relating to the definition and delivery of Zero Carbon Homes. These recommendations enjoyed the authority of diverse expert inputs and wide stakeholder support. In parallel the ZCH also managed to collate an evidence base of low and zero carbon homes projects and provided training and technical information to the sector on key issues such as air tightness, thermal bridging, etc.

A well as being a funder and observer, Government provided significant tacit support by inputting to, or defining, the outcomes it needed from the hub’s task groups and also through the credence given to, and public acknowledgement of, the recommendations once received.

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\(^{15}\) Business, Society and Public Services: a social productivity framework, 2012. 2020 Public Services Hub at the RSA.

\(^{16}\) Playing our strongest hand, maximising the UK’s industrial opportunities, 2012. CBI.
Discussion with one of the Directors of the ZCH identified a range of principles that were considered significant factors in the successful outcomes achieved by the ZCH, see Figure 4.1

Of these, principles of particular note were the aspiration to be:

- **balanced, fair and trustworthy** – acknowledging that true independence would not be possible if experienced individuals were to be encouraged to participate
- **low profile** in other roles – to avoid attracting unnecessary controversy
- **supported by Government** – the 2016 task force with both ministerial and industry leader representation provided oversight and credibility to the ZCH’s work
- **inclusive and to promote other brands** – rather than to supplant any existing bodies
- **not lobbying** – relying on collaborative and evidence based information

Notwithstanding the above it is also clear that the success of the ZCH required the committed action of a strong team together with excellent communication and consensus building skills.

Although there are many lessons to be learnt from the ZCH, it is important to remember that the refurbishment of existing buildings presents a very different set of challenges in terms of timing, industry drivers (a market opportunity rather than a fixed regulatory deadline), customer interface (existing residents rather than new construction), industry structure and leadership and the presence of a large non-Governmental funding sources in the form of the NHBC Trust. Figure 4.2 below sets out a review of the ZCH and assesses its applicability to existing buildings.

**Figure 4.2: Review of the ZCH and its applicability to existing buildings**

<table>
<thead>
<tr>
<th>Context</th>
<th>Zero Carbon Hub situation</th>
<th>Applicability to existing buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Clear remit to help develop and deliver a single policy goal with a reasonably short and definitive timescale (i.e. by 2016) Working with a pre-existing and highly developed sector with to shape the way in which their core activities are delivered.</td>
<td>The goal of existing building refurbishment is clear however there is currently no clear short term imperative (e.g. regulation). The current market for many of the activities required (e.g. solid wall insulation) is nascent.</td>
</tr>
<tr>
<td>Funding</td>
<td>Funding provided by both government and private sector (via NHBC). This enabled the ZCH to largely avoid the need for sponsorship or subscriptions (although substantial in kind contributions of time and knowledge were received)</td>
<td>Unclear that any single source of private investment will be forthcoming. Any private funding may therefore need to be sought from a range of organisations (e.g. membership / subscription model) this would impact perceived independence and also result in a fund raising burden</td>
</tr>
<tr>
<td>Complexity of landscape</td>
<td>Some existing bodies but no pre-existing organisations fulfilling this role</td>
<td>Numerous bodies already occupy this area and the need is to provide clarity, coherence and accessibility to the landscape.</td>
</tr>
</tbody>
</table>
### Context

<table>
<thead>
<tr>
<th>Industry structure</th>
<th>Zero Carbon Hub situation</th>
<th>Applicability to existing buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry heavily influenced by a relatively small number of very large organisations (albeit with a substantial SME sector and SME supply chain). Strong and coherent industry representation bodies (e.g. HBF).</td>
<td>Although there are several significant client and supply bodies within the refurbishment market the role of SME businesses is currently greater for most domestic work. There is no single industry body. Although some bodies such as the Federation of Master Builders, Construction Products Association and UK Contractors Group represent large parts of the supply chain they do not have a specific focus on refurbishment activity.</td>
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</table>

| Technical requirement | Clear need to define and develop solutions against a policy goal (zero carbon). Dealing with a simpler structure, i.e. a new building, decision making largely in the control of the house builder and no need for the customer to specifically require the zero carbon activities because they are required by regulation (although clearly they should not detract from desirability). | No specific technical targets (e.g. a minimum standard to be achieved) or timescale. Complex industry structure with interfaces with owner occupiers and landlords. Need to ensure costs are and performance are such that there is strong customer demand. |

| Timescale | To prepare the sector to meet the planned requirements for 2016 | Longer timeframe (e.g. 2027 and beyond) and no clear and iconic short term targets against which industry progress can be measured. |

### Key learning for the existing building sector

- Time limited task groups provide focus and momentum when addressing key sector-wide issues
- Industry professionals and stakeholders will devote significant time and resource where they are working collaboratively and have the ear of Government
- The ZCH is able to make significant progress on both technical and information barriers by pursuing a highly targeted approach and utilising (rather than replacing) other resources in the sector.
- The 2016 task force provides a senior multi-stakeholder oversight body to which the ZCH is accountable

### 4.3 Examples of support bodies from other sectors

There are numerous sector support bodies in the UK, below are two examples bodies from outside the construction sector, illustrating the diversity in solutions that are currently in place.

#### 4.3.1 Learning and Skills Improvement Service

The Learning and Skills Improvement Service (LSIS) is a limited company and a registered charity. It was formed to accelerate quality improvement, increase participation and raise standards and achievement in the learning and skills sector in England. LSIS commission products and services, identifies and shares good practice and provides tailored programmes of support.

In common with existing buildings refurbishment, the learning and skills sector is highly diverse with a wide range of stakeholders within the sector as well as students and employers. To address this diverse set of influences the LSIS has a board comprising 12 members, each of which are both Directors of the Board and Charity trustees. The Board also has five observers from stakeholder organisations:

- Skills Funding Agency
- Department for Business, Innovation and Skills
- National Union of Students
- National Improvement Partnership Board
- Office for Standards in Education
Board members are selected through an extensive recruitment process to reflect a variety of skills, knowledge and experience required to direct the organisation. Current members include those with roles in further education, training and as employers.

LSIS is also governed and advised by a member council made up of 30 members elected by the sector taking into account the nature and type of providers and geographic distribution. The Council holds the Board to account and also undertakes an advisory, consultative and representative role.

LSIS assesses the impact of its work in several ways including in the level of engagement it has with the sector. I.e. the percentage of the sector or subsectors with which it engages and the impacts of its work e.g. over 90% of sector professionals supported by LSIS have improved the quality of teaching.

**Key learning for the existing building sector**

- Council and board governance structure provides a small executive that can respond quickly together with a wide access into the diverse stakeholder base
- An elected council can be used to oversee a selected board
- The council is drawn from members of a wider grouping (Single voice) that provide a constituency from which to select and elect councillors
- Observers from Government and other relevant stakeholders attend board meetings but are not board members

### 4.3.2 The Automotive Council

The Automotive Council provides coordination and leadership to improve the UK automotive sector and the environment in which it operates. Established in December 2009 as a key recommendation of the industry-led New Automotive Innovation and Growth Team (NAIGT), the Automotive Council is driven by leading members of industry, but is jointly chaired by the secretary of state for business – providing political buy-in and ensuring government partnership to deliver on its recommendations.

The Automotive Council has two focused strands of priority work: (1) to improve the UK automotive supply chain (identifying gaps and addressing problems – e.g. skills); and (2) to develop and communicate a detailed technological roadmap for innovation, setting out key areas of R&D needed in the UK (with timelines of 30 years ahead) to ensure the industry remains competitive as technology advances. By developing industry consensus on these issues, the council makes it easy for government to know where to invest to make a difference. The research findings of the Automotive Council are used to influence the with the work programmes and investments of Technology Strategy Board, research councils and European Funding

**Key learning for the existing building sector**

- Joint chairpersons at a senior level of Government (Secretary of State) and business provide authority to the council
- A focus on key areas is required to make real progress
- An industry support mechanism can influence far larger sources of investment if it clearly articulates the case for action and works collaboratively with relevant bodies (e.g. Technology Strategy Board, research centres etc)

### 4.4 Key characteristics of an existing buildings support mechanism

Given the diversity of potential approaches, it is important to have a clear view on the characteristics that a support mechanism should exhibit as this will help in identifying suitable structures and governance arrangements (see Section 6.). Stakeholders were asked to identify the characteristics that an effective existing buildings support mechanism should exhibit to be able to deliver the key areas where there is a need for support. These comprised:
- **Transparent**: all of the information provided by the body and its activities should be transparent
- **Trusted**: by the industry and other stakeholders
- **Collaborative**: including all relevant stakeholders
- **Evidence Based**: drawing on evidence and working to make good quality data available to others
- ** Appropriately detailed**: in both the work undertaken and the information provided to different audiences
- **Independent / balanced**: without affiliations to specific stakeholders or viewpoints
- **Forward looking**: able to articulate a clear vision and manage activities towards this against a routemap
- **Accessible**: information should be available to all and it should be possible to engage

### 4.5 Conclusions

- A support mechanism should provide a shared space for Government, industry and other stakeholders to collaborate effectively
- Intensive time limited task group working is an effective means of achieving progress on key topics
- Key parties will participate if they believe the recommendations will be listened to and acted on
- Oversight from a representative group of stakeholders with a mandate (e.g. elected or representing a Government department) adds credibility and direction
- A support mechanism need not try to deliver all elements of its remit where others are better placed and have established resources. Rather its role is to help shape approach so that funding is used most effectively.
5.0 Current landscape

5.1 Introduction

The existing organisational landscape is a crowded, fragmented and complex space, with organisations ranging from membership bodies, to publicly funded bodies, to charitable bodies, to public/private partnerships. The IGT report produced a simplified stakeholder diagram, identifying the principal organisations already working in this sector, clearly demonstrating this scale and complexity.

Figure 5.1: Existing organisational landscape, extracted from the IGT report
The following table shows the existing organisations identified through this process and the key topic areas that they operate in. The organisations are sub-divided according to their core role:

- **Coordination bodies**: convening meetings, disseminating information and making links between organisations
- **Solution development bodies**: carrying out research and design
- **Implementation bodies**: construction, refurbishment and project implementation and oversight

This analysis has enabled a gap analysis of the existing landscape against the key gaps / risk identified in Section 3 - this is shown in Figure 5.2 below. In summary, there are numerous coordination bodies, which may benefit from harmonisation or rationalisation, but fewer solution development bodies and very few bodies involved with implementation. Of the key risk areas identified, **areas of significant gaps in the existing organisational landscape relate to developing coordinated delivery strategies, developing confidence in the refurbishment process, and ensuring clear leadership and vision from government.**
Figure 5.2: Existing landscape review by organisation type and coverage

<table>
<thead>
<tr>
<th>Theme</th>
<th>Coordinated delivery strategy</th>
<th>Customer awareness and demand</th>
<th>Access to the right information</th>
<th>Confidence in the refurbishment process</th>
<th>Industry capacity and ability to deliver</th>
<th>Ability to provide innovative and cost effective solutions</th>
<th>Availability of robust technical solutions</th>
<th>Clear leadership and vision from Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordination bodies (convening meetings, disseminating information and making links between organisations)</td>
<td>AECB Consumer Focus EEPB IFS NRC SHAP STBA UK GBC WRAP</td>
<td>EEPB Consumer Focus NRC Superhomes UK GBC Which?</td>
<td>AECB BBP EEPB GCB NHF UBT Which? WRAP</td>
<td>AECB CoRE EEPB IIS STBA</td>
<td>B&amp;ES CIC CPA EEPB FMB IIS NRC Regen UK GBC WRAP</td>
<td>B&amp;ES CPA EEPB FMB STBA Which? WRAP</td>
<td>AECB B&amp;ES CPA EEPB GCB IIS WRAP</td>
<td>EEPB GCB NRC UK GBC WRAP</td>
</tr>
<tr>
<td>Solution Development bodies (carrying out research and design)</td>
<td>ACE EST ETI IPPR NEF Parity Projects PRP Architects UCL</td>
<td>Carbon Trust DECC EST ETI NEA NEF UCL</td>
<td>ACE Consumer Focus Carbon Trust CIBSE EST UCL</td>
<td>EST</td>
<td>Carbon Trust EST Willmott Dixon</td>
<td>Asset Skills CoRE DECC EST ETI Green Register NEF</td>
<td>CIBSE EST PassivHaus Trust RIBA ZCH</td>
<td>Carbon Trust CLG Constructing Excellence DECC EEDO</td>
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<tr>
<td>Theme</td>
<td>Coordinated delivery strategy</td>
<td>Customer awareness and demand</td>
<td>Access to the right information</td>
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<td>Arup BRE Leeds Met University NEF</td>
<td>Parity Projects</td>
<td>BRE Technology Strategy Board HCA</td>
<td>BRE</td>
<td>BSI Gemserv</td>
<td>Construction Skills BRE BSRIA Leeds Met Uni NPL CCM Salford Uni Technology Strategy Board</td>
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<tr>
<td>Implementation bodies (construction, refurbishment and project implementation and oversight)</td>
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<tr>
<td>Sector SWOT (per topic area)</td>
<td>Numerous industry-facing, coordinating bodies. May benefit from co-ordination or rationalisation</td>
<td>Numerous bodies coordinating and developing solutions but very few identified that are focusing on implementation</td>
<td>Numerous bodies coordinating existing information but relatively few developing solutions or actively involved with built projects</td>
<td>Very few actors identified, particularly those developing solutions or involved with implementation</td>
<td>Crowded set of co-ordinators but very few identified that are developing solutions or involved with implementation</td>
<td>A reasonable spread of activity</td>
<td>A wide spread of activity</td>
<td>A relatively empty space, especially bodies feeding back into policy making who are directly involved with implementation</td>
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</table>

**Theme:**
- Coordinated delivery strategy
- Customer awareness and demand
- Access to the right information
- Confidence in the refurbishment process
- Industry capacity and ability to deliver
- Ability to provide innovative and cost effective solutions
- Availability of robust technical solutions
- Clear leadership and vision from Government

**Implementation bodies**
- Arup
- BRE
- Leeds Met University
- NEF
- Parity Projects
- BRE Technology Strategy Board
- HCA
- BSI
- Gemserv
- Construction Skills
- BRE
- BSRIA
- Leeds Met University
- NPL CCM
- Salford University
- Technology Strategy Board

**Sector SWOT (per topic area)**
- Numerous industry-facing, coordinating bodies.
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- Very few actors identified, particularly those developing solutions or involved with implementation.
- Crowded set of co-ordinators but very few identified that are developing solutions or involved with implementation.
- A reasonable spread of activity.
- A wide spread of activity.
- A relatively empty space, especially bodies feeding back into policy making who are directly involved with implementation.
A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the organisations that occur across the majority of the topic areas is shown in Appendix A. The key findings from this exercise are summarised by reviewing the extent to which existing organisations meet the characteristics identified in Section 4 for a support mechanism:

- **Transparent**: not all of the organisations are perceived as operating in a transparent way, particularly the larger bodies which have been working in this space for longer, with many having complex funding and governance structures in place, and not comprehensively representing the views of industry.
- **Trusted/credible/valid**: there are several organisations with strong credibility across industry, but few who are also known and trusted by customers. There is no single ‘go to’ organisation – many have a reputation but this is based on a single area of expertise.
- **Collaborative**: there is evidence of collaboration between organisations and with industry, but considerably less with Government. Very few of the principal organisations appear able to offer a ‘neutral’ space for true collaboration between stakeholders.
- **Evidence based**: generally, the most comprehensive sets of evidence based information is held and distributed by the larger organisations and access to this information is often restricted.
- ** Appropriately detailed**: limitations on funding create restrictions on the scope and extent of work for many organisations.
- **Independent**: independence is primarily reliant on an organisation’s sources of funding and governance structure – a number of organisations rely on partnerships with the private sector.
- **Forward looking**: generally, only the larger, more established of the key organisations are able to operate with a longer horizon.
- **Accessible/open**: the majority of data is located behind paywalls and therefore not freely accessible. There is a lack of coherence in any one area and few of the bodies have national coverage.

No single organisation currently exhibits all of the desired characteristics to the extent required to address the scale of the challenge. However, a few exhibit the majority of characteristics. With support, these organisations could be developed such that they are able to meet all of the required characteristics.

### 5.2 Conclusions

Review of the current landscape of bodies active in this area shows:

- There are many organisations with an interest in energy efficiency in existing buildings
- Whilst a number of organisations have a coordinating role, there are fewer bodies actively involved in developing solutions or in the implementation of these solutions (e.g. undertaking primary research or data gathering)
- There are gaps in the work of existing organisations relating to the development of coordinated delivery strategies, developing confidence in the refurbishment process, and ensuring clear leadership and vision from government
- At present no existing body covers the full remit identified for the support mechanism or exhibits all of the identified characteristics. Nonetheless, with support it could be possible for some of the existing bodies reviewed to develop the desired characteristics, either by extending their scope appropriately, or through partnerships with other relevant bodies. The EEPB and NRC believe that together they could develop into a suitable support mechanism, a letter outlining their proposals and justification is included as Appendix C.
6.0 A support mechanism for existing buildings

This section considers the various options for defining the nature and work of a support mechanism. The recommended approach is summarised in Figure 6.1, followed by discussion of the recommended structure, governance, funding and working practices.

Figure 6.1: Illustration of the recommended structure, governance and working practices

6.1 Structure and governance

An as well as its purpose, scope and remit, an organisation is defined by its:

- Size
- Legal structure
- Representation at a senior level
- Nature of the required procurement process
- Timescale that a hub is operational over
- Key contractual relationships that a hub may have with other organisations
Sources of funding

A range of possible options were identified for each of the above categories. These are shown in Appendix B. These were assessed against the characteristics already identified (see Section 4) to identify the ideal configuration for the structure of a hub.

Through a process of scoring each of the options against the characteristics, it was possible to prioritise these and identify the ideal sub-option. This exercise was carried out both in the workshop and independently by the project team, and, in general, similar conclusions were drawn – these are summarised below.

6.1.1 Size: Small project management team with procurement function or small internal team

A small to medium team - either with a procurement function or with the ability to manage task and working groups - is identified as being most desirable to fulfil the function of a support mechanism, rather than acting as a delivery body. A secretariat is considered likely to be the most transparent, accessible and collaborative option, but could potentially lack the credibility and evidence base required to meet the needs of a support mechanism. Conversely, a larger institute might benefit from greater credibility, as it is likely to have been operating longer and with a higher profile, and the scope of its work might be both broader and more in depth. However, this is considered unlikely to be considered as transparent, accessible or collaborative – all extremely important characteristics for the support mechanism. The small to medium size solutions are therefore considered to provide a compromise between these two options.

The support mechanism should have a strong core, with its work covering regions across the UK, including collaborating UK-wide with SMEs. The size proposed should enable the mechanism to be relatively ‘fleet of foot’, and able to change its remit and working structure to reflect work load and to respond to market drivers and innovation.

6.1.2 Legal: Community interest company/ co-operative or public private partnership

A community interest company or co-operative is identified as being the most attractive company structure. This is based on its perceived independence, trust and accessibility, underpinned by the fundamental principle of its operating in the interest of the public good. A Public-Private Partnership (PPP) was identified as an alternative option, a relevant example being the ZCH. However, consideration would need to be given to ensuring a collaborative-style working approach under a PPP.

The body should act as a hub of knowledge and seek to accumulate Intellectual Property (IP) of value to the sector, but this should be freely available. Any profit should be re-invested into the body and its structure should not allow it to act commercially in the future as a competitor.

Members’ organisations are also identified as an appealing option, but this did not score as highly because they would be driven by their members’ objectives, rather those of the wider public. Non-profit making organisations are thought to be potentially less collaborative and open, despite their ability to be independent and not answerable to shareholders, for example. Organisations with private sector interests are considered fundamentally less open and trusted, being driven by their own agenda.

6.1.3 Representation: Council with working sector groups

Whilst it is possible to have combinations of some of these options (e.g. board of trustees with executive board of directors), each is assessed individually on its own merits. A council with working sector groups is thought to the best option to meet the required characteristics. The council could provide independent oversight with the working groups enabling a more open and collaborative approach. Although coordination with and endorsement by Government is identified as an essential component in setting up a support mechanism, this will need to be carefully crafted into the structure to ensure that it can remain collaborative and open.
Relying exclusively on an unelected board is least attractive, particularly those without oversight. However, a board function will be required to enable the organisation to be responsive and effectively led. The board should be selected and include broad representation, from the industry and its stakeholders. The council will hold the board to account for progress against an agreed routemap and should provide endorsement for key outputs (e.g. task group recommendations).

6.1.4 Procurement: Public-Private Partnership or charity

Flexibility is considered a critical requirement for procurement and the approach should be dependent on the contract value, whether there is a risk of conflict of commercial interest, and whether there is a policy or direction implication for the body. Although the rigour and transparency required under public procurement rules is considered valuable, the limitations on flexibility are thought to restrict collaboration on projects. Conversely, the use of internal resources and, to some extent, private-style procurement may not ensure adequate rigour. A PPP or charity approach is thought to offer the best compromise here.

6.1.5 Timescale: Medium, 5-8 years

Consideration is given here to how a support mechanism’s timescale might benefit or limit its potential or flexibility. A mechanism with a shorter timescale would likely need to be very focussed and dependent on an open and collaborative approach in order to achieve its objectives, but less able to build up its credibility and engage in more in-depth analysis. The opposite would be true for a body with a longer timescale, and therefore a medium term timescale is considered most appropriate. Transparency is not thought to be influenced by timescale although it can take time to build a reputable brand / image.

6.1.6 Accessibility of information: Open access

It is clear from the analysis undertaken that availability of information is a critical area for a support mechanism to focus on. Openly accessible data, analysis, guidance and other information is therefore the preferred option. Information that is only fully available to working groups, funders, or members, unless with a nominal membership fee, does not meet these criteria. A peer review of information will be important to ensure that data is robustly validated and up to date. To encourage private sector investment, protection of IP will need to be considered, perhaps with time limited protection.

6.1.7 Contractual relationships: Any

The project team identified that a membership body is the clear frontrunner, ensuring maximum participation, albeit this may need to be with no or nominal subscription. However, the workshop concluded that conflicting interests would always be an issue and any relationship could be possible, provided there is good project management, a clear set of objectives, and trust in the support mechanism can be maintained. Service providers might be able to provide a more independent approach although this option may limit the opportunity for collaboration. Secondments could be considered with the right organisation. Formal partners and shareholders were more likely to suffer from conflicts of interests.

6.1.8 Funding: Charity or public

Charitable or public funding are the preferred options here. Both of these options enable the work done by the support mechanism to be accessible to all. Charitable funding would ensure impartiality and independence for the support mechanism, while public funding would necessitate greater transparency. The least preferred source of funding is private, particularly where funding is ear-marked for specific projects and is thus more likely to influence the project scope and outcomes. In reality, a support mechanism is likely to require a combination of funding sources, and potentially a compromise between impartiality and transparency.
6.2 Costs and funding

As part of the study a cost benefit exercise was undertaken. The scale of opportunity (i.e. the number of properties requiring attention) and the equivalent value (in terms of cost / environmental impact) was used to determine an ‘ideal budget’. The following diagram (Figure 6.2) sets out ‘essential’ to ‘desirable’ requirements of the hub, the approximate annual budget and what the associated outputs/benefits and risks each element would bring.

Figure 6.2: Review of funding required

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**Explanation of segments:**

- **Prioritising, coordinating and disseminating** – This would involve management of an agreed industry routemap and prioritising and coordinating activities to deliver this. This work would be undertaken by others. Some form of data management tool e.g. website / portal is required in order to serve as a central repository for trust and transparent data. This portal could enable the user to understand what bodies are present in the landscape and what expertise / guidance is available. A mechanism of this scale would need money to invest in the IT infrastructure of the database and appropriate personnel to rationalise and manage the data. The approximate budget for this would be £400,000 - £700,000 p.a.; this would provide ‘core funding’ for the support mechanism.

- **Developing solutions** – this segment refers to the support mechanism commissioning work and undertaking technical studies in house. To address this, a wider group of staff would be necessary comprising a mix of project managers and technical specialists. The approximate budget for this would be £500,000 - £1,000,000 p.a. It is likely that a range of solutions will be required, but that the budget for these be separated from ‘core funding’ and that funding be raised following a clear business case (from the support mechanism) or terms of reference (from Government)

- **Delivery of key services** – this segment would include delivery of some of the solutions developed by the support mechanism, for example up skilling practitioners. The approximate budget for this would be over £500,000 p.a. but funding should only be made available where there is a clear gap in the capacity or willingness of others to act.
6.2.1 Cost-benefit

Based on the analysis of the potential benefits of a successful refurbishment programme (see Section 2), investment of £3m could be recouped by delivering a 0.2% increase in annual refurbishment rates compared with DECC’s projected Green Deal and ECO uptake, suggesting that there is a clear economic case since the work of the support mechanism would be designed to achieve a far greater level of impact.

If a support mechanism were able to achieve a 1% increase in the level of refurbishment activity in the UK, the internal rate of return on annual funding of £3M for five years would be nearly 500%. Appendix E contains further information on this illustrative calculation of the potential return on investment.

6.2.2 Potential funding sources

Whilst the workshops expressed a strong preference for public sector funding, it was acknowledged that a mixture of public and private sector funding may be required, depending upon Governmental budget commitments. Options for consideration include:

- New public funding – committed as part of the Spring 2013 budget, potentially as part of Government’s support for the Green Deal and ECO policy
- Reallocation of public funding – bringing together complementary public sector funded activities and programmes and ring-fencing a proportion of it for the new support mechanism
- Public and private investment – for example on a match-funded basis to demonstrate commitment and additional value for money for the exchequer. Some bodies in the sector (e.g. the Energy Efficiency Partnership for Buildings) already secure some private investment via their diverse membership

Once operational much of the support mechanisms influence would lie in helping others to co-ordinate and focus their activities rather than necessarily requiring significant capital for research programmes, etc.

6.3 Working practices

The day to day operating practices of a support mechanism comprise its key work areas, approach to delivering outputs and the varying ways that stakeholders can access and interact with it.

6.3.1 Activities

Section 3 identifies a combination of range of themes where a support mechanism is needed. The work in these areas would combine short term actions and longer term programmes.

The first immediate task would be the development of a coherent routemap for achieving the sectors goals together with a series of short / medium term targets for both the sector and the support mechanism’s performance. This routemap / programme would form the basis of the mechanism’s ongoing activities which would be likely to include:

- Dedicated Task Groups focusing on development of detailed recommendations and common approaches within the sector. Initial priorities would include:
  - Monitoring early progress with Green Deal and ECO
  - Establishing central repository of good practice examples
  - Developing open access dataset and standardised methodology for measurement and reporting
  - Developing target areas for cross-industry co-ordination
  - Defining requirements for industry guidance and to begin assembling key materials and information
- Co-ordinating the delivery of support, information and evidence to the sector comprising:
  - Skills and capacity building
- Guidance on good practices
- Evidence of performance and progress against the agreed goals
- Examples of good practice
- Establishing and managing council meetings and regular engagement (e.g. quarterly) of the board with Government

It is expected that the support mechanism’s work would evolve over time and that initially 3 to 4 task groups would operate per year with at least one covering issues specific to the non-domestic sector.

### 6.3.2 Delivering outputs

The primary model of working would be through time-limited and intensive Task Groups comprising industry and other stakeholders, with contracted support where necessary. This approach has proven effective at the Zero Carbon Hub and has the benefit of delivering defined outputs in a relatively short timescale. An alternative approach of relying on ongoing working groups might result in relatively slow progress and could limit the potential for a range of stakeholders to engage in developing solutions.

Figure 6.3 (below) summarises the intended approach to task group working. The envisaged approach involves the development of a clear set of objectives / terms of reference from either the support mechanism’s council or a key stakeholder (e.g. Government) followed by the formation and delivery of the agreed work. The recommendations are then passed to, for example Government, to assess and then implement as appropriate. It is unlikely that implementation of the recommendations would be carried out by the support mechanism. Rather its role would be to disseminate the outputs, to review against the sectors needs and make recommendations for any further work.
6.3.3 Accessing the support mechanism

As well as developing technical solutions, the support mechanism must provide a space for discussion of progress and the sufficiency of the sector route map and should also act as a source of independent and robust advice. As a result, it is essential that it is possible for audiences to engage in the work of the support mechanism and to access its outputs via a range of means.

Engaging in support mechanism activities

It should be possible for individuals to engage with the support mechanism as task group members or consultees, via regional and national events, newsletter, etc. There should be no restrictions as to the type of bodies and individuals that can form part of task groups; however applicants would need to demonstrate that their experience, perspective or expertise is relevant and there should be no automatic right to group membership. Anybody should be able to request to be a consultee for task group recommendations and have the opportunity to provide comments in advance of their finalisation.

For those wanting to take a more active role in steering the support mechanism’s activities, this will require them to seek election to the support mechanism’s council.

Access by different audiences

The work of the support mechanism should be disseminated via a high quality and well maintained website. Information should be designed to meet the needs to different audiences including content on:

- Work programme
- Sector route map and progress
- Technical recommendations
- Guidance and good practice
- Examples

In addition the support mechanism should provide a range of physical and virtual outputs for discussion and dissemination of information.

Regional and national coverage

The support mechanism should be a UK-wide entity. Although electronic media will be the primary form of dissemination it should also have links with local representation, be this through a group of local authority representatives or regional partners.

6.4 How has the structure, governance and funding of the ZCH enabled it to succeed?

The ZCH has been put forward as an example of a successful industry-led approach to the identification and removal of barriers in the building sector. The ZCH brought together representatives from the house-building industry, environmental groups and government, working collaboratively to co-ordinate delivery of low and zero carbon new homes. It is a public/private partnership and non-profit company limited by guarantee, established in June 2008. It is governed by a board, and includes representatives from Local Government Association, Homes and Communities Agency, Construction Products Association, HBF, DCLG, NHBC and Robust Details Ltd.

The work of the ZCH is focused under five work streams each comprising task groups led by ZCH staff, all experts in their field, these are Energy Efficiency, Energy Supply, Examples and Scale Up, Skills and Training, and Consumer Engagement. Each is managed by a steering group and supported by a range of key stakeholders from across the industry.
The Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) recently published a case study on the ZCH\textsuperscript{17}. Notwithstanding the benefit that it had of working towards a specific regulatory target, the RSA identified a number of success factors relating to its structure, governance and funding. These were:

- **Government financial and operational support** - the ZCH was set up with the direct financial and operational support of the DCLG and building industry groups, primarily the National House-Building Council
- **Government observation** – government attended all ZCH task group meetings but remained at arms-length from ZCH decisions and recommendations; government did not have a leadership role within the groups
- **Government endorsement** – this helped to develop ZCH’s credibility and encouraged further collaboration
- **Representation from across industry and government** – creating a new ‘shared space’ for all stakeholders in which they could be part of collaborative action, rather than focus on lobbying government and disputing elements of policy
- **Small core staff, supplemented by specialists seconded from supporting** organisations – this brought the benefit of sharing resources and current knowledge, and extending the reach of the ZCH
- **Strong leadership and focus** – provided by the core ZCH staff during task group discussions who had knowledge and experience
- **Effective communication with the sector** – to facilitate learning and establish trusted professional relationships
- **A clear timeline was adhered to**

### 6.4.1 Can the successes of the ZCH be related to the proposed structure of the existing buildings support mechanism?

Many of the success factors of the ZCH described above are broadly consistent with the conclusions drawn for this proposed support mechanism:

- **Funding** – some Government funding will be essential, in conjunction with other sources, to give the support mechanism credibility
- **Legal** – community interest company/ co-operative or PPP is proposed; a community interest company or co-operative is identified as being the most attractive option, based on the fundamental principle of its operating in the interest of the public good, but a PPP was identified as an alternative option, although consideration would need to be given to ensuring a collaborative-style working approach.
- **Representation** – arms-length engagement from Government with the support mechanism is needed, rather than Government taking operational responsibility; however, this engagement will be critical to the success of a support mechanism
- **Size** – a small core staff, who should have strong technical knowledge and experience, leading working groups consisting of representatives from across industry

One key difference relates to contractual relationships - secondments were identified as potentially limiting the impartiality of a support mechanism.

### 6.5 Conclusions

An existing buildings support mechanism would ideally:

- Comprise an elected council, a small board and administrative function
- Be a community interest company / co-operative or public private partnership
- Operate for at least 5 years providing free access to information

\textsuperscript{17} A collaborative approach to policy - A case study on the Zero Carbon Hub, 2020 Public Services Hub at the RSA, February 2012
- Be able to undertake some procurement of services to support task group activities but with major expenditure (e.g. on monitoring programmes or primary research) undertaken by others
- Have a budget sourced from a combination of public and private funds
- Deliver a series of time-limited task groups together with ongoing co-ordination, convening and dissemination activities in line with an agreed routemap
- Be accessible by anyone looking for information on refurbishment in the UK
Appendices
Appendix A: SWOT analysis of existing landscape

Strengths/ weaknesses/ threats/ opportunities analysis has been carried out on the organisations identified in the workshop – specifically, those which were identified as already operating in more than half of the key topic areas. This analysis is shown in the table below. It should be noted that some of the text shown was provided by the organisations (e.g. via correspondence or taken from their websites).
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<tr>
<td>Energy Efficiency Partnership for Buildings (EEPB)</td>
<td>To act as an impartial channel between government and industry.</td>
<td>EEPB is a network which facilitates and coordinates working groups, workshops and other events, undertakes projects, provides a communications network, and provides regular updates of development in the sector through a bulletin. Specifically, it has been involved in:</td>
<td>EEPB is a not-for-profit company limited by guarantee. It is a wholly owned subsidiary of the National Energy Foundation, a charity, and was formed in April 2012. It was formerly the Energy Efficiency Partnership for Homes, forming in 1999 as an unincorporated body. It is run by a board of directors with a chairman. The board is advised on strategy and priorities for structure, operation and development of EEPB by an advisory board of members, consisting of 12-15 members. A secretariat supports the board of directors and the advisory board, by facilitating the operation of EEPB. There is paid membership, known as associate members in company law, who do not have legal responsibility for EEPB.</td>
<td>Credibility in working with industry and government together in collaborative manner. Already involved in collecting evidence, providing guidance on best practice. Has a communication platform which it uses to share knowledge and information across industry. Is not lobbying. Independent from commercial organisations. Has a large group of organisational members.</td>
<td>No direct relationship with government. Membership too required to participate in working groups, although access to information database is free. Limited consumer-facing activity. Limited reach historically - which may be due to limitations on funding and/or resources. Founding members (April 2012) paid two years’ membership in advance, and membership is tiered according to annual turnover; founding members include Centrica, Kingfisher, NPower, Enaact, Knauf Insulation and Strutt &amp; Parker, and therefore the contribution from these members is likely to be significant, and potentially could compromise EEPB’s independence. EEPH originally received funding from government, but in the last few years, this has been significantly reduced; in recent years, its work has been dominated by running DECC’s workshops on Green Deal.</td>
<td>Has the potential to build on its current role to act as a hub for other organisations. Funding is currently limited due to relatively small number of paying members. Recently funded by DECC to run Green Deal consultation workshops.</td>
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<td><strong>National Refurbishment Centre (NRC)</strong></td>
<td>“To provide evidence and knowledge that will enable the mass delivery of green refurbishment” and “to foster a more joined-up approach to finding the practical measures needed to refurbish buildings in volume.” It is intended to be highly collaborative.</td>
<td>The NRC is “aimed at industry, driven by industry and funded by industry”. Its partners represent a cross-section of industry and include manufacturers, energy providers, main contractors, housing associations, professional organisations, research bodies, training providers and retailers. Gathering information on energy efficient refurbishment through a nationwide network of refurbishment exemplars, and building up an online library of best practice case studies, guides and resources on all aspects of green refurbishment and retrofit, as well as providing information on events and seminars. It is also carrying out analysis of the data.</td>
<td>Launched in 2011, the NRC is governed by a formal collaboration between the BRE Trust and the Energy Saving Trust, with a detailed Service Level Agreement for partners. Partners attend quarterly steering group meetings chaired by an independent chairman. Funded by the BRE Trust, Energy Saving Trust and the Technology Strategy Board, and supported by the NRC’s partners and the AECB. NRC has sector partners from across the refurbishment sector, including suppliers, contractors, housing associations, and local authorities - include the Home and Communities Association, B&amp;Q, British Gas, Gento, Saint Gobain, and RIBA. The partners form the task groups that are developing a roadmap for delivery of refurbishment. Task groups focus on the following strategy areas: • Technology solutions • Finance • Policy • Skills and training • Behaviour change</td>
<td>Collaboration between two well-known and long established organisations, both relatively high profile, throughout the UK. Both BRE and EST have strong technical understanding of energy efficient refurbishment. EST particularly well respected for providing free, impartial advice. Strong focus on supporting industry. Strong financial backing. Information is open access.</td>
<td>Limited consumer-facing activity. Limited focus on working with government to date. Refurbishment portal not yet populated with full information and therefore currently has limited value. To some extent, dependent on users uploading their own information. Currently limited visible outputs from task groups. Industry funding and industry-led task groups could compromise NRC’s independence. Task groups not accessible to all.</td>
<td>Set up with the intention ultimately of becoming a ‘hub’ for government and industry. Refurbishment portal has excellent potential in acting as a central repository for refurbishment information. NRC partner contributions must be renewed in 2013. Institutional ring-fencing of data. Dominance by founding partners may lead to it being seen as a ‘closed shop’.</td>
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- Provide data to support evidence-based decisions
- Act as a forum for the industry
- Support innovation, new materials and technologies
- Provide sustainable refurbishment data, best practice guides, solutions and advice
- Facilitate training and skills development for small and medium sized building contractors
- Its values include:
  - To be an open partnership working collaboratively to support the development of the refurbishment sector.
  - To improve connections within the sector in a way that does not duplicate or compete with existing projects or organisations

- It is intended to be highly collaborative.

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<td>Energy Savings Trust (EST)</td>
<td>To help people save energy, every day. To offer an impartial perspective based on empirical evidence: one that’s respected by individuals, government and commercial organisations alike. To protect consumer interests while raising standards in sustainability and energy efficiency. EST gives impartial, accurate and independent advice to communities and households on how to reduce carbon emissions, how to use water more sustainably and how to save money on energy bills. Works in partnership with government, local authorities, third sector organisations and businesses. Activities include: Delivering or managing government programmes Testing low-carbon technology Certification and assurance for businesses and consumer goods Developing models and tools</td>
<td>Formed in 1992. In November 2011, the Energy Saving Trust Foundation was formed as a social enterprise with charitable status. There are three parts of the Energy Saving Trust: Energy Saving Trust Enterprises - provides services such as evidence-based tests, trials, initiatives, and modelling Energy Saving Trust Ltd - wholly owned trading subsidiary of EST, and a limited company. Helps manage and deliver large-scale projects and government funded programmes Energy Saving Trust Foundation - gives impartial, accurate and authoritative advice on how to reduce carbon emissions and use water more sustainably, as well as to help people to save money on energy bills; solely supported by donations made by organisations and businesses and earned income through the services it provides Jointly funded by government and private sector. Majority of funding is from DECC, and then from Scottish Government. Further funding from Department for Transport and Welsh Government. Raises funds through applications to specific charities, donations from partners, and from surplus income from trading operations. Members with voting rights and subscribing to the Articles of Association are: the Secretary of State for Energy and Climate Change, the Secretary of State for Transport, the First Minister for Scotland, the Secretary of State for Northern Ireland, the First Minister for the Welsh Government, Shell, Centrica, EDF Energy, Firmus Energy, RWE Npower, National Grid Transco, NIE Energy, Phoenix Natural Gas, E.ON, ScottishPower, and Scottish and Southern Energy.</td>
<td>High profile and strong, trusted, and respected brand. Provides services to both organisations and consumers. Well-respected source of technical information. Information is openly accessible. Representation across the UK. Strong endorsement by government. Strong consumer-facing role e.g. energy saving advice line. Beginning to develop partnership working approach e.g. NRC</td>
<td>Much of the information available is not easy to find. Funding required to keep guides and information up to date. Commercial backing may call into question its independence, despite charitable status. Private investors are predominantly large energy companies.</td>
<td>Valuable public profile. Opportunity to build on trusted brand and nationwide infrastructure or use its involvement with NRC to be a key player in the support mechanism.</td>
<td>Recent move into commercial endeavours may compromise its position as an independent authority. The need to manage large scale programmes may create inertia, i.e. whether it will be light enough on its feet to drive forward a hub.</td>
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<td><strong>Buildings Research Establishment (BRE)</strong></td>
<td>It provides the following services: Consultancy - for buildings, communities and businesses</td>
<td>The BRE was originally a government establishment but was privatised in 1997. The BRE is owned by the BRE Trust, a not for profit charity. The profits from the BRE Group businesses are gift-aided to the BRE Trust, who in turn invest in research projects for the public benefit, carried out by the BRE Group, other research partners and by a number of Universities across the UK where the Trust funds PhD studentships. The organisation is now funded by income from its commercial programmes, the BRE bookshop, contracted work, and by bidding for research funding from government and industry.</td>
<td>Well-respected source of technical expertise. Long history in the sector, and well-known throughout industry.</td>
<td>Information not freely available - generally must be paid for. May be perceived by some as being too large and therefore slow to respond to changing landscape. Less of a consumer-facing role than other organisations.</td>
<td>Opportunity to use its technical and research expertise to underpin the evidence base work of a hub.</td>
<td>Collaboration is most likely to be through the NRC, of which BRE is a founding member. Data and research publications may remain behind a paywall, thereby presenting potential conflicts of interest with a hub.</td>
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<td><strong>Institute for Sustainability (IFS)</strong></td>
<td>To support cross sector collaboration and innovation. To significantly accelerate the delivery of economically, environmentally and socially sustainable cities and communities. Drive innovative demonstration projects and developing programmes to actively capture and share learning and best practice.</td>
<td>Acts as an independent facilitator brokering strategic and operational relationships with partners: Leverages funding Shares knowledge and best practice Manages projects, shaping and guiding them from inception through to delivery</td>
<td>The Institute's membership is broad, covering private and public sector organisations and academia. Diverse scope of projects. Majority of funding is from charitable donations and grants - only a small proportion is received from the private sector; expertise in fund-raising. £10m FLASH programme is intended to engage with London SMEs. Trusted and respected source of information. Collaboration is most likely to be through the NRC, of which BRE is a founding member. Data and research publications may remain behind a paywall, thereby presenting potential conflicts of interest with a hub.</td>
<td>Limited collaboration with government. Potentially considered London/South-East centric. Focus may be considered to be too broad. Limited consumer-facing activity. Profile not as great as some other organisations in this space.</td>
<td>Has many of the attributes identified as necessary for forming a hub, e.g. strong technical focus, trusted by industry.</td>
<td>Ability to focus on the specific technical areas identified as necessary for a hub. National coverage may be lacking.</td>
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<td>------</td>
<td>--------</td>
<td>-------</td>
<td>------------</td>
<td>-----------</td>
<td>------------</td>
<td>---------------</td>
<td>---------</td>
</tr>
<tr>
<td>WRAP's Construction &amp; Refurbishment Programme</td>
<td>A world without waste, where resources are used sustainably.</td>
<td>Works with a wide range of partners, from major UK businesses, trade bodies and local authorities through to individuals looking for practical advice.</td>
<td>WRAP was established as an independent not-for-profit company limited by guarantee in 2000. It is backed by government funding from DEFRA (Department for the Environment, Food and Rural Affairs), the Scottish Government, the Welsh Government, the Northern Ireland Executive, and the European Union. The Board comprises the chairman, two executive directors, eight independent non-executive directors, and one appointee by DEFRA. The Scottish and Welsh Governments may each appoint a member of the board. The Board is responsible for:</td>
<td>Has strong credibility and experience of being a bridge between government, businesses, local authorities, communities and individuals. Has extensive experience of undertaking research and providing robust evidence bases, tools and guidance, and supporting practical implementation. Operates in a diverse range of sectors influencing and enabling behaviour change. Provides the secretariat and coordination for many construction industry fora, including the Strategic Forum waste, water and carbon sub-groups, and six Resource Efficiency Action Plan groups. All services, tools and guidance are provided free of charge. Is completely independent from commercial interests and organisations. Has a presence throughout the UK, including (as Zero Waste Scotland) being the sole body delivering the Scottish Government’s objectives on resource efficiency. Has a proven track record in catalysing change across entire sectors and delivering tangible impact as a result; between 2008 and 2011 it generated £2.2 billion of benefit to the UK economy.</td>
<td>Historically, more of a focus on waste than energy/carbon, though this is being addressed through the now wider remit encompassing all resource efficiency aspects. Currently lower profile in energy efficiency than other organisations. Opportunity to convene competing bodies within a neutral space. Currently lower profile means that it can operate in the energy efficiency arena without stakeholders having a preconceived biased view for/against. By being already established in many sectors WRAP could present energy efficiency as part of a holistic approach to behaviour change rather than being a single issue. Can draw on a wide range of internal expertise to enable this (such as on consumer behaviour change).</td>
<td>Funding only comes from public sources – may need to set up a parallel operating structure to enable receipt of private funds (tbc)</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix B: Governance, structure and funding options

The following table shows the primary options within each governance consideration that were considered, with a brief description of each.

<table>
<thead>
<tr>
<th>Governance option</th>
<th>Detail</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>Secretariat for meetings</td>
<td>Small administrative team which organises and chairs meetings with relevant parties.</td>
</tr>
<tr>
<td></td>
<td>Small executive</td>
<td>As above but larger team with slightly wider remit to include providing information e.g. sources of data.</td>
</tr>
<tr>
<td></td>
<td>Small project management team with procurement function</td>
<td>Communication-style hub - project management team procures external services and commission studies e.g. best practice guides. Could be a focal point for curated information, and manage discussion forums.</td>
</tr>
<tr>
<td></td>
<td>Small/medium internal team - management of working groups</td>
<td>Management-style hub - project management team procures external services and commission studies, and provides technical resource e.g. best practice guides. Likely to manage working groups.</td>
</tr>
<tr>
<td></td>
<td>Larger institute with technical resource</td>
<td>Centre of excellence hub - employs experts and uses in-house technical resource to produce guidance and studies itself.</td>
</tr>
<tr>
<td><strong>Legal</strong></td>
<td>Profit-making</td>
<td>Likely to be a private company - e.g. consultancy.</td>
</tr>
<tr>
<td></td>
<td>Non profit-making</td>
<td>Any surplus revenue must be retained by the organisation.</td>
</tr>
<tr>
<td></td>
<td>Community interest company or co-operative</td>
<td>Social enterprise that uses its profits/assets for the public good.</td>
</tr>
<tr>
<td></td>
<td>Members’ organisation</td>
<td>Payment required from membership - however, this could be a nominal amount.</td>
</tr>
<tr>
<td></td>
<td>Public private partnership</td>
<td>Organisation funded and operated through a partnership between government and a private business venture.</td>
</tr>
<tr>
<td></td>
<td>Unincorporated</td>
<td>Not a legal entity but could be an organisation of persons or bodies with an identifiable membership.</td>
</tr>
<tr>
<td><strong>Representation</strong></td>
<td>Legal board</td>
<td>Board of directors, who may be elected or appointed to oversee the activities of the organisation.</td>
</tr>
<tr>
<td></td>
<td>Trustees</td>
<td>Board of trustees have responsibility for the organisation, must be impartial and cannot profit. Could be provided in conjunction with an executive board.</td>
</tr>
<tr>
<td></td>
<td>Executive</td>
<td>Executive board is usually non-elected and has greater responsibility for day-to-day management of the organisation.</td>
</tr>
<tr>
<td></td>
<td>Council with working sector groups</td>
<td>Council has oversight of the organisation, with working sector groups having devolved responsibility for specific areas of focus.</td>
</tr>
<tr>
<td></td>
<td>Cross-government ministerial representation</td>
<td>Oversight could be provided by a combination of government ministers and other organisations e.g. 2016 Taskforce.</td>
</tr>
<tr>
<td>Governance option</td>
<td>Detail</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Procurement</td>
<td>Public</td>
<td>Procurement must be transparent and follow strict public procurement requirements e.g. OJEU. It must comply with state aid rules and be integrated with government strategy. It may use existing procurement frameworks.</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>Not subject to public procurement requirements but may have its own good practice procurement standards to follow.</td>
</tr>
<tr>
<td></td>
<td>PPP</td>
<td>May not need to comply with public procurement requirements. May have partnering contracts.</td>
</tr>
<tr>
<td></td>
<td>Charity</td>
<td>Likely to have rigorous procurement procedures in place.</td>
</tr>
<tr>
<td></td>
<td>Internal resource</td>
<td>Unlikely to demonstrate visibility on procurement process.</td>
</tr>
<tr>
<td>Timescale</td>
<td>Short 1-3 years</td>
<td>Short 1-3 years</td>
</tr>
<tr>
<td></td>
<td>Medium 5-8 years</td>
<td>Medium 5-8 years</td>
</tr>
<tr>
<td></td>
<td>Long &gt;10 years</td>
<td>Long &gt;10 years</td>
</tr>
<tr>
<td>Accessibility of information</td>
<td>Members only</td>
<td>Organisations must become members to have access or priority access to information</td>
</tr>
<tr>
<td></td>
<td>Funders</td>
<td>Only those that fund core activities or specific projects receive the results</td>
</tr>
<tr>
<td></td>
<td>Open access</td>
<td>Open source information from all activities and at all times</td>
</tr>
<tr>
<td></td>
<td>Working groups</td>
<td>Information restricted to working group members. Possibly limited published information.</td>
</tr>
<tr>
<td>Contractual relationships</td>
<td>Members</td>
<td>Contractually required to provide certain services to members.</td>
</tr>
<tr>
<td></td>
<td>Service providers</td>
<td>Contracts with third party service providers</td>
</tr>
<tr>
<td></td>
<td>Secondments</td>
<td>Organisation may be run by secondees, or secondees may be attached to organisation for a shorter period of time.</td>
</tr>
<tr>
<td></td>
<td>Shareholders</td>
<td>Responsibility is first and foremost to shareholders, who have the right to nominate directors and to any dividends available.</td>
</tr>
<tr>
<td></td>
<td>Formal partners</td>
<td>Partners may be private sector organisations.</td>
</tr>
<tr>
<td>Funding</td>
<td>Public</td>
<td>Likely to mean that the organisation's work must be publicly accountable.</td>
</tr>
<tr>
<td></td>
<td>Private - core</td>
<td>Private sector funding which is allocated to the general operation of the organisation.</td>
</tr>
<tr>
<td></td>
<td>Private - specific projects</td>
<td>Private sector funding which is allocated to specific projects.</td>
</tr>
<tr>
<td></td>
<td>Private - altruistic</td>
<td>Private sector funding which has 'no strings attached'.</td>
</tr>
<tr>
<td></td>
<td>In-kind</td>
<td>In-kind time is provided at no cost by industry professionals, either short or long term.</td>
</tr>
<tr>
<td></td>
<td>Levied</td>
<td>Income may be received through income from licences e.g. from energy suppliers.</td>
</tr>
<tr>
<td></td>
<td>Charity</td>
<td>Income provided by charitable body.</td>
</tr>
</tbody>
</table>
Appendix C: Letter from EEPB and NRC

Adam Mactavish
Sweet Group (UK)
60 Gray’s Inn Road
London WC1X 8AQ

23rd January 2013

Dear Adam

Existing Homes/Building support mechanism

Thank you for inviting us to the workshops and giving us the opportunity to feed into the consultation process. It was good to see that there is a convergence of opinion that there is a need for a coordinated approach to delivery of retrofit. Based on the discussions within these sessions, our one to one discussions with yourselves, and associated dialogue, we would like to present our position on an existing buildings hub, and outline the strengths that the NRC and EEPB would bring.

The Energy Efficiency Partnership for Buildings (EEPB) is a wholly owned subsidiary of the National Energy Foundation - an independent charity dedicated to improving the energy performance of buildings. The National Refurbishment Centre (NRC) is a joint initiative between BRE and the Energy Saving Trust, to provide evidence and knowledge to enable mass delivery of green refurbishment. Both the EEPB and the NRC welcome Government’s recent intervention to scope the need for an existing homes and/or buildings support mechanism. We are in strong agreement that an overhaul of current methods is needed and that a lean, invigorated and innovative Government-Industry body could be realised in the near future.

We recognise that a solution is needed which optimises the current resources and players and which draws upon the skills and competencies of all organisations and industry.

Our conclusion, that the support mechanism would best be realised by combining the most effective elements of existing initiatives. We recommend that the most effective way of achieving this would be for the EEPB and the NRC to combine their areas of strength and work together with industry and other service providers, specialist organisations and centres of expertise, to provide a single point of reference on refurbishment matters. Such an industry solution will ‘join the dots’ between Government, industry, academia and building users and become an authoritative leader. It will work with all key players and stakeholders to:

- Build and disseminate a robust evidence base of the low carbon refurbishment of homes/buildings
- Create a strategy to achieve the continuous improvement of sustainability and energy reduction and create the economic value (jobs, installs, investment, etc.) for all
- Provide a Government-Industry development and collaboration space
- Maximise value from research initiatives
- Create the positive market environment which building owners and tenants can trust
- Provide leadership and a credible point of focus for collaborative working
- Build on a network of existing partnerships and connections to rapidly establish relevant local connections.

Internationally, this would place the UK in a foremost leadership position.

Whilst we fully acknowledge that currently no one organisation presently provides all the elements envisaged of the support mechanism, we strongly believe EEPB and NRC between them are the only organisations that provide
much of the core functionality needed. Together we are well placed to provide leadership that will bring in the necessary key service organisations into a consortium which will attract the necessary industry support and provide the functionality required. Key to this is the necessary ownership of outcomes by government at ministerial level and combined financial support from government and industry. Together the NRC and EEPB bring:

- Both EEPB and NRC bring a track record of securing financial support from industry
- NRC brings links to both EST and BRE data resources including the Existing Homes survey, the Home Analytics tool, the EMBED building performance database all corralled through the NRC refurbishment portal
- EEPB with their parent NEF brings experience of effective Government / industry collaboration
- EST brings 20 years of success at engaging building users and influencing consumer behaviours of energy use in buildings
- BRE brings unrivalled technical expertise and understanding
- And together we have the recognition of industry and the range of sector experts that will be essential to the Hub’s overall capability.

EEPB and NRC (with the support of our respective parent bodies - NEF, BRE and EST) are willing, able and prepared to work collaboratively and combine their respective strengths to establish a new not-for-profit legal entity and develop finance and governance arrangements which bring along the industry in to one single, respected, authoritative body. This would build upon both organisations’ considerable membership and quickly leverage a sizeable industry financial contribution.

We kindly request you include in your report to the GCB our proposition that, once the GCB and Government have decided on the model and remit for the support mechanism, the GCB commissions the EEPB and NRC jointly to work to establish the operational model and business plan with industry, government and the GCB. This proposition means EEPB and NRC obtain commitment from industry to support the mechanism both physically and financially and obtain buy-in, commitment and financial support from government.

We believe this approach is the best route and most cost-effective option for implementing a new support mechanism, whilst also optimising the potential for low carbon refurbishment and attracting active and effective industry collaboration and investment. As two well recognised and experienced organisations in the sector we would bring a strong capability to aid the GCB in defining and establishing a successful mechanism.

We would be delighted to discuss this approach in more detail as the GCB considers, and acts upon all the recommendations from the SWEETT/VERCO report.

Sincerely

David Strong
Chairman, Energy Efficiency Partnership for Buildings

Chris Ward-Brown
Chairman, National Refurbishment Centre
Appendix D: Cost benchmarks for existing bodies

Simple benchmarking has been carried out to estimate the typical operating costs for an existing buildings support mechanism. Figure D.1 illustrates the annual expenditure of a sample of organisations, derived from published accounts and annual reports. No detailed analysis has been carried out on the specific projects and programmes undertaken in the reporting year for these organisations; instead this analysis is intended to show both the range of scales and that are possible how these costs compare against a nominal measure of impact (i.e. a 1% increase in refurbishment activity compared with DECC’s projections for Green Deal and ECO). Those organisations that perform primarily co-ordination and working group functions (e.g. Zero Carbon Hub and UK-GBC) are seen to be substantially lighter organisations than those with a large body of in-house technical experts (e.g. BRE, Carbon Trust) or those running major programmes of consumer advice (e.g. EST). This indicates that an existing buildings support mechanism of the type identified through the workshops is more likely to be placed on the centre-left hand side of the graph, albeit with sufficient resources so as to be able to commission its own independent research and analysis and to deal with the scale and complexity of the refurbishment agenda. This suggest that the required annual expenditure should be in the range £1-5m.

In order to understand how these annual costs are broken down, more detailed analysis has been carried out on existing bodies which are considered comparable both in terms of scale and remit: the UK Green Building Council (UK-GBC) and the Institute for Sustainability (IfS).

UK Green Building Council (UK-GBC)

The UK-GBC financial statement divides its costs according to the following key objectives:

- Raising awareness - events to promote sustainability, conservation, protection and improvement of the built environment
- Improving sustainability - in the way it is planned, designed, constructed, maintained and operated
- Education - to the public in the sustainability, conservation, protection and improvement of the built environment

The costs associated with these activities for 2012 are summarised in Figure D.2 below.

It could be considered that these areas of focus are very broadly consistent with the proposed activities of this support mechanism – that is:

- Raising awareness: prioritising, coordinating, disseminating information
- Improving sustainability: developing solutions
- Education: delivery of key services (training, skills, etc)

**Figure D.2 UK-GBC 2012 annual costs by activity**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Raising awareness</th>
<th>Improving sustainability</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance</td>
<td></td>
<td></td>
<td>37</td>
</tr>
<tr>
<td>Direct costs</td>
<td>302</td>
<td>206</td>
<td>376</td>
</tr>
<tr>
<td>Direct staff costs</td>
<td>189</td>
<td>478</td>
<td>178</td>
</tr>
<tr>
<td>Premises</td>
<td>33</td>
<td>80</td>
<td>31</td>
</tr>
<tr>
<td>IT/comms</td>
<td>7</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Admin staff</td>
<td>11</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>Accounts &amp; finance</td>
<td>0.4</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>579</strong></td>
<td><strong>841</strong></td>
<td><strong>601</strong></td>
</tr>
</tbody>
</table>

Further analysis of the activity, ‘raising awareness’, shown in the following graph, indicates that staff costs are approximately one third of total costs, while direct costs are approximately half. The latter is likely to include the cost of holding events, which are likely to be greater than the cost of setting up and managing a website, as proposed for the support mechanism. Figure D.3 (below) illustrates the breakdown.

**Figure D.3 Breakdown of UK-GBC costs: ‘Raising awareness’ activity**
Institute for Sustainability (IfS)

The IfS breaks down its costs according to the following activities: research and demonstration, innovation accelerators, and dissemination. Although the remit of the IfS is far wider than that proposed for this support mechanism (for example, it includes sustainable transport) and therefore the scale of funding is far more extensive, this gives a useful indication of the proportional spread of costs. The associated costs for 2012 expenditure are summarised in Figure D.4 below. Staff costs exclude benefit in kind contributions.

**Figure D.4 Institute for Sustainability 2012 annual costs by activity**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost (£, 000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dissemination</td>
</tr>
<tr>
<td>Governance</td>
<td></td>
</tr>
<tr>
<td>Staff</td>
<td>690</td>
</tr>
<tr>
<td>Consultancy</td>
<td>847</td>
</tr>
<tr>
<td>Short term assignments</td>
<td>0</td>
</tr>
<tr>
<td>Partner payments</td>
<td>409</td>
</tr>
<tr>
<td>Recruitment</td>
<td>4</td>
</tr>
<tr>
<td>Office costs</td>
<td>0</td>
</tr>
<tr>
<td>Travel &amp; subsistence</td>
<td>3</td>
</tr>
<tr>
<td>Communications</td>
<td>73</td>
</tr>
<tr>
<td>Bad debt</td>
<td>33</td>
</tr>
<tr>
<td>Training</td>
<td>4</td>
</tr>
<tr>
<td>Support costs</td>
<td>181</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,302</strong></td>
</tr>
</tbody>
</table>

Clearly, the activity, ‘dissemination’, most closely corresponds to the proposed primary function of the proposed support mechanism, ‘prioritising, coordinating and disseminating information’. A further breakdown of this is shown in the Figure D.5 below, again indicating that staff costs are approximately one third of total costs, while direct costs (consultancy and partner payments) are approximately half, as with the UK-GBC’s cost breakdown.
Indicative costs for proposed hub

In light of the cost analysis described above, an indicative cost structure for the proposed hub can be extrapolated based on the required outputs under each activity, as shown in Figure D.6 below. The cost of governance, which includes audits and accountancy costs, legal and professional fees, staff costs and trustees expenses, is attributed to the primary activity of the support mechanism. An assumed average full time equivalent staff cost of approximately £60,000 per year has been calculated using direct staff costs and associated staff numbers obtained from the IfS and UK-GBC, and this has enabled an indicative staff number to be estimated, also shown in the following table.

Figure D.6 Extrapolated annual costs by activity for proposed support mechanism

<table>
<thead>
<tr>
<th>Activity</th>
<th>Prioritising, coordinating, disseminating information</th>
<th>Developing solutions</th>
<th>Delivery of key services (training, skills, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance</td>
<td>50</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Direct staff costs</td>
<td>300</td>
<td>350</td>
<td>-</td>
</tr>
<tr>
<td>Direct project costs - internal</td>
<td>150</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Direct project costs – external e.g. consultancy, developing website</td>
<td>150</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>700</strong></td>
<td><strong>750</strong></td>
<td><strong>500</strong></td>
</tr>
<tr>
<td>Indicative FTE staff</td>
<td>5</td>
<td>6 - internally led (project managers and technical specialists) with external resource e.g. consultants</td>
<td>External resource e.g. consultants</td>
</tr>
</tbody>
</table>
Appendix E: Analysis of return on investment

Section 2 of the main report sets out the following information relating to the impact of mass refurbishment:

Figure E.1: Impact of mass scale refurbishment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative capital investment (£m)</td>
<td>27,000</td>
<td>91,000</td>
</tr>
<tr>
<td>Annual capital investment (£m)</td>
<td>1,800</td>
<td>6,300</td>
</tr>
<tr>
<td>Total cumulative homes Treated ('000)</td>
<td>3,600</td>
<td>12,700</td>
</tr>
<tr>
<td>Average annual homes treated ('000)</td>
<td>240</td>
<td>726</td>
</tr>
<tr>
<td>Annual jobs created ('000)</td>
<td>17</td>
<td>117</td>
</tr>
<tr>
<td>GDP impact (%)</td>
<td>0.12</td>
<td>0.41</td>
</tr>
<tr>
<td>Annual energy bill savings per household treated (£)</td>
<td>94</td>
<td>319</td>
</tr>
<tr>
<td>Annual CO₂ reduction in 2027 (MtCO₂e pa)</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

Figure E.1 sets out two scenarios, the first is based on DECC’s own projections for Green Deal and ECO this could see annual investment of £1.8bn and the creation of 17,000 annual jobs. As a result UK Gross Domestic Product (GDP) could increase by 0.12%.

The second scenario is based on a higher uptake rate in line with that modelled in a recent study for Consumer Focus. This scenario largely closes the carbon gap to meet the 4th carbon budget and has the potential to lift 9/10 homes out of fuel poverty. Annual capital spend is forecast to be £6.3bn with 117,000 annual jobs are supported. UK Gross Domestic Product could increase by 0.41%

Taking a conservative approach and focusing on the first scenario, a simple Internal Rate of Return (over 5 years) calculation has been conducted.

Assumptions:
- Office for National Statistics (ONS) estimate for UK GDP 2011 (£m): 1,440,150
- Assumed impact on GDP (scenario 1): 0.12%
- Financial equivalent of impact on GDP (£m): 1,762
- Benefit of attaining 1% of target per annum (£m): 18
- Approximate annual cost of hub (£m): 3

Calculation:

Figure E.2: IRR calculation for DECC GD scenario

<table>
<thead>
<tr>
<th>Description</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Hub cost (£m)</td>
<td>-3</td>
</tr>
<tr>
<td>Benefit of 1% increase in DECC GD impact (£m)</td>
<td>18</td>
</tr>
<tr>
<td>Net benefit (£m)</td>
<td>-3</td>
</tr>
<tr>
<td><strong>Internal Rate of Return</strong></td>
<td><strong>487%</strong></td>
</tr>
</tbody>
</table>
From Figure E.2 it can be seen that an annual investment of £3 million could lead to an IRR of almost 500% over 5 years. Please note that the figures presented are for illustrative purposes and should be treated as indicative only.