



Programme Area: Buildings

Project: Building Supply Chain for Mass Refurbishment of Houses

Title: Mass implementation plan

Abstract:

Please note this report was produced in 2011/2012 and its contents may be out of date. This deliverable is number 4 of 7 in Work Package 3. The report outlines actions necessary to roll out mass scale retrofit of the UK housing stock from 2012 to 2050, based on the findings of the project. The report proposes this period be structured into 3 phases:

- 1) Preparation to 2020
- 2) Retrofit rollout 2020 to 2030
- 3) Future scenarios 2030 to 2050.

The report is intended as an overview document that can be used to plan the mass rollout of retrofit in the UK. It is also meant to flag potential obstacles and areas of opportunity which should be considered when developing the strategy for mass implementation of retrofit. It is recommended this report is read in conjunction with deliverable WP4.5 – Change Management Road Map.

Context:

This project looked at designing a supply chain solution to improve the energy efficiency of the vast majority of the 26 million UK homes which will still be in use by 2050. It looked to identify ways in which the refurbishment and retrofitting of existing residential properties can be accelerated by industrialising the processes of design, supply and implementation, while stimulating demand from householders by exploiting additional opportunities that come with extensive building refurbishment. The project developed a top-to-bottom process, using a method of analysing the most cost-effective package of measures suitable for a particular property, through to how these will be installed with the minimum disruption to the householder. This includes identifying the skills required of the people on the ground as well as the optimum material distribution networks to supply them with exactly what is required and when.

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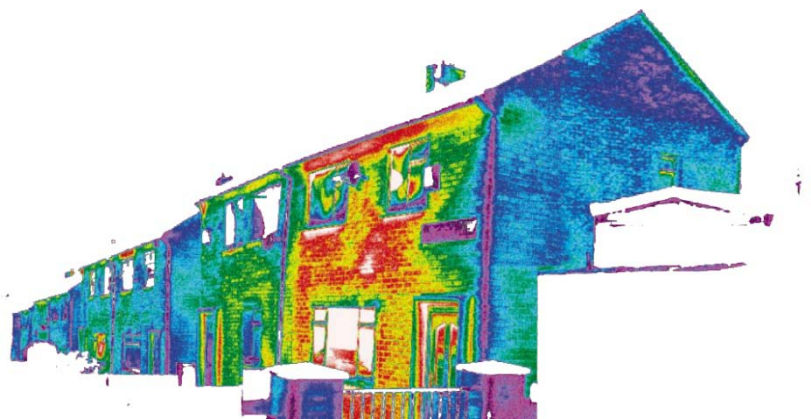
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The **ENERGY ZONE**
CONSORTIUM:



PEABODY



Optimising Thermal Efficiency of Existing Housing

Mass Implementation Plan

Final Report

Submitted by  on behalf of the
ENERGY ZONE CONSORTIUM

31 July 2012

Optimising Thermal Efficiency of Existing Housing Mass Implementation Plan

**PRP Contact
and Work
Package 3
Leader**

Andrew Mellor
PRP Architects
10 Lindsey Street
Smithfield
London
EC1A 9HP

P) 0207 653 3504
M) 07720 451 466
E) andrew.mellor@prpenvironmental.co.uk

Author

Kirsten Burrows & Marylis Ramos, PRP Architects

FAO

Matthew Barton
Energy Technologies Institute LLP
Holywell Building
Holywell Way
Loughborough
LE1 3UZ

E) matthew.barton@eti.co.uk

Issue**Final****Action**

- Accepted
- Accepted subject to minor changes
- Major re-issue required

Signature

Contents

| | |
|------------------------------------------------------------------|----|
| Contents..... | ii |
| 1 Executive Summary..... | 3 |
| 2 Introduction..... | 4 |
| 2.1 Report Objectives..... | 5 |
| 3 Preparation to 2020..... | 6 |
| 3.1 Technical Solutions..... | 7 |
| 3.2 Supply Chain..... | 10 |
| 3.3 Customer Engagement..... | 12 |
| 3.4 Policy..... | 14 |
| 4 Retrofit Roll-Out 2020-2030..... | 16 |
| 5 Future Scenarios 2030-2050..... | 18 |
| 5.1 Customer Acceptance and Supply Chain Development..... | 18 |
| 5.2 Climate, Temperatures and Fuel Futures..... | 24 |
| 6 Summary..... | 30 |
| Appendix A- Preparation to 2020: Detailed Task Descriptions..... | 32 |
| Customer Engagement..... | 32 |
| Supply Chain..... | 43 |
| Policy..... | 55 |
| Technical Solutions..... | 69 |

1 Executive Summary

The aim of this report is to explore and detail the necessary actions along the trajectory from 2012 to 2050 for retrofit across the UK. It has been envisioned that this period should be divided into three distinct phases: Preparation to 2020, Retrofit Rollout 2020-2030 and Future Scenarios 2030-2050.

The first phase takes the work completed thus far in all the project work packages and translates those research findings into tangible events and initiatives that need to take place before 2020 and the first wave of mass retrofit. Following an extensive workshop with consortium partners, a comprehensive timeline was developed which details the necessary expertise, funding and prerequisites which are essential to the success of a UK-wide retrofit programme. Overall, each initiative or task is directed at achieving one or more of the following four requirements for a successful mass implementation:

- Introduce policy which is supportive of retrofit
- Promote consumer acceptance
- Up-skill the retrofit supply chain
- Develop cost-effective and scalable design solutions for all UK homes

It is expected that if the majority of these actions are completed by 2020, the second phase of the plan will be able to take place, which is the initial phase for mass roll out to 2030. This period is hugely dependent on the preparatory work completed during the decade previous. However, the biggest consideration is consumer demand, as acceptance is necessary to ensure uptake.

Finally, the last exercise was to explore the possible future scenarios we may face in 2030. Since the success of the retrofit programme, although thoroughly planned until 2020, is uncertain, it is important to plan for a range of outcomes. The two biggest dependencies are customer acceptance and supply chain development. Ideally, high demand will be met with appropriate supply but future policy developments, fuel prices, the rental market and household incomes are likely to have uncertain impacts. As such, a workshop with consortium partners explored the impact of different variables on the success of a mass roll-out of retrofit in 2030, and how we should address these future scenarios in order to ensure the continued sustainability of the UK retrofit industry. This process also considered the effects of climate, temperature and fuel mix on the industry, as well as the standard whole house packages proposed in WP 3.4b.

The report is intended as an overview document that can be used to plan the mass rollout of retrofit in the UK. It is also meant to flag potential obstacles and areas of opportunity which should be considered when developing the strategy for mass implementation of retrofit.

2 Introduction

- The Mass Implementation Plan outlines the tasks across design, supply chain, customer engagement and policy work streams in the years leading to 2050.
- The first section examines the preparations required for the deployment of the first wave of mass retrofit in 2020.
- The second section, Retrofit Rollout 2020-2030, assumes that the preparatory tasks to 2020 have taken place and a mass retrofit programme is set to begin.
- The last part major part of the report is the result of an exercise in future planning beyond 2030.

Taking direction from the Single Dwelling Refurbishment Plan (WP 3.4b) and the retrofit packages developed therein, as well as the findings from the Customer Engagement (WP5) and Supply Chain work packages (WP4), the Mass Implementation Plan outlines the tasks across design, supply chain, customer engagement and policy work streams in the years leading to 2050. The report is divided into three sections: Preparation to 2020, Retrofit Rollout 2020-2030 and Future Scenarios 2030-2050.

Preparation to 2020. This first section examines the preparations required for the deployment of the first wave of mass retrofit in 2020. These actions were decided upon following an extensive workshop with consortium partners, which concluded with a completed comprehensive timeline. Each task was then detailed in terms of what needs to happen, when and where it needs to take place, who will be involved and how to engage these stakeholders. A summary of the tasks necessary for each work stream is outlined in this first section, while more detailed information is available in Appendix A.

Retrofit Rollout 2020-2030. This second section assumes that the preparatory tasks to 2020 have taken place and a mass retrofit programme is set to begin. Assuming everything is in place by 2020, there are still potential challenges to consumer uptake, the foremost of which will be customer acceptance. Other major obstacles, including available funding, heritage concerns, and appropriate upskilling are identified and their impact on retrofit examined.

Future Scenarios 2020-2030. The last part major part of the report is the result of an exercise in future planning. Consortium members attended a workshop which addressed the difficult task of planning post-2030. The wide range of variables that could significantly impact the success of mass retrofit, meant scenario planning would help to better assess the range of possibilities and consider the way in which to address the scope of outcomes that might impact a successful programme. With eight different scenarios presented to workshop attendees, the workshop provided valuable insight into the development of plans to ensure the long term success of a mass retrofit programme.

The result is a valuable guide and timeline of the steps necessary to reach 2020, along with guidance to address the barriers to a successful retrofit programme and ensuring the longevity of domestic retrofit in 2030 and beyond.

2.1 REPORT OBJECTIVES

- Detail the key tasks and initiatives necessary across all work streams to launch a mass retrofit programme in 2020
- Identify likely remaining obstacles and challenges to programme success in 2020
- Develop plans for post-2030 based on key variables related to supply chain development, customer acceptance and changes in climate, and analysing their impact on retrofit.

3 Preparation to 2020

- This section outlines the required tasks across design, supply chain, customer engagement and policy work streams in the years leading to 2020.
- The Technical Solutions workstream tasks are intended to support supply chain development, promote innovation and develop the designs to be used by retrofit teams in the mass rollout of retrofit.
- The Supply Chain workstream tasks show that the retrofit process will need to be standardised in order for the supply chain to operate in a lean and efficient way.
- Tasks to 2020 related to Customer Engagement are aimed at demystifying retrofit and what it means, what it involves and making plain the benefits of improving thermal efficiency.
- The Policy workstream tasks are intended to ensure that the processes established in the supply chain and related to technical solutions are robust and are able to be rolled-out with minimal difficulty.

The necessary first step in the development of a mass implementation plan was to detail the essential tasks to ensure a successful rollout by 2020.

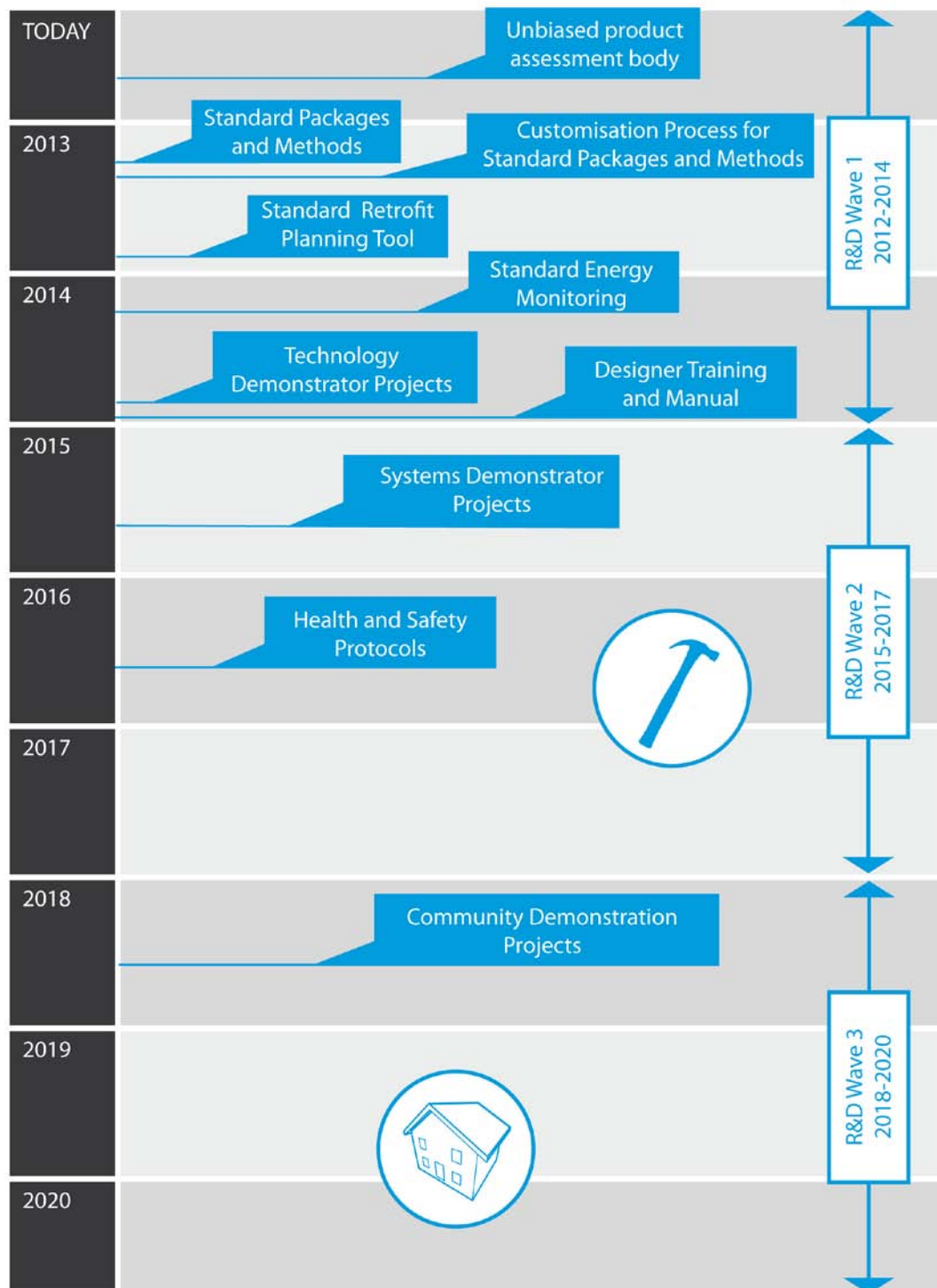
Since there are a number of events that must take place in terms of supply chain, technical solutions, customer and policy, we held a workshop in early April to brainstorm the key tasks and initiatives necessary to reach 2020, and ensure a successful mass retrofit programme roll-out.

Representatives from each of the work packages were put into groups and asked to begin by identifying elements of retrofit process that need to change (such as skills, attitudes, affordability, marketing, etc) and list the mechanisms necessary to change or improve these elements. Each group was then tasked with identifying the prerequisites that need to be in place before this change can take place and determine when the required change should occur in our timeline. The workshop concluded with an aggregated draft timeline that included each work stream.

Based on this timeline, each work package was asked to provide greater substance to each task in terms of description, duration, prerequisites and dependencies in a standard task description pro-forma.

These detailed task descriptions can be found in Appendix A while a summary of the plan to 2020 for each work stream is detailed below.

3.1 TECHNICAL SOLUTIONS



The tasks outlined under the Technical Solutions workstream are intended to support supply chain development, promote innovation and develop the designs to be used by retrofit teams in the mass rollout of retrofit. Three overarching tasks are waves of R&D that will take place from 2012 to 2014, from 2015 to 2017 and again from 2018 to 2020. The

phasing of R&D will allow for more directed programmes of R&D post 2014, with a great focus on systems design and community solutions.

These research and development programmes can be government-led or involve government-industry collaborations which will help to develop and advance retrofit materials and technologies. This may also include further research into community energy infrastructure and will likely involve working with European partners, particularly those with well established domestic retrofit markets. The programme will allow for existing products to be further refined, and for innovation in products that could greatly improve the retrofit process, such as thin external wall insulation with a low u-value or 'plug-and-play' renewables and other energy efficiency technologies.

As new products, materials and technologies emerge from R&D and other sources, their use and application will have to be demonstrated to both industry and homeowners. Similarly to Customer Demonstrator Projects, Technology Demonstrator Projects will be conducted across the country and allow for the testing and monitoring of both established and emerging technologies in different combinations. These will be marketed toward the construction industry but will be available for viewing by the public. These projects will need to be available for viewing in 2015. Similarly to Technology Demonstrator Projects, System Demonstrator Projects will be conducted across the country and allow for the testing and monitoring of integrated materials and technologies using smart systems and interfaces. Finally, Community Demonstrator Projects will pilot streamlined whole house packages beginning in 2018, including neighbourhood systems and community energy infrastructure, partly based on the findings of R&D Wave 3.

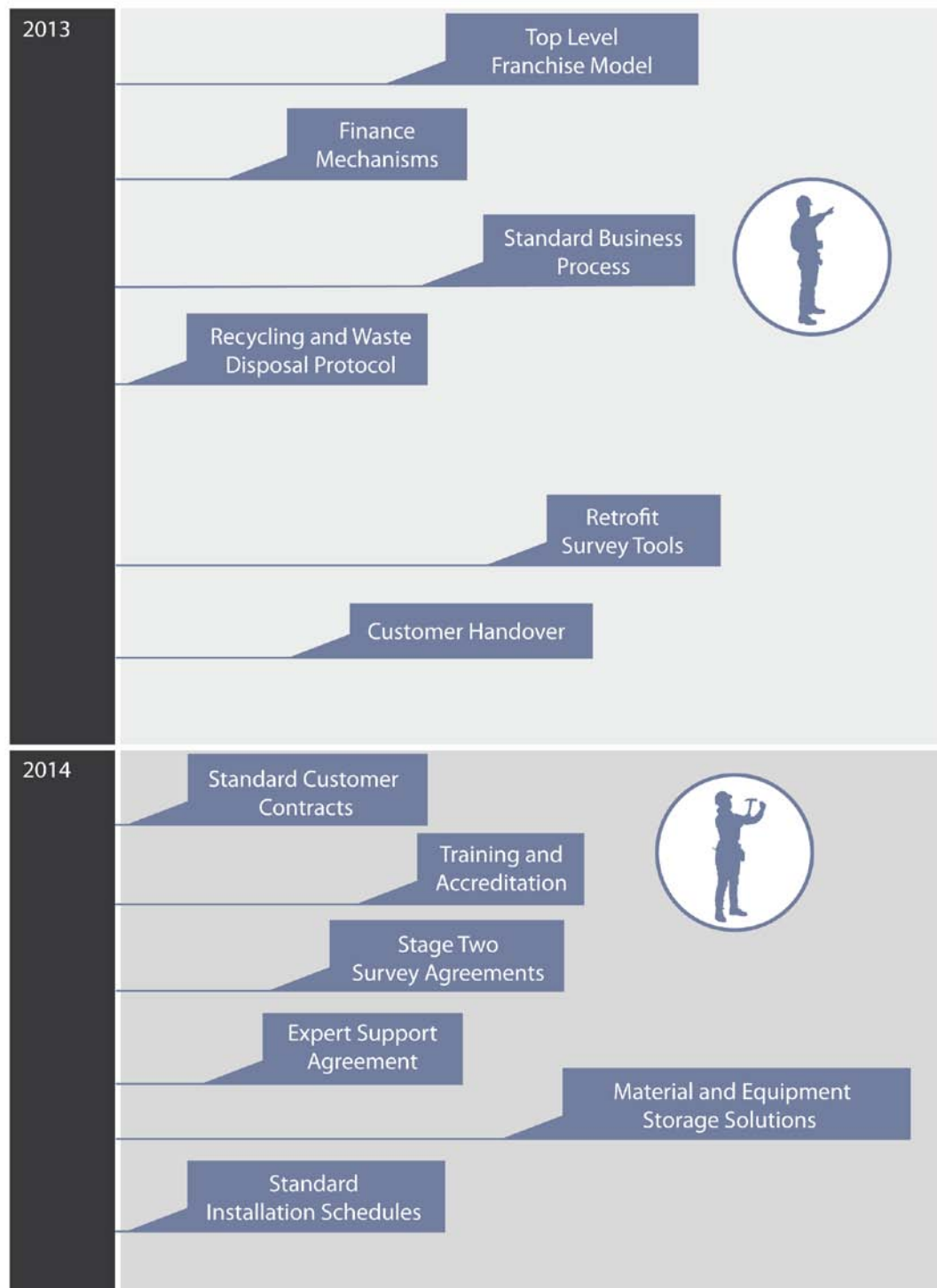
This process is related to the need for an unbiased product assessment body for both current and new products and materials. As it remains difficult to find reliable information for products, with business often bolstering a material or products capabilities, an independent body will be established to test and assess the wide range of products available for retrofit. Information should be related to performance, thermal efficiency, and cost. While R&D will involve commercial partners, this body should be free of any direct relation to product and material manufacturers and information should be accessible to non-experts online. This assessment body may be adapted from a private organisation that already exists and adapted to be faster and more affordable, while it may be possible to establish a new government-funded body.

In 2013, standard packages and methods for retrofit will have to be refined and finalised. Following the development of whole house packages for a variety of UK house typologies, more detailed standard packages will be designed and will include suggestions for material specifications and application methods. This will require an associated process for the customisation of these packages. This will likely include a pre-assessment tool to be used during a Stage One survey based on design decision trees and a streamlined design process that relies on good survey data to customize each standard package to the property being retrofitted.

The design industry will require training with an associated manual on their role in the retrofit provider supply chain, how to work with standard packages and how to design to new retrofit standards. Another element of designer training will be to provide an understanding of the design details for tailoring the standard retrofit packages.

These designs will then be able to be used by poly-competent supply chain teams. Once these designs are developed and used in demonstrator projects, appropriately tailored energy monitoring protocols can be developed, in early 2015.

3.2 SUPPLY CHAIN



Overall, the retrofit process will need to be standardised in order for the supply chain to operate in a lean and efficient way.

As outlined in Work Package 4, the supply chain will need to change from the current trade based supply chain delivery approaches and reduce the delivery team to four multi-skilled retrofitters.

This will lend itself to the development of a parent/franchise supply chain model, which involves the design of the parent and delivery company infrastructure and identification of the necessary tools, equipment and training requirements.

While the scalable delivery unit or franchised installer is most likely to be acceptable to owner occupiers who want locally based companies, large corporate delivery organisations will continue to appeal to the social housing sector, but have potential to supply multi-property private landlords and owner-occupiers in the long term.

The work to be completed by 2020 for the development of a streamlined retrofit supply chain is largely intended to create a 'business in a box', or a set of clearly defined retrofit standards and business practices that are applicable across the UK. This will involve a set business procedure for retrofit, which will include standard procedures and plans for Health and Safety, insurance, logistics, access, complaints and programme plans. Other elements of the process to be standardised include retrofit survey tools and data architecture, installation schedules and material delivery and storage.

This will include the development of a one size fits all customer contract for retrofit that is available in multiple languages in the beginning of 2014. Other standard legal agreements to be developed include a Stage 2 Survey agreement with wayleaves and an expert support agreement between the parent retrofit delivery company and expert specialists (such as structural engineers, asbestos removal experts etc.) both in 2014 as well.

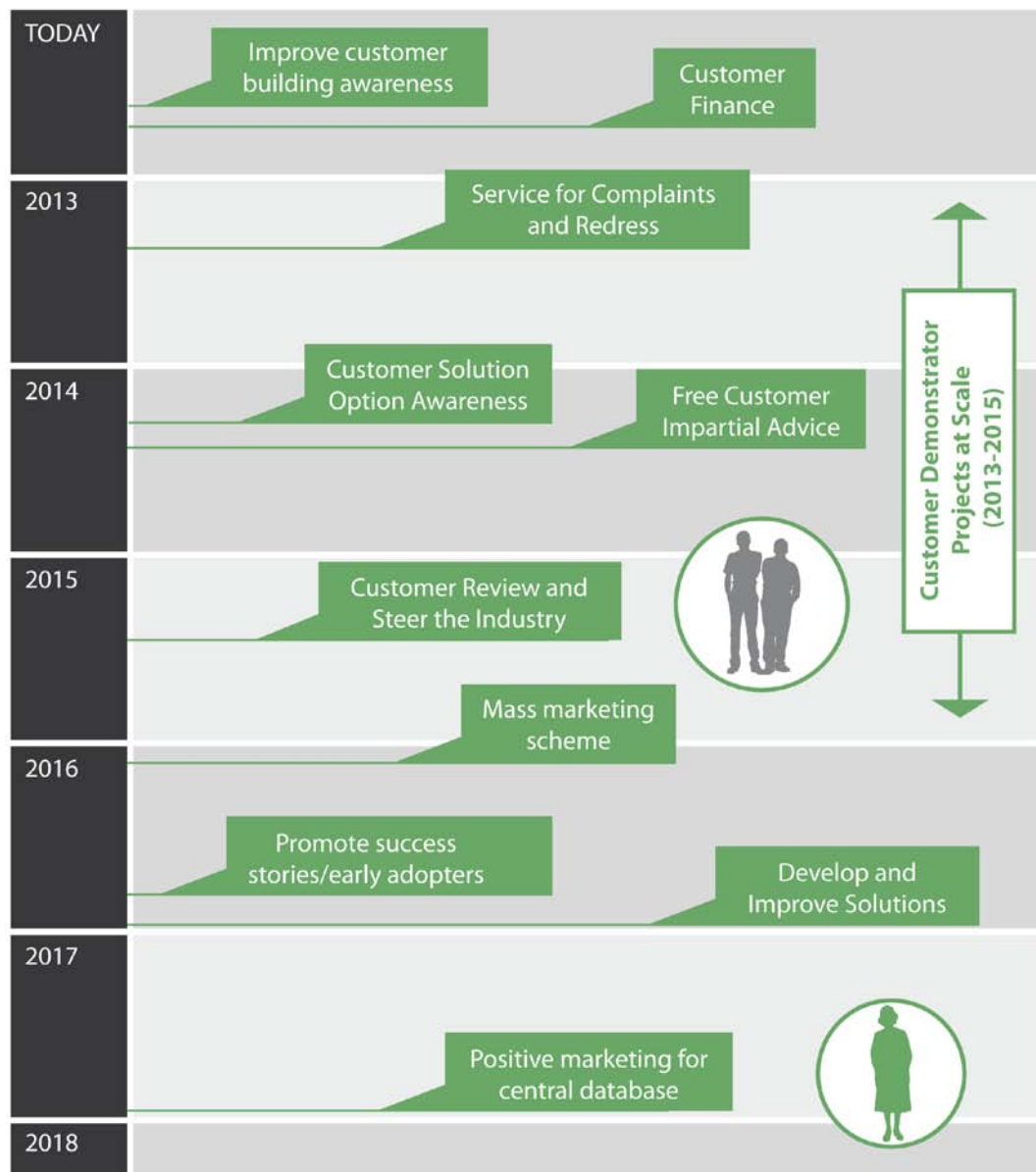
Survey tools, most likely to take the form of a computer application capable of data capture and installation recommendations (in the form of a bespoke retrofit planning application with preloaded decision-making trees) will help to ensure a robust survey process. Standard installation schedules will include detailed task plans, including required man power, materials and services for each house type and each installation.

An innovative method of material delivery and storage will need to be developed between 2013 and 2014 in order to ensure a single delivery to site with a special purpose container.

Unlike previous retrofit programmes, a focus will be put on customer handover and training, which is an integral element to ensure the maintenance of the installed measures and positive legacy of the scheme. Customer care packs will be designed for both the supply chain and packs given to residents following installation, including information related warranty claims. This process will also involve resident training in order to ensure correct use of new technologies and an understanding of the ways to maximise energy savings.

Regulated training will be essential under this model, and training and accreditation should be standardised. Training courses will need to be developed, as will associated qualification and certification systems.

3.3 CUSTOMER ENGAGEMENT



The tasks to 2020 related to customer engagement can be summarised to be aimed at demystifying retrofit and what it means, what it involves and making plain the benefits of improving thermal efficiency. Improved customer awareness, through demonstration projects, mass marketing schemes and an impartial customer advice service, will help to ensure clarity and dispel any rumours, falsehoods or stories of refurbishments gone wrong. In doing so, customers will feel empowered to make informed decisions, which is central in ensuring the uptake of retrofit in 2020.

Perhaps the most important task will be the roll-out of customer demonstration projects, which will involve large scale retrofit to homes in a number of communities across the UK. The ability to 'see and touch' retrofit with a number of open days, along with marketing of positive experiences, will help promote improved understanding about the retrofit

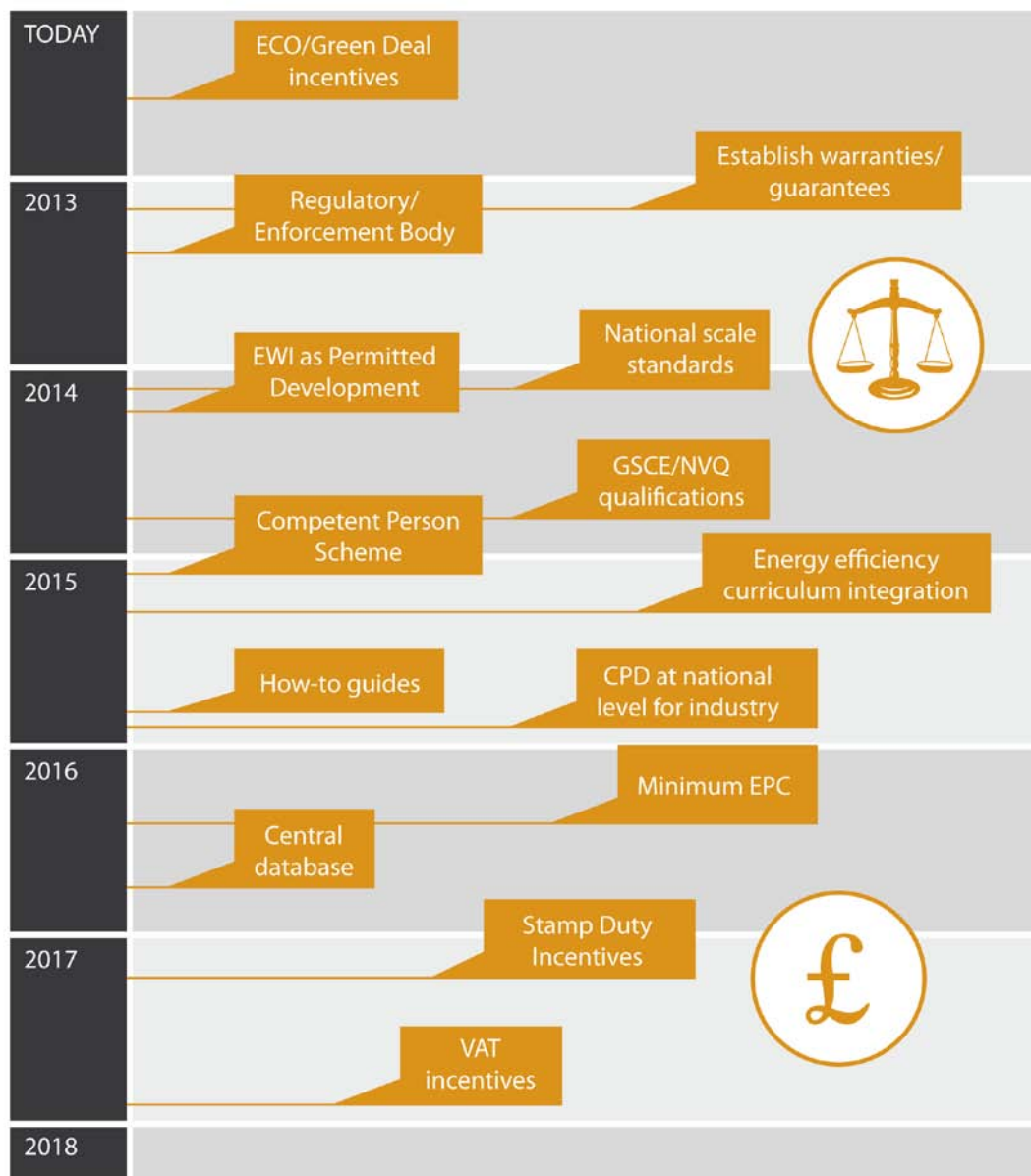
process (and as we have seen in WP5.5, there are significant differing understanding across all customer segments about what is involved in retrofitting one's home).

This supports the idea of delivering whole-house "one-hit" solutions, and 'do it once and do it properly'. This will help avoid the need to return to properties in future years to make further improvements, as customers are likely to be confused or resistant if they are told in future that their retrofitted home needs to be brought up to higher standards of energy efficiency.

These efforts will help to encourage and build trust, not only in retrofit but in the building industry as a whole, which is presently limited. This will be further aided by the establishment of a service for redress and complaints, which will offer a free and reliable service based on defined service standards on to be applied by retrofit providers and act as independent ombudsman. The adoption of an independent advice service will help this process, which will need to grow rapidly in the first year to serve the whole of the UK. Multiple options for contact will be made available, including a free phone service, an online portal and face to face advice. This fact is illustrative of the way in which each initiative to bolster customer acceptance are meant to be all inclusive, regardless of market segment.

All the events for customer engagement will need to begin fairly early, with a first wave beginning in early to mid-2013, and a second wave in mid-2015. All services and projects will need to be established by 2018 in order to ensure high uptake in the early stages of mass roll-out.

3.4 POLICY



Developments and initiatives associated with policy are aimed at ensuring the processes established in the supply chain and related to technical solutions are robust and are able to be rolled-out with minimal difficulty.

The first set of mechanisms, which will take place for the most part in 2013, involve the establishment of recognised national refurbishment standards and the improvement of building control processes. This includes the establishment of a Regulatory Enforcement Body in 2013 which will be able to check and enforce retrofit standards independent of Building Control Officers, helping to reduce the burden of work associated with retrofit for both Local Authorities and industry. In conjunction with the Regulatory Enforcement Body, a new Competent Persons Scheme will be introduced for poly-competent teams for all retrofit interventions.

National Standards would be established between 2013 and 2014 and include a comprehensive set of technical standards covering a full range of interventions for a range of house types.

The rate of adoption of whole house retrofit will be improved with the inclusion of EWI as Permitted Development, which will need to be established by 2014. This change in policy would have a major impact on helping to increase the number of EWI installations by removing the need for planning permission (although limitations will remain for listed building and those in conservation areas).

A number of rewards and punishments to induce the uptake of retrofit will also be introduced, including the tilting of stamp duty by 2016 based on EPC rating in a way that is revenue neutral and self-funding, while helping to promote thermal efficiency improvements. This will complement the introduction of minimum EPCs for all the UK stock, which will prohibit the letting and selling of dwellings that are below Grade E. This will help to remove all Band G and F properties from the housing stock by 2012.

In contrast, incentives in terms of VAT will be introduced by 2017. This will involve setting VAT at 5% for all refurbishment work, which will bring it more in line with new build work. This will require a change of heart from the Treasury but will help to encourage the integration of energy efficiency measures into general refurbishment.

Policy will play a central role in the promotion of energy efficiency education in both primary and secondary schools. The integration of energy efficiency information into the national curriculum by late 2014 will help provide pupils with insight into how energy efficiency measures in transport and buildings, homes in particular, are related to CO₂ emissions. Stemming from this initiative is the creation of new GCSE and NVQ qualifications, again by late 2014, the latter of which will be a necessary prerequisite to the competent person's scheme. Education will be provided to industry professionals through retrofit CPDs at a national level, which will be directed at Building Control officers and SAP assessors by late 2015.

Lastly, a key development will be the creation of a Central Database in 2016. A central repository of information concerning stock and resident information will help to inform marketing and expedite and improve the survey process. The database will include house type, status of location, energy use, EPC data and resident information. However, there are likely to be major challenges in establishing this database, as it is necessary to obtain the permission of the householder to store their data, in accordance with the data protection act 1998. If this information is then intended to be sold or shared in any way, additional permission will need to be obtained in order to share this data with 3rd parties.

Each of these elements, as well as others included in the detailed task description sheets, found in the appendices, are anticipated to take a year each in terms of time from development to introduction as legislation. The majority of tasks are aimed to be completed by 2017.

4 Retrofit Roll-Out 2020-2030

- The preparation to 2020 is aimed to create the conditions that support both customer interest acceptance and supply chain development.
- The biggest dependency will be customer uptake, as preparatory works will only be deemed successful if it stimulates sufficient demand.
- Product innovation has not been included as a significant barrier is product innovation, as the essential products necessary for retrofit are already available.

If each of the tasks outlined previously are achieved by 2020, a mass retrofit programme is likely to have a successful and efficient roll-out. The initiatives are aimed to create the conditions in 2020 that support both customer interest acceptance and supply chain development.

The key factors that will have to be in place at the beginning of the decade are:

- Stable and supportive policy
- A trustworthy and efficient supply chain
- Cost effective materials and products
- Effective and robust standard whole house packages
- Attractive marketing and value propositions

These issues were first identified in the DfX workshop in July 2010, and have been further analysed and refined throughout the course of the project.

The biggest dependency will be customer uptake, as preparatory works will only be deemed successful if it stimulates sufficient demand by 2020. Effective marketing and consumer engagement activity is therefore vital from 2012 and onwards. This will include tangible evidence of successes achieved with demonstrator projects and early adopter case studies. It will be important to engage with consumers using a range of media, targeted to specific customer types throughout the period to 2020 and beyond.

The major obstacles beyond customer demand are likely to include:

- Available funding and cost
- Heritage and aesthetic concerns
- Improved trust in the building industry
- Appropriate upskilling

If these issues are not adequately addressed in the period before 2020, there are likely to be significant negative impacts on customer acceptance and a mass programme as a whole.

One element which has not been included as a significant barrier, but which can contribute to the overall success of the programme is product innovation. The essential products necessary for retrofit are already available, although some will need to become more widely available and with reduced costs. Roll-out is not therefore wholly dependent on radical product innovation, although thinner insulation, easy to install materials and specialist products will be useful for hard to treat homes or dwellings with non-standard features.

While product innovation is not essential, the supply chain will require a significant step-change and a complete re-designing of supply from an end to end perspective. Key changes include reducing waste through collaboration, optimised site delivery, simplified accreditation for materials and systems, effective training for industry and transparent funding mechanisms and incentives. Without these innovations, retrofit is likely to remain costly and slow, and therefore largely unattractive to the wider UK public.

5 Future Scenarios 2030-2050

- Post-2030 planning remains difficult to predict as a result of a wide range of variables, not least the actual success of the preparatory steps for the proposed mass retrofit.
- Future scenario planning helps to assess the range of possibilities and consider the way in which to address the scope of outcomes that might impact a successful programme.
- The first set of scenarios consider the intersection of two variables that are likely to have the greatest impact on retrofit: Consumer acceptance and Supply Chain.
- The second set of scenarios addressed the impact of climate, temperature and fuel futures on the retrofit solutions presented in WP3.4b and a mass retrofit programme as a whole.

Building on the preparatory plan to 2020 above, and previous work on retrofit programme roll-out, the project team took on the difficult challenge of planning post-2030. Over longer time-horizons the uncertainty across a wide range of variables makes this level of scenario planning more speculative. To address this a separate workshop was held to assess the range of possibilities and consider the way in which to address the scope of outcomes that might impact a successful programme.

5.1 CUSTOMER ACCEPTANCE AND SUPPLY CHAIN DEVELOPMENT

The workshop began with a consideration of what the UK is expected to look like in 2030, and a review of other factors, including household and demographic growth, that are likely to affect the success of retrofit. Taken from the national statistics and the DCLG report *Household Projections, 2008 to 2030, England* (2010), the following statistics were presented to attendees:

| 2030 and Beyond | 2008 | 2030 |
|---------------------------------|--------------|--------------|
| <i>UK Population</i> | 61.4 million | 70 million |
| <i>UK Household Numbers</i> | 21.7 million | 27.5 million |
| <i>Household Size</i> | 2.33 | 2.16 |
| <i>Population over 65</i> | 5.7 million | 9.2 million |
| <i>One Person Households</i> | 7.3 million | 11.2 million |
| <i>Area with Highest Growth</i> | | South East |
| <i>Area with Lowest Growth</i> | | North East |

With this information providing a setting for planning future scenarios, each group was tasked with considering the intersection of two variables that are likely to have the greatest impact on retrofit in the UK: Consumer acceptance and Supply Chain Development. Below is a description of the scenarios each group was given, and their strategy to ensure the long term success of a mass retrofit programme.

Scenario A- High Consumer Acceptance, High Supply Chain Development

A mass retrofit programme has been a widespread success with a high number of homes retrofitted, including both early adopters and others. There is a highly developed supply chain with a market close to saturation and may need to create new opportunities for retrofit businesses. There is also high population awareness because of rise in energy prices and climate change issues. In terms of supply chain, retrofit is profitable and has focused on outcomes, not just outputs. There has been consistently stable policy over the last 10 years and will continue as such going forward.

How should our marketing strategy change?

With the easy wins now achieved, marketing should appeal to the growing demographic of stay-at-home homeowners as the population ages. Marketing programmes should identify the need to raise specification and requirements in order to achieve higher savings. Marketing should also make clear the evidence of the difference between retrofitted and non-retrofitted homes, and the benefits of the former. Part of this should also include a plan for future retro-upgrades every 15 years for maintenance, replacement or enhancement.

There should also be an effort made to tackle the continued sceptics, which may involve increased social pressure, perhaps in schools, and the introduction of fiscal penalties.

How should available products and services be made to change?

In order to continue the success of retrofit following early achievements, design is crucial and should consider personalisation and style and not a one-fits-all solution. There should be different offerings with a range of perceived aesthetic values to encourage home improvement, but with an underlying high energy performance. Quality design and the use of sustainable materials are to be encouraged, as are solutions where aesthetic components can be changed rather than ripped out and replaced. Products should be made to last or easily upgradable, with a focus on end-to-end resource efficiency.

Smart systems should optimise both energy and comfort, and may include systems of appliances that work together. Systems should also be simple and self-integrating.

How should the supply chain change?

The supply chain should be able to offer high performance base level products with the opportunity for mass-scale customisation. Customers should also have the option for regular affordable payments to eliminate hassle.

The supply chain may also be able to develop a house transition model that targets groups of people as they move between homes, such as first-time buyers, people hoping to upsize, and retirees.

What policies need to be developed?

For continued programme success, there must be a stable policy environment for both retrofit and energy. Energy policy and decisions regarding generation and transmission need to offer clarity and a long-term roadmap. Mechanisms which 'ratchet-up' energy performance over years (as with the Code for Sustainable Homes) but can also adapt to changing economics/technology without being considered 'U-turns' will support this. Since it is difficult to stimulate a step-change in practices in a deregulated market, a major change will only be possible with a regulated market.

The introduction of Consequential Improvements in Part L1B building regulations should be made to encourage whole house improvements, and not just the part being altered, if this has not already been implemented by 2030.

Scenario B- High Consumer Acceptance, Low Supply Chain Development

Despite high public interest, the supply chain lacks innovation and the retrofit process remains slow as a result of the construction industry remaining risk averse. This is in part due to a lack of policy certainty.

The process is not whole house but remains 'measure-by-measure' with many homes remaining unretrofitted with long wait times.

How should our marketing strategy change?

In this scenario, marketing needs to be directed at industry and not the consumer. This could include demonstrating the profit potential, by illustrating the success achieved in Europe. It will involve the development of pre-prepared business models ('retrofit in a box, as detailed in WP4.3 and 4.4). With the development of a franchise retrofit scheme, it would be simple for existing semi-technical construction workers to take up a retrofit business. There will also need to be mass media interest (particularly television) to demonstrate market appeal.

EPCs should be given increased value, and a direct link should be made between the EPC rating and the value of the property. In doing so, the industry is more likely to respond since they will have evidence that they will be able to sell their services and have a guaranteed, low-risk business.

How should available products and services be made to change?

Since the delivery process is struggling, improved innovation in products that reduce costs and improve health and safety will be essential. It will also be important to reduce the barriers to entry and innovation.

How should the supply chain change?

In order to encourage industry, there must be stable government incentives and policies with minimal 'red-tape' for businesses. The government should also support good design and innovation, potentially through ECO funding.

Industry stimulation may be possible by promoting the avoided costs of infrastructure for local authorities. By making homes more energy efficiency, new cables and pipes that would be required as a result of increased energy demand have not been installed, therefore avoiding millions of pounds of investment that can be redirected toward the industry and stimulate the supply chain to undertake retrofit.

What policies need to be developed?

R+D funding should be made available in order to encourage supply chain innovation at a large-company level. This would also require mechanisms for ensuring the trickle-down effect of this funding to SMEs.

The protection of Intellectual Property (IP) should be considered, since the supply chain is likely to invest if there is potential for an on-going revenue stream. This could be linked with the potential for export, while ensuring UK businesses are not deprived on IP investment.

A low bureaucracy landscape would help attract the supply chain, as industry may be discouraged by the amount of paperwork and administration necessary to move into retrofit. It is also currently difficult to fully understand costs of retrofit, particularly with differing levels of VAT on products on services. Policy should help to make this process easier, potentially with businesses or consultants to aid specifically in this process.

Scenario C- Low Consumer Acceptance, High Supply Chain Development

The retrofit supply chain is highly developed following early adopter uptake and government support. As a result, retrofit is efficient, technologically advanced, and offers high quality at a relatively low cost.

However, those who were likely to undertake retrofit have already done so and a lack of wider interest means there is low consumer acceptance. An increased inequality in terms of an income gap has led to an increased percentage of Successful Ruralites, as well as Urban Constrained and Unconvinced Dependents, who are unlikely to feel motivated or have the means to undertake retrofit. Successful Ruralites, while in a position to undertake retrofit financially, see it as a low priority and are more protective of the aesthetic of their properties than other segments. Urban Constrained and Unconvinced Dependents have low levels of savings and are struggling on current income, and have poor awareness of measures or the need for action.

Growth in the private rental market also means fewer people are likely to be able to retrofit their homes, and there remain few incentives for landlords to modernise rental properties.

How should our marketing strategy change?

In order to stimulate consumer demand, marketing programmes will need to either change the market it targets or promote a broadened product portfolio. This could be based on customer feedback which could provide a better understanding of why uptake has been so low. This may involve research in order to better target growth areas of the market and identify different trigger points. Packages should be further customised to target individual buyers, which may involve further research into where disposable income is spent for different customer segments.

There is also potential for marketing schemes to target attitudes toward waste and associate an element of moral judgement.

Consumers may also be encouraged with increased evidence and case studies of the benefits of a retrofitted home.

'Target segments' should also be redefined according to demographics in 2030, which may present different early adopters than those identified in the beginning of the programme.

How should available products and services be made to change?

Customer acceptance may be improved if the cost of products comes down, although this may require mass-scale manufacturing, which is unlikely given the lack of demand. As such, products should be made to be more flexible and with increased performance, to ensure greatest value for money.

It may also be useful to change the place of product offering in order to improve customer exposure.

How should the supply chain change?

As presented previously, the supply chain would benefit from a diversification of product offering, in order to target a greater number of customers. The bundling of products and services may also be useful and attractive, as would the increase adaptability of delivery businesses as momentum for retrofit builds.

What policies need to be developed?

One way to stimulate customer demand would be zero VAT on retrofit products. However, this is likely to lead to a modest increase in uptake, but unlikely to make a step change. A larger impact will likely come in the form of the tilting of stamp duty and if that proves ineffective, a sliding scale of Council Tax for EPC ratings.

If encouragement and increased marketing does not increase consumer demand, penalties may be necessary. These may include increased fuel prices as consumption rises.

Scenario D- Low Consumer Acceptance, Low Supply Chain Development

A lack of trust and leadership has led to minimal take-up by consumers and industry, as a result of greater inequality and a smaller government. The aging population means there has been growing problems with pensions and 'early adopters' of this age group do not have the income to spend on retrofit. There remains little pressure on the market and consumer to retrofit.

How should our marketing strategy change?

Solutions will likely need to be radical and hard-hitting. There should be one single marketing message, similar to 'Dig for Victory'.

If fuel prices are not motivating people to retrofit their homes, message should focus on increased comfort and other improvements. Retrofitted homes should be made to be status symbols ('Keeping up with the Joneses'), and marketing should make it socially unacceptable to have an inefficient home.

The hassle associated with retrofit will have to be driven down considerably, with a marketing scheme which highlights the reductions in disruption.

Marketing should target younger demographics, including children, through the promotion of retrofit and energy efficiency in the national curriculum.

How should available products and services be made to change?

In order to reduce hassle and aesthetic impacts, cost effective aerogel or VIPs should be further developed. Insulation and other retrofit products should offer more utility and greater value for customers. Additional benefits may include better sound insulation or enhanced security.

As a last effort, investment should focus on efficiency energy provision. If hydrogen fuel cells are developed, many energy use issues may be solved. However, the future of fuel cell technology in domestic applications is uncertain and other areas, such as more widespread CHP, district heating (with anaerobic waste), waste and black water heat recovery and the promotion of a decarbonised grid.

How should the supply chain change?

Overall, leadership and supply chain culture will need to change in order for retrofit to be taken up by the wider industry. Vertical integration should be encouraged to overcome market failure.

The level of training should be advanced, and should start at younger ages, in both schools and colleges.

It may also be possible to nationalise the retrofit industry, and develop a German KfW-style financing with a national retrofit bank.

What policies need to be developed?

Appropriate policy development will be vital in this scenario, since relying on the market to promote retrofit has proven ineffective.

Minimum EPC standards should be enforced, and a deadline should be set for all dwellings to meet this base level or owners will face fines. Higher taxes should be put on less efficient products.

On a larger scale, the government should promote the decarbonisation of the grid.

Policies need to be developed which will support the most vulnerable populations, especially the elderly.

The government may also be able to raise fuel prices to encourage retrofit although this is likely to be very unpopular and therefore not a probably policy development. Another option may be to combine fuel bills and council taxes into one payment, and link the two according to usage, so reduced energy would result in savings in council tax. This is likely to be a controversial policy.

5.2 CLIMATE, TEMPERATURES AND FUEL FUTURES

The second half of the workshop was shaped to address climate, temperature, fuel futures and their impact on the retrofit solutions presented in WP3.4b. Provided that climate projections and fuel futures are not 100% certain, each group was given different scenarios based on temperature, fuel mix and the incidence of extreme weather events. The demographic and population data provided in the first sessions were again provided to each of the groups, as well as an outline of the retrofit measures outlined in deliverable 3.4b.

The consideration of climate and temperature is important in future planning as illustrated in the deliverable report 2.5a. While relative humidity and associated mould issues were improved as a result of both Retrofix and Retroplus scenarios, the risk of overheating increased significantly following refurbishment.

Under 2030 weather assumptions, high and medium risk levels were seen across all twenty house types combinations under Retrofix, although the percentage of homes with a high risk of overheating increased greatly following Retroplus installation. These findings support those produced using the EnergyPlus modelling tool that suggest that overheating following refurbishment could be a significant risk. As such, it was important to understand the implications of changes in climate and identify ways to mitigate these issues with our designs.

Below are descriptions of the scenarios each group was given, and their assessment of the retrofit packages in light of these different projections.

Scenario A- High Temperature Increase, Conventional Fuel Mix

A high temperature increase (+1.5- 3.5°C) has put pressure on the future proofing of homes. This is compounded with the fact that homes have increased cooling needs, which is still provided through gas/fossil fuels, with prices that continue to rise.

Homes require high thermal mass/shading devices and appropriate ventilation to combat overheating. There is also increased precipitation in winter months, which creates increased damp and mould as homes lack appropriate ventilation. Increased flooding, weathering and rain penetration will require appropriate material specification for retrofit interventions

On a wider scale, there are also likely to water supply issues and increased pressure on housing as a result of rising migration from climatic changes.

How should our house packages change?

The packages should include additional mitigation measures for overheating, including shading devices. Appropriate ventilation will play a larger role and will have to be considered at the beginning of any retrofit programme. Water saving and conservation measures (such as rainwater harvesting and grey water re-use) should also be included in each package, as water issues become increasingly pressing.

More robust and better quality materials should be used in order to protect homes from harsher weather conditions. This will include flood-proofing measures, such as integrated waterproof elements to any EWI application.

How should our marketing strategy change?

Marketing programmes should promote EWI over IWI in order to reduce the risk of overheating. Programmes should also be directed toward vulnerable populations, particularly the elderly. They should promote water saving measures as an integral element to whole house retrofit.

Marketing schemes should focus less on payback, and more on social responsibility.

How should available products and services be made to change?

Products need to be future proofed and durable for a range of extremes of weather. Boilers should be able to adjust their capacity, either by a technician working remotely or through self-regulating technology. Self-optimising controls could also be integrated into a whole-house smart system. There are possible periods of power outages because of fuel volatility and as cooling demands rise. Solutions that can cope with outages and additional climatic stress on buildings as a result will need to be considered.

Windows should have integrated shading and passive stack ventilation, or secure natural and purge ventilation should be installed in overheating scenarios. Additional technologies should be developed to protect the elderly from overheating.

What policies need to be developed?

Revisions should be made to planning regulations to remove the barriers to install EWI, and shading requirements should be included in building regulations.

Enforcing excellent standards in new build will encourage the market towards energy saving in existing homes by making un-retrofitted properties relatively unaffordable.

Policies may also include enforced restriction on energy consumption in order to generate demand for accelerated retrofit of homes as fuel volatility and overheating risk become increasingly serious.

Greater flood prevention should be integrated at the whole house, as well as community levels.

Issues related to increased migration and population growth, as well as higher levels of occupancy and densification of housing will also have to be addressed by policy in order to tackle larger quality of life concerns.

Scenario B- High Temperature Increase, Decarbonised Fuel Mix

Similarly to Scenario A, a high temperature increase (+1.5- 3.5°C) has put pressure on the future proofing of homes. Homes have increased cooling needs, which is increasingly provided by renewable sources, with prices that have risen sharply as a result of the high capital cost to decarbonise the grid.

Homes require high thermal mass/shading devices and appropriate ventilation to combat overheating. There is also increased precipitation in winter months, which creates increased damp and mould as homes lack appropriate ventilation. Increased flooding, weathering and rain penetration will require appropriate material specification for retrofit interventions

On a wider scale, there are also likely to water supply issues and increased pressure on housing as a result of rising migration from climactic changes.

How should our house packages change?

Despite the growing decarbonisation of the grid, use of air conditioning should be minimised with a focus on shading and ventilation in order to ensure overheating mitigation thus avoiding high fuel costs and potential overload of the electricity grid. The use of IWI should be minimised as it is more vulnerable to overheating and condensation, with a greater focus on EWI as source of thermal mass. This becomes increasingly important with the likely rising use of heat pumps, which may have more of a response time lag than other systems.

Special attention should also be given to the weather proofing of the house during retrofit.

How should our marketing strategy change?

Marketing programmes should promote EWI over IWI in order to reduce the risk of overheating, and promote the integration of shading into retrofit work. They should promote water saving measures as an integral element to whole house retrofit.

Programmes should emphasise payback as cost for fuel increases.

How should available products and services be made to change?

Products need to be future proofed and durable for a range of extremes of weather, and will need to be flood proof. Windows should have integrated shading and passive stack ventilation, or secure natural and purge ventilation should be installed in overheating scenarios.

Additional technologies should be developed to protect the elderly from overheating and increased risk of heat stroke. This should also include easy-to-use controls for older demographics.

With renewable electricity more abundantly available, retrofit work should include the option to incorporate car charging in or near the dwelling.

What policies need to be developed?

Revisions should be made to planning regulations to make EWI permitted development and shading requirements should be included in building regulations.

Greater flood prevention should be integrated at the whole house, as well as community levels.

Issues related to increased migration and population growth, as well as higher levels of occupancy and densification of housing will also have to be addressed by policy in order to tackle larger quality of life concerns.

Scenario C- Low Temperature Increase, Conventional Fuel Mix

In contrast to the previous two scenarios, temperatures have not increased as expected and heating demand remains the same. However, there are increased fuel prices, and an increased number of households who are now in fuel poverty.

How should our house packages change?

Packages should be shaped according to the learnings from early adopter installations, with increased support for what has worked and reworked measures that have not worked.

Since there is less need to focus on climate change adaptation, attention should be on reducing energy demand and consumer energy bills overall. As such, there should be a focus on efforts on developing enabling technologies (such as all-weather installation

methods and products). This should also involve the development of innovative technologies that build upon existing infrastructure.

How should our marketing strategy change?

As a result of growing fuel poverty, marketing should focus on the cost savings associated with retrofit. Schemes should also promote the success stories of early adopters, and how retrofit will help to ensure long term stability for energy use.

It may be useful to encourage local marketing, which will promote local retrofit schemes.

How should available products and services be made to change?

Product development should focus on making existing technologies more efficient. This should involve making them easier to install ('Plug and play') with intelligent controls, some of which may be made to be self-regulating. There could be a market for installations that are easily installed by home owners (DIY installations).

Affordability remains a major concern, so reduced costs will have to be a central consideration in further product development.

What policies need to be developed?

The rental process should be changed, so that a dwelling's rental price includes both rent and energy charges, with a built-in commission to cover differences in energy prices as volatility continues. This will help to protect tenants while also motivating landlords to renovate their properties. On the other hand, this may shift responsibility for energy saving away from the householder, so consideration of the risks and benefits of this policy should be explored further.

Policies should promote microgeneration technologies with increased support for research and development in energy distribution. There should also be incentives for the supply chains to invest in communities in the long term. Overall, the aim of policy should be stability in the face of fuel uncertainty.

Scenario D- Low Temperature Increase, Decarbonised Fuel Mix

Similarly to the previous scenario, temperatures have not increased as expected and heating demand remains the same. However, there are increased fuel prices, and an increased number of households who are now in fuel poverty. Heating is increasingly provided by electricity

How should our house packages change?

Packages should be shaped according to heating system changes, as there is an anticipated shift toward heat pumps and decentralised power generation, including the installation of PV panels. House packages should also consider the potential for district heating and necessary internal layout changes in order to accommodate distribution.

Since there is less need to focus on climate change adaptation, attention should be on reducing energy demand and consumer energy bills overall. As such, there should be a focus on efforts on developing enabling technologies (such as all-weather installation methods and products). This should also involve the development of innovative technologies that build upon existing infrastructure.

How should our marketing strategy change?

As a result of growing fuel poverty, marketing should focus on the cost savings associated with retrofit.

Retrofit could be bundled with other products, such as replacement kitchen, bathroom or redecoration ('retrofit by stealth').

Marketing should also promote electrical heating technologies as the grid is decarbonised.

Changes to legislation related to consequential improvements should be publicised and a whole house approach should be encouraged.

How should available products and services be made to change?

Product development should have greater emphasis on electrical heating and improved heat pumps and making existing technologies more efficient. This should also involve making renewable technologies easier to install ('Plug and play') with intelligent controls, some of which may be made to be self-regulating. Heat storage technologies should be enhanced in order to level grid loads.

There could be a market for installations that are easily installed by home owners (DIY installations) and materials which can be installed in all weather conditions.

Affordability remains a major concern, so reduced costs will have to be a central consideration in further product development.

What policies need to be developed?

Building regulations should be revised to include a requirement in consequential improvements that stipulates that when switching to electrical under floor heating or heat pumps, floor insulation must also be installed.

6 Summary

- This report is intended as a top-level implementation plan which considers all work streams.
- This information is intended as guidance and will need to be expanded upon and explored further in order to become an actionable work plan.
- The major dependency for the success of a mass retrofit programme is customer acceptance.
- The timeline to 2020 is very front heavy, with each work stream needing to make significant headway before 2015.
- While planning post-2030 remains difficult because of a number of future uncertainties, the variables likely to have the greatest impact on retrofit are customer acceptance, supply chain development, fuel mix and climate change.

The major dependency for the success of a mass retrofit programme is customer acceptance. Regardless of the preparatory work to 2020, the success of any retrofit scheme will depend on customer awareness, understanding and most importantly, trust. All the activities outlined in Section 3 must work towards ensuring these conditions are met, as there is little use in developing solutions, implementing policy and training poly-competent teams if customers do not believe the retrofit process to be a worthwhile investment. Consumer engagement, in terms of mass marketing, service offerings and retrofit open days will be essential to guarantee the work in the other three work areas will have use in 2020 and beyond.

The timeline to 2020 is obviously very front heavy, making it exceptionally ambitious and complex, with each work stream needing to make significant headway before 2015. In fact, it is necessary that the majority of preparatory work should take place in the next two years in order to be ready for 2020. Strong coordination between the work streams will be necessary since a number of the activities work in conjunction with, or are dependent on, one another.

While planning post-2030 remains difficult because of a number of future uncertainties, we have identified the key variables that will likely have the greatest impact on retrofit as including customer acceptance, supply chain development, fuel mix and climate change. These are most likely to have a significant role in changing the pressures on consumers to retrofit their homes, on the supply chain to take-up the franchise business model and the individual house packages as designed in WP3.4b.

In addressing these issues, this report is intended as a top-level implementation plan which considers all work streams. The plan timeline and detailed task description sheets

included in the appendices are intended to be used in future for the development and execution of each task.

While the work related to technical solutions and WP3 will now come to an end with the Optimising Thermal Efficiency of Existing Housing, there is much work to be done in terms of making the mass implementation of retrofit in the UK a reality. We envision that this will involve further detailing of the preparatory work to 2020, including each of the detailed task description sheets (Appendix A) in this report. Each required task has been summarised to include who is likely to be involved, what funding should be sought and from whom, what expertise is required and when the task will need to take place. This information is intended as guidance and will need to be expanded upon and explored further in order to become an actionable work plan.

Appendix A- Preparation to 2020: Detailed Task Descriptions

CUSTOMER ENGAGEMENT

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|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|--------------------------|---------|
| Task/Initiative: | C01 - Customer Buildings Awareness Campaign | | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | Ongoing | Duration (months) | Ongoing |
| Description of Activity: | Based on past successful campaigns and research into customer engagement, a government-led advice campaign will target the UK population to stimulate demand for retrofit. The activity should involve national press, television and an online advice portal. Focus should be on promoting unfamiliar technologies and pushing the comfort and money-saving benefits of a whole-house solution. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Improve customer awareness of key retrofit technologies (especially unfamiliar technologies like solid wall insulation) • Promote benefits of a whole-house retrofit solution rather than measure-specific benefits • Improve connection between resident and home energy use • Promote a “fabric first” approach to improving efficiency | | | | |
| Expertise required | <ul style="list-style-type: none"> • Campaign strategy • Communications expertise • Awareness of technologies and methods | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI • Local communities/Local authorities | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Hits on website – 500,000 in first year • Sample questioning demonstrates greater awareness of technologies after year 1 – e.g. 5% sample awareness of technology at start; 60% sample awareness • Positive feedback from public • Resultant improvement in customer attitude towards retrofit – increased take-up or increased interest in measures | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Television and radio adverts • Basic info in printed media • An online advice portal | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C04 Customer Demonstrator Products , C06 Customer Solution Option Awareness | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • P01 ECO/Green Deal | | | | |

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|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|--------------------------|---------|
| Task/Initiative: | C02 – Customer Finance | | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | Ongoing | Duration (months) | Ongoing |
| Description of Activity: | To enable more customers to overcome the cost barriers to having retrofit works, a range of financial options should be developed for customers to select the best option for them and their home. Options should be designed to complement or otherwise be easily comparable with each other (including Green Deal and ECO). Financial options should also be designed with future policy in mind (e.g. VAT and Stamp Duty incentives – see Policy area of Roadmap). Development of financial options should be collaborative between private and public stakeholders. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Provide a range of customer finance options for retrofit • To include private and public sources • Financial instruments that are well-understood and protect the customer • Include and work alongside Green Deal and ECO | | | | |
| Expertise required | <ul style="list-style-type: none"> • Economic strategy • Policy awareness • Financial modelling • Collaborative working | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI • City Finance • Hedge funds, pension funds, major investment, etc. | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Provision of Finance that is available to >75% of the population • Successful take-up of finance – 10,000 homes in year 1, 50,000 in year 2, etc. • Resultant improvement in customer attitude towards retrofit – increased take-up | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Green Deal and ECO • Low interest Green Loans • Subsidised materials and services • Micro/local generation cash back schemes (e.g. FIT, RHI) | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC11 Supply Chain Finance | | | | |

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|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|--------------------------|---------|
| Task/Initiative: | C03 –Complaints and Redress Service | | | | |
| Start Month/Year: | April 2013 | Completion Month/Year: | Ongoing | Duration (months) | Ongoing |
| Description of Activity: | Building on the development of guarantees and warranties and the establishment of a retrofit Regulatory/Enforcement body, establish a strong, central, independent service to oversee the process of complaints, redress and compensation in retrofit. The service should define standard practices to be adopted by retrofit providers in managing complaints and redress to keep this simple for customers. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Establish an independent service to manage complaints and redress regarding retrofit • Define service standards on complaints/redress to be applied by retrofit providers and act as independent ombudsman • Linked to standards, guarantees and warranties • Operated by or under the authority of the central Regulatory/Enforcement body • Transparent, free and reliable service that inspires customer trust | | | | |
| Expertise required | <ul style="list-style-type: none"> • Legal and policy development • Awareness of warranties and guarantees • Customer focus • Communication skills | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Customer feedback from the service – satisfaction >80% | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Establish an independent service to manage complaints and redress regarding retrofit | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • Establish Warranties/Guarantees, Regulatory Enforcement Body | | | | |

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|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------|--------------------------|----|
| Task/Initiative: | C04 – Customer Demonstration Projects | | | | |
| Start Month/Year: | June 2013 | Completion Month/Year: | June 2015 | Duration (months) | 24 |
| Description of Activity: | In conjunction with the development of Technology Demonstrator Projects, this work area will focus on the customer experience of these projects – seeking to deliver positive experiences to project participants and share these with other members of the public through open days and local campaigns. The delivery of these projects will also help to validate assumptions and gain further learning to shape the supply chain in advance of a mass UK roll-out | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Deliver large scale retrofit to homes in a number of communities across the UK • Raise awareness of retrofit measures through open days and local/regional campaigns • Link to technical demonstrator projects • Deliver opportunities for prospective retrofit customers to “see and touch” retrofit • Validate assumptions on feasibility of community-level retrofit and supply chain characteristics • Learn lessons from actual delivery of retrofit to customers | | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical delivery (construction) • Project management • Marketing • Communication skills | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • TSB/ETI funding • Private/public funding • Direct investment from householders • Local communities/Local authorities | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Delivery of 500 retrofits across 20 communities across the UK • 1,000 public visits to each community in year 1 = 20,000 visits | | | | |
| Target Location/s: | Same as technical demonstrator projects | | | | |
| Outputs: | <ul style="list-style-type: none"> • 500 retrofits to varying house types and customer types • Demonstrators to engage public • Marketing campaign to promote demonstrators • Media – websites, printed materials, etc. | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness, | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C07 Customer Review and Steer the Industry | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T07 Technology Demonstrator Projects | | | | |

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|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------|-----------------------------------|
| Task/Initiative: | C05 – Free Customer Impartial Advice | | | |
| Start Month/Year: | December 2013 | Completion Month/Year: | June 2015 | Duration (months): Ongoing |
| Description of Activity: | Building on the earlier work on customer awareness, finance and complaints and redress, this work area will establish a free and impartial advice service for customers. Using multiple modes of contact (web, phone, person), the service should aim to grow rapidly to be serving the whole UK within the first year. Staffed by local people to whom customers can relate, this service should use proven customer service best practice methods to build a positive reputation. The service should remain impartial but still be able to signpost people to local retrofit providers. A widespread advertising campaign should promote the service and its benefits to reach the full UK population (TV, radio, newspapers, online, etc.) | | | |
| Objective/s: | <ul style="list-style-type: none"> • A free, impartial, retrofit advice service for UK customers to answer questions, demystify retrofit and build trust • Deliver a popular and positive service that customers recommend to friends/family • Continually improve the service by listening to the questions asked by customers and developing best practice answers • Present multiple options for contact including a free phone service, website and potentially face-to-face advice | | | |
| Expertise required | <ul style="list-style-type: none"> • Telecommunications expertise • Project management • Marketing • Customer Service • Communication skills | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI • Local communities/Local authorities | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • 100,000 calls/website hits in year 1 after launch • Sample surveying to test awareness of existence of service – 50% UK population awareness at end of year 1 | | | |
| Target Location/s: | National (with local/regional centres) | | | |
| Outputs: | <ul style="list-style-type: none"> • A free, impartial advice service • More than 100 jobs for advice providers • Marketing campaign to promote service | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness, C02 Customer Finance, C03 Service for Complaints and Redress | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T07 Technology Demonstrator Projects, C04 Customer Demonstration Projects | | | |

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|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|--------------------------|---------|
| Task/Initiative: | C06 – Customer Solution Option Campaign | | | | |
| Start Month/Year: | June 2014 | Completion Month/Year: | Ongoing | Duration (months) | Ongoing |
| Description of Activity: | Building on the development of the customer advice service and early technical awareness campaigns, this work area will seek to improve customer awareness of various packages of whole-house measures (e.g. RetroFix, RetroPlus, and RetroMax). Utilising the free customer advice service and promoting the ranges of customer finance options, this work area will seek to increase customer demand for packages of measures over individual measures. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Improving customer awareness of different options for specific “whole-house” packages of measures • Increase take-up of packages of measures rather than measure-by-measure • Integrate with existing retrofit advice and communication channels | | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical Awareness • Marketing • Customer Service • Communication skills | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI • Local communities/Local authorities | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Increased take-up of packages of measures – 10,000 packages by end of year 1 • Sample surveying to test awareness of packages of measures through advice line – e.g. 50% awareness at end of year 1 | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Integrated advice on packages of measures • Marketing campaign to promote packages | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness, C02 Customer Finance, C03 Service for Complaints and Redress, C05 Free Customer Impartial Advice | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • C04 Customer Demonstration Projects, T07 Technology Demonstrator Projects | | | | |

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| Task/Initiative: | C07 – Customer Review and Steer the Industry | | | | |
| Start Month/Year: | June 2015 | Completion Month/Year: | December 2015 | Duration (months) | 6 |
| Description of Activity: | A review of the first two years of roll-out activities that impact customers. Assess the effectiveness of the advice service and implement changes based on learning and customer feedback. Conduct post-occupancy research with participants in large-scale retrofit demonstrators to learn what worked well and what didn't and implement changes in supply chain. Make policy suggestions for government and key decision makers. Evaluate effectiveness of customer finance options and complaints/redress. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Evaluate experiences of early work with customers • Inform continuing and future work for all sectors, particularly the supply chain • Improve customer advice and support | | | | |
| Expertise required | <ul style="list-style-type: none"> • Research skills (analysis and evaluation; social and desk-based) • Project Management • Policy making • Communication skills | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Review meets pre-defined acceptance criteria including coverage and level of detail | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Report detailing results of review and key recommendations • Data from research activities | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness, C02 Customer Finance, C03 Service for Complaints and Redress, C04 Customer Demonstration Projects, C05 Free Customer Impartial Advice, C06 Customer Solution Option Awareness | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | | |

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| Task/Initiative: | C08 – Mass Marketing Scheme | | | |
| Start Month/Year: | December 2015 | Completion Month/Year: | June 2016 | Duration (months): 8 |
| Description of Activity: | Building on marketing efforts in previous work areas, this area aims to consolidate these streams into one major marketing campaign to promote retrofit, the advice service and the ways that customers can enter the market. This work area will also integrate the learning from the customer review and other work areas to develop the best possible campaign to inspire key market segments, particularly early adopters. The campaign will be delivered through television, radio and online channels. Whilst some of this may be funded through private funding it is important that consumers can trust the messages delivered. As such, the marketing should come via an independent or public source. Campaign should seek to work with local/regional authorities and communities to deliver a local relevance to messages. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Mass marketing campaign to consolidate and build on previous marketing activities • Generate customer interest and awareness • Increase uptake of retrofit | | | |
| Expertise required | <ul style="list-style-type: none"> • Marketing • Project Management • Telecommunications expertise • Communication skills | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI • Private funding (although avoiding branded marketing) | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Review meets pre-defined acceptance criteria including coverage and level of detail | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Mass-media marketing campaign reaching full public (including television, radio, print and online) • Local marketing to maintain relevance despite a nationally consistent message | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness, C02 Customer Finance, C03 Service for Complaints and Redress, C04 Customer Demonstration Projects, C05 Free Customer Impartial Advice, C06 Customer Solution Option Awareness, C07 Customer Review + Steer The Industry | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C09 Promote Success Stories/Early Adopters | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | |

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| Task/Initiative: | C09 –Success Stories and Early Adopter Promotion | | | |
| Start Month/Year: | June 2016 | Completion Month/Year: | April 2017 | Duration (months): 9 |
| Description of Activity: | This work area will focus on promoting case studies across a range of customers and house types who have completed retrofit works (including those from the demonstrator projects). Through written articles/blog posts and television programmes showcasing the stories, customers will see positive examples of the benefits of retrofit. By selecting relatable members of the public, the messages will come from more trusted sources. The examples will focus on dispelling myths about retrofit and focusing on addressing areas which earlier works suggest present the biggest obstacles to customers. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Promote engaging and positive case studies to UK population • Inspire customers to trust and engage with retrofit market • Increase uptake of retrofit | | | |
| Expertise required | <ul style="list-style-type: none"> • Marketing • Project Management • Telecommunications expertise • Communication skills | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI • Private funding (although avoiding branded marketing) | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Screening programmes on one of the main four television channels (BBC1, BBC2, ITV, Channel 4) and attracting audiences in excess of 0.5 million • Producing 10 televised case studies and 50 online case studies | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Programmes highlighting the retrofit process focusing on customer experience and the benefits received • Features on existing topical programmes (e.g. This Morning, The One Show) that show brief case studies • Printed/online articles and blogs showcasing customer experiences of retrofit | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C01 Improve Customer Building Awareness, C03 Service for Complaints and Redress, C04 Customer Demonstration Projects, C06 Customer Solution Option Awareness, C07 Customer Review + Steer The Industry, C08 Mass Marketing Campaign | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C10 Develop and Improve Solutions | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | |

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| Task/Initiative: | C10 – Solution Improvement | | | |
| Start Month/Year: | Spring 2017 | Completion Month/Year: | Autumn 2017 | Duration (months): 6 |
| Description of Activity: | Building on learning from early retrofits and data from demonstrator projects, the value propositions presented to customers will be reviewed and refined. Up-to-date information on costs of measures/labour and energy price will also inform this review. This work will take place following the initial review (C07) to give industry time to make changes based on recommendations from that work and to observe their results. Technologies which remain cost effective and attractive to consumers will remain, whereas obstacle technologies will be considered for exclusion. Revised packages will be re-integrated into previously-established channels for promotion to customers | | | |
| Objective/s: | <ul style="list-style-type: none"> • Review learning from customers and demonstrator projects • Review market, price of energy and cost of measures/labour • Update and improve packages of measures and value propositions to reflect up-to-date factors | | | |
| Expertise required | <ul style="list-style-type: none"> • Awareness of technical and social changes • Research skills (analysis and evaluation, technical modeling, economics) • Policy expertise • Marketing skills (to suggest best ways to market revised solutions) | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Report meets pre-defined acceptance criteria e.g. recommends key changes to packages validated by empirical evidence for changes | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Report with key recommendations for policy/decision makers • Advice for supply chain • Revised information for marketing and advice to customers | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C04 Customer Demonstration Projects, C06 Customer Solution Option Awareness, C07 Customer Review + Steer The Industry, C08 Mass Marketing Campaign, C09 Promote Success Stories/Early Adopters | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | |

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| Task/Initiative: | C11 –Central Database Marketing | | | |
| Start Month/Year: | Summer 2017 | Completion Month/Year: | Winter 2017 | Duration (months): 6 |
| Description of Activity: | Following establishment of a central database for retrofit (Task PXX), this work area will focus on a small marketing campaign to promote the benefits of the database and proactively tackle any concerns. The campaign should focus on the security of the data and the way it will be used to make it easy for retrofit to take place. The campaign should also explain that the database consolidates existing data rather than collecting and holding new, personal information. It is expected that this work would be delivered through online “FAQs”, news articles and televised interviews with news and topical programmes. The free advice line should also be prepared to answer public questions on the database. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Marketing campaign to promote existence of central database • Promote trust and simplicity in system • Gain customer/public support for the database | | | |
| Expertise required | <ul style="list-style-type: none"> • Awareness of technical specification of the database • Marketing and Public Relations • Presentation skills (for interviews, etc.) • Communications skills | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding • Public-private partnerships e.g. TSB/ETI | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Public support for the database > 50% | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Marketing/PR campaign to promote the database • Interviews • Printed media and online FAQs • Telephone advice service (using existing service – see C05) | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • C05 Free Customer Impartial Advice, C08 Mass Marketing Campaign, P13 Central Housing Information Database | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | |

SUPPLY CHAIN

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| Task/Initiative: | SC01- Top Level Franchise Model | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | December 2013 | Duration (months): 12 |
| Description of Activity: | The design of the parent and delivery company infrastructure, tools, equipment and training requirements | | | |
| Objective/s: | <ul style="list-style-type: none"> • To establish a highly effective supply chain for retrofit • Develop a template for the least wasteful supply chain and scalable poly competent team • Attract industry players to collaborate and invest | | | |
| Expertise required | <ul style="list-style-type: none"> • Business creation • Lean systems design • Supply chain development • Partner / consortium working • Enterprise funding • Construction industry expertise | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government • Public-private partnerships e.g. TSB/ETI • Supply merchants • Local communities/Local authorities • Manufacturers • PLC's • Venture capital companies | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Number of consortia • Top level companies involved • UK manufacturers involved | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Developed franchise or parent / sibling company structure | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC03 Standard Business Process | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC02 Finance Mechanisms | | | |

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| Task/Initiative: | SC02- Finance Mechanisms | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | April 2014 |
| | | Duration (months): | 18 |
| Description of Activity: | Finance industry, power companies and government work together to develop a low cost finance route for retrofit. This could develop ideas from the green deal etc. and pay as you save | | |
| Objective/s: | <ul style="list-style-type: none"> To develop a range of finance options for retrofit, both for consumer and lines of funding/credit for supply chain development | | |
| Expertise required | <ul style="list-style-type: none"> Finance industry experience Government funding ECO and other subsidy funding | | |
| Possible funding routes: | <ul style="list-style-type: none"> Government Local communities/Local authorities Banks / building societies Power companies | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> % interest rate achieved % of successful take ups against proposals | | |
| Target Location/s: | National | | |
| Outputs: | <ul style="list-style-type: none"> A range of finance packages tailored to different customer segments, tenure etc. | | |
| DEPENDENCIES | | | |
| Dependent on: | <ul style="list-style-type: none"> N/A | | |
| Prerequisite to: | <ul style="list-style-type: none"> SC03 Standard Business Process | | |
| Concurrent with: | <ul style="list-style-type: none"> SC01 Top Level Franchise Model | | |

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| Task/Initiative: | SC03- Standard Business Process | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | April 2014 | Duration (months): 18 |
| Description of Activity: | Creation of standard procedures and plans for Health and Safety, Insurance, Logistics, Access, Complaints and Programme plans | | | |
| Objective/s: | <ul style="list-style-type: none"> • To develop standard processes and procedures for retrofit in practice | | | |
| Expertise required | <ul style="list-style-type: none"> • Lean systems design • Process design • Health and safety legislation and safe systems of work • Contract drafting and commercial law | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC/BIS • PLC's • Power companies • Merchants • Parent companies | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • % interest rate achieved • % of successful take ups against proposals | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Business in a box process design and process maps / supporting standard work | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC02 Finance Mechanisms | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC12 Standard Installation Schedules | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC01 Top Level Franchise Model | | | |

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| Task/Initiative: | SC04- Recycling and Waste Disposal Protocol | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | April 2013 | Duration (months): 3 |
| Description of Activity: | Develop legislation to deal with disposal of products and materials used in retrofit at the end of their life | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop legislation to deal with disposal of products and materials | | | |
| Expertise required | <ul style="list-style-type: none"> • Composition of materials • Re-use and Recycling methods • Disposal methods • Legal backdrop to re-use, recycle and disposal of different materials | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government • Public-private partnerships e.g. TSB/ETI • Local communities/Local authorities • Manufacturers | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • % of materials and products used in retrofit that are truly recyclable • % remaining that are landfill only • Energy used in recycling | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Comprehensive legislation covering approved materials and recycling / disposal methods • Guidance notes for the retrofit industry | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC11 Material and Equipment Storage Solutions | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC03 Standard Business Process | | | |

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| Task/Initiative: | SC05- Retrofit Survey Tools | | | |
| Start Month/Year: | October 2013 | Completion Month/Year: | January 2014 | Duration (months): 3 |
| Description of Activity: | Create a standard process for survey for retrofit and supporting methods / tools and data capture system | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop a robust survey process and data capture system | | | |
| Expertise required | <ul style="list-style-type: none"> • Retrofit measures • Lean process design • Surveying and building defects • Metrology • Data capture and computer application creation • Health and safety at work | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC/BIS • PLC's and manufacturers • Power companies • Merchants • Parent companies • Consortia | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Use of survey tools in demonstrator projects • Widespread acceptance of tool by industry | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Standard work for survey process (survey 1 and 2) based on robust FMEA • Computer app for data capture | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC03 Standard Business Process | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC12 Standard Installation Schedule | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC06 Customer Handover | | | |

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| Task/Initiative: | SC06- Customer Handover | | | |
| Start Month/Year: | October 2013 | Completion Month/Year: | January 2014 | Duration (months): 3 |
| Description of Activity: | Create a customer care pack including handover and acceptance of work, training on the retrofit pack and complaints procedure and warranty claim pack | | | |
| Objective/s: | <ul style="list-style-type: none"> • Design customer care pack | | | |
| Expertise required | <ul style="list-style-type: none"> • Retrofit measures and controls • Lean process design • Basic contract law • Customer interaction • Health and safety at work | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC/BIS • PLC's and manufacturers • Power companies • Merchants • Parent companies • Legal companies • Consortia | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Positive customer reaction | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Customer care procedure and process documentation pack • Standard training and acceptance pack | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC03 Standard Business Process | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • P02 Warranties/Guarantees | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC05 Retrofit Survey Tools | | | |

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| Task/Initiative: | SC07- Customer Contract | | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | April 2014 | Duration (months): 3 |
| Description of Activity: | Create a standard one size fits all customer contract for retrofit | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop a standard customer contract for retrofit sale and installation | | | |
| Expertise required | <ul style="list-style-type: none"> • UK and European commercial contract law • Retrofit measures • Plain English • Surveying and building defects • Metrology | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC/BIS • PLC's and manufacturers • Power companies • Merchants • Parent companies • Consortia | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Customer reaction | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Standardised customer contract document | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC03 Standard Business Process | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC12 Standard Installation Schedules | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC08 Training and Accreditation, SC09 Stage Two Survey Agreement with wayleaves | | | |

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| Task/Initiative: | SC08- Training and Accreditation | | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | April 2014 | Duration (months): 3 |
| Description of Activity: | Establish training system and qualification / certification system for survey and installation of retrofit measures | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop training and accreditation system for retrofit survey and installation | | | |
| Expertise required | <ul style="list-style-type: none"> • Retrofit measures and materials / products • Construction training and qualification • General building competences • Surveying and building defects | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC/BIS • PLC's and manufacturers • Power companies • Merchants • Parent companies • Consortia | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Competences covered for each role, S1, S2, Install lead, Install #2, Install support | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Training courses and qualifications for retrofit roles. • Accreditation systems | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC03 Standard Business Process, SC05 Retrofit Survey Tools | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC09 Stage Two Survey Agreement with wayleaves | | | |

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| Task/Initiative: | SC09- Stage Two Survey Agreement with wayleaves | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | April 2014 |
| | | Duration (months): | 3 |
| Description of Activity: | Create a standard legal agreement to give authority to carry out the stage 2 invasive survey, to include any wayleaves if needed | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop a standard agreement for stage 2 survey | | |
| Expertise required | <ul style="list-style-type: none"> • UK and European commercial contract law • Retrofit measures • Plain English • Surveying and building defects • Metrology | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC/BIS • PLC's and manufacturers • Power companies • Merchants • Parent companies • Consortia | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Customer reaction | | |
| Target Location/s: | National | | |
| Outputs: | <ul style="list-style-type: none"> • Standardised customer contract document | | |
| DEPENDENCIES | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC05 Retrofit Survey Tools, SC07 Customer Contract | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC04 Survey Tools | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC10 Expert Support Agreement, SC11 Material and Equipment Storage Solutions | | |

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| Task/Initiative: | SC10- Expert Support Agreement | | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | April 2014 | Duration (months): 3 |
| Description of Activity: | Create a standard legal and commercial agreement document between parent / delivery company and specialists | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop an expert support agreement for specialists (Structural engineer, asbestos removal etc.) | | | |
| Expertise required | <ul style="list-style-type: none"> • UK and European commercial contract law • Retrofit measures • Plain English • Surveying and building defects | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC / BIS • PLC's and manufacturers • Power companies • Software companies and product Manufacturers • Merchants • Parent companies • Consortia | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Uptake by retrofit industry and associated specialists | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Standard contracts for specialist support | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC01 Top Level Franchise Model, SC02 Finance Mechanisms, SC03 Standard Business Process | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC12 Standard Installation Schedules | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC09 Stage Two Survey Agreement with wayleaves , SC11 Material and Equipment Storage Solutions | | | |

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| Task/Initiative: | SC11- Material and Equipment Storage Solutions | | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | April 2014 | Duration (months): 3 |
| Description of Activity: | Design and realisation of a solution for single delivery to site special purpose container | | | |
| Objective/s: | Create a material and tooling delivery and storage solution for retrofit | | | |
| Expertise required | <ul style="list-style-type: none"> • Construction process • Process design and process flow • Construction materials • Construction tooling and access equipment • Health and safety at work | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC / BIS • PLC's and manufacturers • Power companies • Software companies and product Manufacturers • Merchants • Parent companies • Consortia | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Completion and trial of the final design in Customer, Technology, Systems and Community Demonstrator Projects | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Special purpose material delivery and site storage solution | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC04 Recycling and Waste Disposal Protocol | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC09 Stage Two Survey Agreement with wayleaves , SC10 Expert Support Agreement | | | |

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| Task/Initiative: | SC12- Standard Installation Schedules | | | |
| Start Month/Year: | June 2014 | Completion Month/Year: | June 2015 | Duration (months): 12 |
| Description of Activity: | Develop a manpower, material, plant and process plan for each house type and intervention including customer acceptance and training | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop standardized installation schedules / manpower and task plans for all house types and interventions | | | |
| Expertise required | <ul style="list-style-type: none"> • Retrofit measures and materials / products / processes and plant - tooling • Construction training and qualification • General building competences • Surveying and building defects | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government, DECC / BIS • Manufacturers • Power companies • Training providers / accreditation bodies • Merchants • Parent companies • Consortia | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • How many combinations of archetype against interventions for Retrofix and Retroplus covered % | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Standard schedules for installation of measures by house type | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • SC03 Standard Business Process, T01 Standard Packages and Methods | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | |

POLICY

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| Task/Initiative: | P01- ECO/Green Deal | | | | |
| Start Month/Year: | October 2012 | Completion Month/Year: | Ongoing | Duration (months): | Ongoing |
| Description of Activity: | The measures are paid for in the energy bill. Individual measures must meet the requirements of the Golden Rule that the savings will be greater than the cost | | | | |
| Objective/s: | <ul style="list-style-type: none"> To provide finance for energy efficiency measures | | | | |
| Expertise required | <ul style="list-style-type: none"> None – it is going ahead | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> Public funding Long term finance | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> 150,000 lofts insulated pa in 2013 40,000 SWI interventions in 2013 Save 44 million tonnes of CO2 (equivalent) | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> Solid wall insulation Cavity Wall Insulation Loft insulation Glazing and draught proofing Floor insulation | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> N/A | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> N/A | | | | |
| Concurrent with: | <ul style="list-style-type: none"> N/A | | | | |

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| Task/Initiative: | P02- Warranties/Guarantees | | | | |
| Start Month/Year: | 2013 | Completion Month/Year: | Ongoing | Duration (months): | Ongoing |
| Description of Activity: | Provision of warranties / guarantees to customers that give credibility to the mass retrofit process and encourage future take up. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Provision of warranties / guarantees to customers | | | | |
| Expertise required | <ul style="list-style-type: none"> • UK and European contract law • Retrofit measures • Plain English • Surveying and building defects • Metrology | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Levy on those doing the work | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Number of interventions e.g. more than 50,000 pa • Number of customer complaints eg less than 1000 pa | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Warrantees/guarantees • Increased likelihood of take up • Confidence in the market | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T01 Standard Packages and Methods | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • P03 Regulatory Enforcement Body, P05 National Scale Standards | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • C03 Service for Complaints and Redress | | | | |

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| Task/Initiative: | P03- Regulatory Enforcement Body | | | | |
| Start Month/Year: | 2013 | Completion Month/Year: | Ongoing | Duration (months): | Ongoing |
| Description of Activity: | The checking and enforcement of standards that is not reliant on Building Control Officers. Building Control Officers are already stretched and it is important that they are not dragged into energy efficiency refurbishment | | | | |
| Objective/s: | <ul style="list-style-type: none"> To assess and enforce standards effectively | | | | |
| Expertise required | <ul style="list-style-type: none"> Technical Commercial (linked to warranties) | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> Levy on those doing the work | | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> Number of interventions inspected eg 50,000 minimum Number of faults detected (no target should be set, but this should be measured) Number of customer complaints eg 1000 maximum | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> Enforcement of regulations Increased confidence in mass refurbishment | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> T01 Standard Packages and Methods | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> C04 Customer Demonstrator Projects, Technology Demonstrator Projects | | | | |
| Concurrent with: | <ul style="list-style-type: none"> P02 Establish Warranties/Guarantees | | | | |

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| Task/Initiative: | P04- EWI as Permitted Development | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | January 2014 | Duration (months): 12 |
| Description of Activity: | Permitted development would avoid the need for planning permission except in the case of listed buildings and possibly those in Conservation Areas. It already is PD in Scotland (from February of this year). | | | |
| Objective/s: | <ul style="list-style-type: none"> To remove the need for EWI to have planning permission in England | | | |
| Expertise required | <ul style="list-style-type: none"> Technical Planning | | | |
| Possible funding routes: | <ul style="list-style-type: none"> N/A | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> 50,000 EWI installations pa | | | |
| Target Location/s: | England | | | |
| Outputs: | <ul style="list-style-type: none"> No requirement for Planning Permission Therefore no work subject to appeal | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> T01 Standard Packages and Methods | | | |
| Prerequisite to: | <ul style="list-style-type: none"> C04 Customer Demonstrator Projects | | | |
| Concurrent with: | <ul style="list-style-type: none"> P02 Establish Warranties/Guarantees, P05 National Standards | | | |

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| Task/Initiative: | P05- National Standards | | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | January 2014 | Duration (months): | 12 |
| Description of Activity: | The establishment of technical standards by which performance can be judged in the form of Standard Operating Procedures. These are also linked to the requirements of the warranty provider | | | | |
| Objective/s: | <ul style="list-style-type: none"> • The establishment of technical standards by which performance can be judged | | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Government • Warranty providers • Product Manufacturers | | | | |
| Possible measures of success and targets: | <p>A comprehensive set of standards covering the full range of interventions on the full range of house types.</p> <ul style="list-style-type: none"> • EWI • IWI • Airtightness • MVHR • Floor insulation • Loft insulation • Boiler installation | | | | |
| Target Location/s: | England | | | | |
| Outputs: | <ul style="list-style-type: none"> • National standards | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • SC02 Training and Accreditation, C08 Mass Marketing Scheme, P02 Establish Warranties/Guarantees | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • P04 EWI as Permitted Development | | | | |

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| Task/Initiative: | P06- Competent Person Scheme | | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | January 2015 | Duration (months): 12 |
| Description of Activity: | The Competent Person Scheme allows Building Control to not have to get involved in the work, which will allow the work to be achieved in a speedy manner It will not cover changes to the structure (eg loft conversions) | | | |
| Objective/s: | <ul style="list-style-type: none"> • To remove the need for building control involvement | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Local government knowledge | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • DECC • BIS • CLG | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • 50,000 refurbishments pa • Only loft conversions referred to building control | | | |
| Target Location/s: | England | | | |
| Outputs: | A Competent Person Scheme to cover the Poly-competent teams for all possible interventions: <ul style="list-style-type: none"> • EWI • IWI • Airtightness • MVHR • Floor insulation • Loft insulation • Boiler installation | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • P03 Regulatory Enforcement Body, P05 National Standards | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • P08 GCSE/NVQ qualifications | | | |
| Concurrent with: | <ul style="list-style-type: none"> • N/A | | | |

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| Task/Initiative: | P07- Energy Efficiency Curriculum Integration | | | |
| Start Month/Year: | 2013 | Completion Month/Year: | Late 2014 | Duration (months): 12 |
| Description of Activity: | Curriculum integration will allow pupils to gain an insight into how energy efficiency relates to CO2 emissions and raise awareness of energy efficiency in transport and buildings and especially in the home. The curriculum should also provide an understanding of the difference between energy efficiency and renewable energy and provide clarity related to see the contribution of energy efficiency to carbon reduction and fuel security. | | | |
| Objective/s: | <ul style="list-style-type: none"> • To increase awareness of energy efficiency | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Educational | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Department for Schools and Families • DECC | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Primary curriculum adopted • Secondary curriculum adopted | | | |
| Target Location/s: | England | | | |
| Outputs: | <ul style="list-style-type: none"> • Changes to curriculum | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • P05 National Standards | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • P08 Mass Marketing Scheme | | | |
| Concurrent with: | <ul style="list-style-type: none"> • SC02 Training and Accreditation | | | |

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| Task/Initiative: | P08- GCSE/NVQ qualifications | | | | |
| Start Month/Year: | 2013 | Completion Month/Year: | Late 2014 | Duration (months): | 12 |
| Description of Activity: | As with curriculum integration, new GCSE/NVQ qualifications will help to raise awareness of energy efficiency in transport and buildings and especially in the home. New qualifications should also provide an understanding of the difference between energy efficiency and renewable energy and provide clarity related to see the contribution of energy efficiency to carbon reduction and fuel security. | | | | |
| Objective/s: | <ul style="list-style-type: none"> To achieve understanding of energy efficiency | | | | |
| Expertise required | <ul style="list-style-type: none"> Technical Educational | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> Department for Schools and Families DECC | | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> Establishment of a new GCSE Establishment of e new NVQ | | | | |
| Target Location/s: | England | | | | |
| Outputs: | <ul style="list-style-type: none"> Changes to curriculum | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> P05 National standards, P06 Competent Persons Scheme | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> P08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> SC02 Training and Accreditation | | | | |

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| Task/Initiative: | P09- How to Guides | | | | |
| Start Month/Year: | 2014 | Completion Month/Year: | Late 2015 | Duration (months): | 12 |
| Description of Activity: | User friendly version of the national standards that can be used in education and for DIY with clear easy to understand instructions and good use of graphics | | | | |
| Objective/s: | <ul style="list-style-type: none"> • User friendly version of the national standards | | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Educational | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • DECC • Commercial sponsorship | | | | |
| Possible measures of success and targets: | A set of guides that covers: <ul style="list-style-type: none"> • EWI • IWI • Airtightness • MVHR • Floor insulation • Loft insulation • Boiler installation | | | | |
| Target Location/s: | England | | | | |
| Outputs: | <ul style="list-style-type: none"> • How to guides | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • P05 National standards, SC02 Training and Accreditation, C04 Customer Demonstrator Projects, T07 Technology Demonstrator Projects | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • P10 National Level CPD for Industry | | | | |

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| Task/Initiative: | P10- National Level CPD for Industry | | | | |
| Start Month/Year: | 2014 | Completion Month/Year: | Late 2015 | Duration (months): | 12 |
| Description of Activity: | User friendly version of the national standards that can be used in education and for DIY with clear easy to understand instructions and good use of graphics | | | | |
| Objective/s: | <ul style="list-style-type: none"> • User friendly version of the national standards | | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Educational | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • DECC • Commercial sponsorship | | | | |
| Possible measures of success and targets: | A set of guides that covers: <ul style="list-style-type: none"> • EWI • IW1 • Airtightness • MVHR • Floor insulation • Loft insulation • Boiler installation | | | | |
| Target Location/s: | England | | | | |
| Outputs: | <ul style="list-style-type: none"> • How to guides | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • P05 National standards | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • P09 Creation of How to Guides | | | | |

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| Task/Initiative: | P11-Tilt Stamp Duty | | |
| Start Month/Year: | Late 2012 | Completion Month/Year: | 2016 |
| | | Duration (months): | 48 |
| Description of Activity: | Tilt Stamp Duty in England and Wales and tilt Transaction Tax in Scotland (consultation in progress). For example A and B band houses might pay no stamp duty and G rated houses 2.2 times the current rate with the other bands spaced in between. There would be an option to claim back the tax if another EPC was carried out within 12 months that showed an improvement | | |
| Objective/s: | <ul style="list-style-type: none"> • Tilt stamp duty based on the EPC rating of the dwelling in such a way as to be revenue neutral | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Political | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Self funding | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Change in tax law • Number of reassessments of EPC and the improvement made. Eg 50% of houses make an improvement of two or more bands | | |
| Target Location/s: | UK | | |
| Outputs: | <ul style="list-style-type: none"> • Change to stamp duty | | |
| DEPENDENCIES | | | |
| Dependent on: | <ul style="list-style-type: none"> • P05 National standards | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C08 Mass Marketing Scheme, P14 VAT Incentives | | |
| Concurrent with: | <ul style="list-style-type: none"> • P01 ECO/Green Deal | | |

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| Task/Initiative: | P12- Minimum EPC | | | | |
| Start Month/Year: | Late 2012 | Completion Month/Year: | 2016 | Duration (months): | 48 |
| Description of Activity: | Establish minimum standards powers for England, which are already in place in Scotland. New standards will apply to Private Rented, Social and Owner occupied dwellings. This will prohibit the letting dwellings that do not E grade or above, and also ban on selling dwellings that do not make E or above, but with an option to sell the obligation to new buyer of home who must make the improvements within 12 month or face fines. This policy change is meant as a complement to tilting stamp duty | | | | |
| Objective/s: | <ul style="list-style-type: none"> To remove the poorest stock from the market | | | | |
| Expertise required | <ul style="list-style-type: none"> Technical Political | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> N/A | | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> Change in Building Regulations The removal of all band G and F properties (that are not listed) from the stock by 2021 | | | | |
| Target Location/s: | England | | | | |
| Outputs: | <ul style="list-style-type: none"> New Building Regulations Improved stock | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> P05 National standards | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> C08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> P01 Green Deal, P11 Tilting Stamp Duty | | | | |

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| Task/Initiative: | P13- Central Housing Information Database | | | |
| Start Month/Year: | Late 2012 | Completion Month/Year: | 2016 | Duration (months): 48 |
| Description of Activity: | <p>The creation of a central database will help marketing, ease assessment and expedite the survey process during retrofit.</p> <p>The sort of data that should be held includes:</p> <ul style="list-style-type: none"> • House type (including whether it is listed) • Status of the location (conservation area with Article 4 direction etc.) • EPC info (if any) • Householder information, income, credit rating etc. • Other useful lifestyle / life stage information (when the home was occupied, marital status, age, children, age of children etc. to gauge trigger points) • Energy use via meter information | | | |
| Objective/s: | <ul style="list-style-type: none"> • To increase the efficiency and effectiveness of mass refurbishment | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Marketing • Political | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • DCLG | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Change to government policy • 50,000 refurbishments per year | | | |
| Target Location/s: | UK | | | |
| Outputs: | <ul style="list-style-type: none"> • User friendly, secure database | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • P05 National standards | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C08 Mass Marketing Scheme | | | |
| Concurrent with: | <ul style="list-style-type: none"> • P01 ECO/Green Deal, P11 Tilting Stamp Duty, P14 Minimum EPC standards | | | |

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| Task/Initiative: | P14- VAT Reduction | | | | |
| Start Month/Year: | Late 2012 | Completion Month/Year: | 2017 | Duration (months): | 60 |
| Description of Activity: | To set all refurbishment at 5% VAT to bring it more in line with new build and to encourage the integration of energy efficiency measures into general refurbishment. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • Set VAT at 5% for all refurbishment work | | | | |
| Expertise required | <ul style="list-style-type: none"> • Technical • Political | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public funding (Treasury) | | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Change to government policy | | | | |
| Target Location/s: | UK | | | | |
| Outputs: | <ul style="list-style-type: none"> • 5% VAT • Increase in refurbishment activity by 5% • Increased net takings to UK PLC | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • P01 ECO/Green Deal, P11 Tilting Stamp Duty, P12 Minimum EPC standards | | | | |

TECHNICAL SOLUTIONS

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| Task/Initiative: | T01- Standard Packages and Methods | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | June 2013 |
| | | Duration (months): | 6 |
| Description of Activity: | Following the development of whole house packages for a variety of UK house typologies, more detailed standard packages will be designed and will include suggestions for material specifications and application methods. These designs will then be able to be used by poly-competent supply chain teams. | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop standard design packages for retrofit that can rolled out across the UK | | |
| Expertise required | <ul style="list-style-type: none"> • Design expertise • Knowledge of construction methods/techniques • Materials specification • Understanding of thermal efficiency | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public OR Private, with royalties attached to designs | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Uptake of design by supply chain • Use of designs in demonstrator projects | | |
| Target Location/s: | National | | |
| Outputs: | <ul style="list-style-type: none"> • Standard design packages for multi house types which also include ways to address non-standard house types and features | | |
| DEPENDENCIES | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C04 Customer Demonstrator Projects • C06 Customer Solution Option Awareness | | |
| Concurrent with: | <ul style="list-style-type: none"> • T06 R&D Wave 1 | | |

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| Task/Initiative: | T02- Customisation Process for Standard Packages and Methods | | | |
| Start Month/Year: | June 2013 | Completion Month/Year: | December 2013 | Duration (months): 6 |
| Description of Activity: | Following the design of standard retrofit packages for a variety of UK house typologies, a process for the customization of these packages will be developed. This will likely include a pre-assessment tool to be used during a Stage One survey based on design decision trees and a streamlined design process that relies on good survey data to customize each standard package to the property being retrofitted. These designs will then be able to be used by poly-competent supply chain teams. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop a process that allow for quick customization of standard packages and methods | | | |
| Expertise required | <ul style="list-style-type: none"> • Design expertise • Knowledge of construction methods/techniques • Materials specification • Understanding of thermal efficiency | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public OR Private, with royalties attached to software | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Uptake of process and software by supply chain • Use of process and software in Stage One survey process and demonstrator projects | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Process and associated software that lead to customized solutions for the property to be retrofitted | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T01 Standard Packages and Methods | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C04 Customer Demonstrator Projects , C06 Customer Solution Option Awareness | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T06 R&D Wave 1 | | | |

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| Task/Initiative: | T03- Standard Retrofit Planning Tool | | | |
| Start Month/Year: | June 2013 | Completion Month/Year: | June 2014 | Duration (months): 12 |
| Description of Activity: | A useable and robust calculation tool for the retrofit industry should be developed to predict and measure the benefits of proposed installation measures. This tool, likely to be a mobile application, will also have an important role in strengthening the customer-facing value proposition by allowing residents to see the likely savings following retrofit. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop a standard calculation tool for predicting and measuring the benefits of retrofit | | | |
| Expertise required | <ul style="list-style-type: none"> • Retrofit measures • Lean process design • Surveying and building defects • Metrology • Data capture and computer application creation | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Private- application developer and retrofit specialists | | | |
| Possible measures of success and targets | <ul style="list-style-type: none"> • Use of planning tool in Customer Demonstrator projects • Positive customer reaction to application and presentation of data | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Standard work for survey process (survey 1 and 2) based on robust FMEA • Computer app for data capture | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T01 Standard Packages and Methods, SC09 Stage Two Survey Agreement with wayleaves | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • T07 Technology Demonstrator Projects, C04 Customer Demonstrator Projects | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T02 Customisation Process for Standard Packages and Methods | | | |

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| Task/Initiative: | T04- Standard Energy Monitoring | | | | |
| Start Month/Year: | June 2014 | Completion Month/Year: | December 2014 | Duration (months): | 6 |
| Description of Activity: | Following the establishment of Technology and Customer Demonstrator Projects, it will be necessary to monitor the efficacy of the designs in terms of energy use and savings. This standard protocol for monitoring can then be used on a wider scale in 2020. The data collected during the demonstrator projects will have an important role in testing designs and for positive marketing to promote retrofit, and may also have implications for improved tracking and pricing of energy use. | | | | |
| Objective/s: | <ul style="list-style-type: none"> • To develop a standard energy monitoring protocol which can be used in both the Technology and Customer Demonstrator Projects and future mass rollout | | | | |
| Expertise required | <ul style="list-style-type: none"> • Domestic energy monitoring technologies • Building physic expertise • New and innovative products • Specifics of UK homes and unique requirements/constraints | | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public or private (technology or construction companies, ie. Wates) | | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Collection of substantial accurate data • Scalable energy monitoring protocol | | | | |
| Target Location/s: | National | | | | |
| Outputs: | <ul style="list-style-type: none"> • Standard energy monitoring method | | | | |
| DEPENDENCIES | | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T01 Standard Packages and Methods | | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C11 Positive Marketing for Central Database, C09 Promotion of Success Stories, C08 Mass Marketing Scheme | | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T07 Technology Demonstrator Projects, C04 Customer Demonstrator Projects | | | | |

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| Task/Initiative: | T05- Unbiased Product Assessment Body | | | |
| Start Month/Year: | December 2012 | Completion Month/Year: | January 2014 | Duration (months): 24 |
| Description of Activity: | As it remains difficult to find reliable information for products, with business often bolstering a material or products capabilities, an independent body will be established to test and assess the wide range of products available for retrofit. Information should be related to performance, thermal efficiency, and cost. This body should be free of any direct relation to product and material manufacturers and information should be accessible to non-experts online. | | | |
| Objective/s: | <ul style="list-style-type: none"> • To establish an independent body to test and assess retrofit products | | | |
| Expertise required | <ul style="list-style-type: none"> • Knowledge of retrofit products and materials • Modeling expertise for testing products • Consumer engagement | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public OR Private, through businesses not directly related to product development/manufacturing | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Hits on website • Feedback from supply chain on ease of use | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Online repository of information related to products and materials | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T06 R&D Wave 1, C01 Improve customer building awareness | | | |

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| Task/Initiative: | T06- R&D Wave 1 | | | |
| Start Month/Year: | December 2012 | Completion Month/Year: | December 2014 | Duration (months): 24 |
| Description of Activity: | There should be a government and industry led research and development programme to develop and advance retrofit materials and technologies in order to optimise materials and technologies each key element of a whole house retrofit. This will also involve modelling and testing the efficacy of new products in reducing energy use. This may also include further research into community energy infrastructure and will likely involve working with European partners. | | | |
| Objective/s: | <ul style="list-style-type: none"> • To promote innovation in the materials and technologies available for retrofit market | | | |
| Expertise required | <ul style="list-style-type: none"> • Building physic expertise • Energy modeling • New and innovative products • Specifics of UK homes and unique requirements/constraints | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public or private (BASF, etc) | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Introduction of innovative products to market by 2015 • Mass production of new products | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • New retrofit products and technologies that are suited to the UK housing stock | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • N/A | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • T10 R&D Wave 2 , T07 Technology Demonstrator Products | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T05 Unbiased product assessment body | | | |

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| Task/Initiative: | T07- Technology Demonstrator Projects | | | |
| Start Month/Year: | January 2013 | Completion Month/Year: | December 2014 | Duration (months): 24 |
| Description of Activity: | As new products, materials and technologies emerge from R&D and other sources, their use and application will have to be demonstrated to both industry and homeowners. Similarly to Customer Demonstrator Projects, Technology Demonstrator Projects will be conducted across the country and allow for the testing and monitoring of Standard Packages and Methods in reducing energy. These will be marketed toward the construction industry but will be available for viewing by the public. | | | |
| Objective/s: | <ul style="list-style-type: none"> To test and demonstrate new and existing products, materials and technologies for industry and the public | | | |
| Expertise required | <ul style="list-style-type: none"> Building physics expertise Energy modeling New and innovative products Specifics of UK homes and unique requirements/constraints | | | |
| Possible funding routes: | <ul style="list-style-type: none"> Public | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> Delivery of 100 demonstrator projects across the UK | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> 100 Technology Demonstrator Projects across the UK which are accessible to industry professionals and the public | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> T05 Unbiased product assessment body | | | |
| Prerequisite to: | <ul style="list-style-type: none"> T11 Systems Demonstrator Projects, T13 Community Demonstrator Projects | | | |
| Concurrent with: | <ul style="list-style-type: none"> T06 R&D Wave 1 | | | |

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| Task/Initiative: | T08- Designer Training and Manual | | |
| Start Month/Year: | January 2014 | Completion Month/Year: | December 2014 |
| | | Duration (months): | 12 |
| Description of Activity: | Following the creation of standard packages and methods and the development of trained poly-competent delivery teams, the design industry will require training with an associated manual on their role in the retrofit provider supply chain, how to work with standard packages and how to design to new retrofit standards. Another element of designer training will be to provide an understanding of the design details for tailoring the standard retrofit packages. | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop training to familiarize industry with supply chain processes and new retrofit design standards | | |
| Expertise required | <ul style="list-style-type: none"> • Design expertise • Knowledge of construction methods/techniques • Understanding of thermal efficiency • CPD/Industry training knowledge | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public OR Private | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Widespread dissemination of designer training and manual in retrofit industry across the UK | | |
| Target Location/s: | National | | |
| Outputs: | <ul style="list-style-type: none"> • Designer training programme and associated manual that is made standard for all design professionals in the retrofit industry | | |
| DEPENDENCIES | | | |
| Dependent on: | <ul style="list-style-type: none"> • T01 Standard Packages and Methods | | |
| Prerequisite to: | <ul style="list-style-type: none"> • C04 Customer Demonstrator Projects | | |
| Concurrent with: | <ul style="list-style-type: none"> • T06 R&D Wave 1 | | |

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| Task/Initiative: | T09- Health and Safety Protocols | | | |
| Start Month/Year: | January 2016 | Completion Month/Year: | December 2019 | Duration (months): 48 |
| Description of Activity: | Each R&D Wave will require associated health and safety protocols. This will involve a risk assessment and development of mitigation measures, as well as training to disseminate protocols to the retrofit supply chain. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Develop health and safety protocols for smart systems and interfaces in R&D Wave 2 and neighbourhood systems in R&D Wave 3 | | | |
| Expertise required | <ul style="list-style-type: none"> • Knowledge of construction methods/techniques • Risk management • CPD/Industry training knowledge | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Wide dissemination of health and safety training across retrofit industry | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Standard health and safety protocols for system and neighbourhood demonstrator projects | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T06 R&D Wave 1 | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • T11 System Demonstrator Projects, T13 Community Demonstrator Projects | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T10 R&D Wave 2, T12 R&D Wave 3 | | | |

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| Task/Initiative: | T10- R&D Wave 2 | | | |
| Start Month/Year: | January 2015 | Completion Month/Year: | December 2017 | Duration (months): 24 |
| Description of Activity: | <p>A review of the first R&D Wave should take place at the end of 2014 in order for the second programme to begin. This will involve taking stock of the progress made in the first two years, and reevaluating where investment should be directed.</p> <p>This second wave will focus on systems design, and will take optimised materials and technologies further to maximise performance by integrating whole house retrofit solutions using smart systems and interfaces.</p> | | | |
| Objective/s: | <ul style="list-style-type: none"> • To promote innovation in systems designs available for retrofit market | | | |
| Expertise required | <ul style="list-style-type: none"> • Building physics expertise • New and innovative products • Specifics of UK homes and unique requirements/constraints | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public or private (BASF, etc) | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Introduction of innovative smart systems to market by 2019 | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • Optimised retrofit technologies and integrated domestic systems that are suited to the UK housing stock | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T02 Unbiased product assessment body, T06 R&D Wave 1 | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • T12 R&D Wave 3 | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T11 System Demonstrator Projects | | | |

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| Task/Initiative: | T11- Systems Demonstrator Projects | | | |
| Start Month/Year: | January 2015 | Completion Month/Year: | December 2017 | Duration (months): 24 |
| Description of Activity: | As new smart systems emerge from R&D and other sources, their use and application will have to be demonstrated to both industry and homeowners. Similarly to Technology Demonstrator Projects, System Demonstrator Projects will be conducted across the country and allow for the testing and monitoring of integrated materials and technologies using smart systems and interfaces. These will be marketed toward the construction industry but will be available for viewing by the public. | | | |
| Objective/s: | <ul style="list-style-type: none"> To test and demonstrate new whole house retrofit systems for industry and the public | | | |
| Expertise required | <ul style="list-style-type: none"> Building physics expertise New and innovative products Specifics of UK homes and unique requirements/constraints | | | |
| Possible funding routes: | <ul style="list-style-type: none"> Public | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> Delivery of 100 system demonstrator projects across the UK | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> 100 Systems Demonstrator Projects across the UK which are accessible to industry professionals and the public | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> T02 Unbiased product assessment body | | | |
| Prerequisite to: | <ul style="list-style-type: none"> T12 R&D Wave 3 | | | |
| Concurrent with: | <ul style="list-style-type: none"> T04 R&D Wave 2 | | | |

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| Task/Initiative: | T12- R&D Wave 3 | | |
| Start Month/Year: | January 2018 | Completion Month/Year: | December 2020 |
| | | Duration (months): | 24 |
| Description of Activity: | A review of the second R&D Wave should take place at the end of 2017 in order for the third programme to begin. The third wave will involve research into the introduction of a mass scale pilot for streamlined whole house packages, including aspects of neighbourhood systems. This will also include further research into community energy infrastructure and will likely involve working with European partners. | | |
| Objective/s: | <ul style="list-style-type: none"> • To research streamlined community retrofit solutions and neighbourhood energy infrastructure | | |
| Expertise required | <ul style="list-style-type: none"> • Building physic expertise • New and innovative products • Specifics of UK homes and unique requirements/constraints • Community energy infrastructure | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public or private (BASF, etc) | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Optimised community retrofit and energy solutions ready for market in 2020 | | |
| Target Location/s: | National | | |
| Outputs: | <ul style="list-style-type: none"> • Streamlined community retrofit solutions and neighbourhood energy infrastructure | | |
| DEPENDENCIES | | | |
| Dependent on: | <ul style="list-style-type: none"> • T02 Unbiased product assessment body | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | |
| Concurrent with: | <ul style="list-style-type: none"> • T05 Community Demonstrator Projects | | |

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| Task/Initiative: | T13- Community Demonstrator Projects | | | |
| Start Month/Year: | January 2018 | Completion Month/Year: | December 2019 | Duration (months): 24 |
| Description of Activity: | Based on the findings of R&D Wave 3, Community Demonstrator Projects will pilot streamlined whole house packages, including neighbourhood systems and community energy infrastructure. Community Demonstrator Projects will be conducted across the country and allow for the testing and monitoring of both established and emerging technologies in different combinations. These will be marketed toward the construction industry but will be available for viewing by the public. | | | |
| Objective/s: | <ul style="list-style-type: none"> • Introduction of a mass scale pilot for streamlined whole house packages, including aspects of neighbourhood systems | | | |
| Expertise required | <ul style="list-style-type: none"> • Building physics expertise • New and innovative products • Specifics of UK homes and unique requirements/constraints • Community energy infrastructure | | | |
| Possible funding routes: | <ul style="list-style-type: none"> • Public or private (BASF, etc) | | | |
| Possible measures of success and targets: | <ul style="list-style-type: none"> • Delivery of 100 community demonstrator projects across the UK | | | |
| Target Location/s: | National | | | |
| Outputs: | <ul style="list-style-type: none"> • 100 Community Demonstrator Projects across the UK which are accessible to industry professionals and the public | | | |
| DEPENDENCIES | | | | |
| Dependent on: | <ul style="list-style-type: none"> • T02 Unbiased product assessment body, T10 R&D Wave 2 | | | |
| Prerequisite to: | <ul style="list-style-type: none"> • N/A | | | |
| Concurrent with: | <ul style="list-style-type: none"> • T12 R&D Wave 3 | | | |