UK GBC

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Regeneration and Retrofit

Task Group Report

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Task Group sponsored by:

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Preface

This report sets out an approach to retrofit-led regeneration that we believe could transform the lives of low income communities across the country. It is intended not just as a stimulus for discussion, but as a catalyst for partnerships between key stakeholders, and – we hope – piloting of the approaches proposed.

Local Authorities are key to the development of retrofit-led regeneration projects as landlords and providers of local services. Together with Registered Providers, they can also take a lead on individual projects in areas with high concentrations of social housing. They can champion these approaches locally and encourage increased ambition of existing retrofit projects to provide high quality homes and public realm.

The construction industry will also need to support these approaches with knowledge and investment. Successful projects will require scalable solutions to whole home retrofit and effective engagement with local communities, building on existing experience and providing new opportunities for innovation in the supply chain.

Central government can provide a helping hand with incentives for home retrofit and seed funding for the delivery innovations. These could form part of the Government's Industrial Strategy to demonstrate the importance of this agenda for supporting UK industry and developing healthier and more productive places to live.

We look forward to discussions with all interested parties, and welcome expressions of interest and ideas for trialling the delivery innovations in this report on upcoming projects.

Contents

Executive Summary

The Government has made regenerating low income areas a priority to improve the life-chances of residents. The Estates Regeneration Strategy aims to transform some of the most deprived neighbourhoods in the country, many of which suffer from high levels of unemployment, poor health, poor connectivity, high levels of fuel poverty and concentrations of crime and antisocial behaviour.


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There is rightly now a focus on the quality of housing provision for some of the poorest communities and a growing recognition of the impact this has on quality of life for residents. Everyone should expect a place to live that is comfortable, safe and warm.

Regeneration schemes often seek to improve local housing through large scale redevelopment, demolishing old, low income estates to build new high quality places. But while this may be the preferred solution for some estates, regenerating the UK's cities will require transforming areas where redevelopment is not appropriate, wanted or viable. These neighbourhoods will need a different approach to ensure they are not left behind.

RETROFIT-LED REGENERATION

Retrofitting houses with energy efficiency measures can create warm and healthy homes for residents. But retrofitting whole neighbourhoods, working with local people, ideas and skills, can create healthy sustainable communities.

Retrofit-led regeneration utilises wide-scale retrofitting of existing housing and buildings to transform low income areas. The delivery of high-quality whole home retrofits can be used as the catalyst for wider improvements to local amenities and infrastructure, and for community engagement and employment programmes. Together these interventions can help to revitalise an area, enhance the standard of living and provide lasting benefits and opportunities for the community.

UKGBC's Regeneration and Retrofit Task Group was established to investigate how whole home retrofit could be used to drive the regeneration of low income areas. This report has three key components:

1. Why whole home retrofit?
We present the multiple benefits of whole home retrofit, which can contribute to the regeneration of communities in a similar way to redevelopment.

2. Beyond home retrofit: A vision for retrofit-led regeneration
Home retrofit alone will not regenerate communities, so we set out a 'vision' of wider improvements to the local area which can be undertaken alongside the retrofit works.

3. Delivery innovations
To take this vision forward, we propose solutions that address some of the key barriers to delivery.

Why whole home retrofit?

The cornerstone of retrofit-led regeneration projects is high quality whole home retrofits that provide tangible benefits for residents and the local area.

Whole home retrofit should deliver high energy performance standards as well as wider home improvements to make properties more livable and comfortable for residents, while reducing maintenance costs and possibly increasing property values. The outcomes should be guaranteed by delivering high levels of build quality, energy savings, air quality and standards of thermal and acoustic comfort.

These comprehensive home improvements can help to transform the lives of residents and contribute to the regeneration of the community and local area.

The Task Group undertook an extensive literature review of the benefits of high-quality whole home retrofit, which are summarised below. This demonstrates the wide-reaching impacts that whole home retrofit can provide for householders, local communities and whole cities.

HOUSEHOLD

£8.61 billion
could be saved in energy bills annually if all homes were improved to EPC rating **C** [25]

Acoustic insulation reduces external noise transfer and improves occupant health and wellbeing

Properties in EPC bands E, F, G require
48% more
damp and mould-related maintenance and repairs
compared to A-D rated properties [30]

Physical and mental health of residents is improved by **retrofitting** cold, damp homes

11%
of English households are in fuel poverty.
The most cost effective solution is to improve home energy efficiency [26]

COMMUNITY

A home rated EPC **A** sells for
14% more
than an EPC **G**-rated equivalent [37]

Emissions from **gas heating** and **cooking** contribute to **20%** of NO_x emissions in urban areas [40]

Investments in home improvements
BOOSTS spending in the local economy [33]

Retrofitting properties can decrease the number of void days for rental and mortgage defaults for owner occupiers [30]

Retrofit provides an opportunity to make homes more resilient, such as integrating flood defence measures

CITY

Reducing energy demand is the most cost effective way to **reduce emissions** CO_2

Natural gas imports could be reduced by **26%** using a national energy efficiency programme [25]

For every **£1** invested in retrofit an estimated **£1.27** would be returned in **tax revenues** [25]

Local energy systems benefit from reduced demand, especially during peak times, **and make the local grid more resilient**

For every **£1** spent on reducing fuel poverty **42p** is expected in **annual NHS savings** [47]

23 person years of employment could be created for every **£1 million** invested in retrofit [28]

Infographic developed for UKGBC by PRP

Beyond the home:
A vision for retrofit-led regeneration

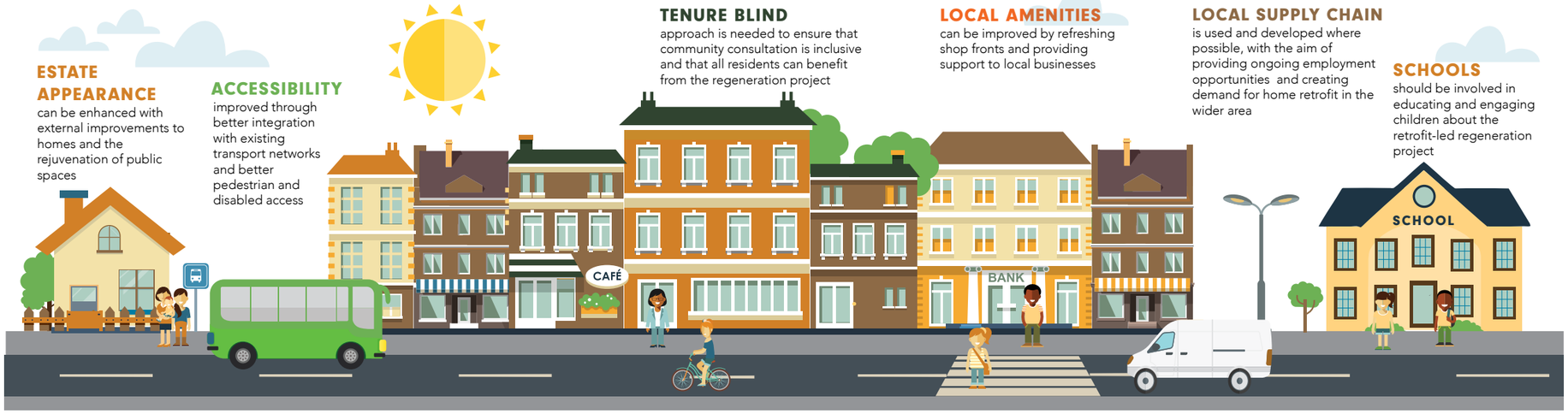
Whole home retrofits delivered at scale can create significant lasting benefits for residents, the community and wider areas, but upgrading the home itself is not enough to transform the economic and social situation of the local residents. Thriving communities also depend on high quality, sustainable public realm, good transport and connectivity, adequate security, and the provision of amenities and green space.

Therefore retrofit-led regeneration must look beyond improving individual homes, using the delivery of home retrofit as the catalyst for improvements to the local area. Such measures can help to instil pride, empower residents and create truly sustainable communities, turning a home improvement project into a comprehensive programme for retrofit-led regeneration.

As with most regeneration projects, it is important that residents are at the heart of the process, to ensure maximum benefits for local people. Retrofit-led regeneration poses particular challenges and opportunities. Engaging effectively with residents about improvements to their own homes is not easy, but it is helped by the reduced likelihood that households will be displaced throughout the project.

Our 'vision for retrofit-led regeneration' highlights just some of the measures which could be implemented alongside whole home retrofit to transform localities. This is only illustrative; every area regeneration vision will be different and should reflect both the place and its people.

Executive Summary



ESTATE APPEARANCE
can be enhanced with external improvements to homes and the rejuvenation of public spaces

ACCESSIBILITY
improved through better integration with existing transport networks and better pedestrian and disabled access

TENURE BLIND
approach is needed to ensure that community consultation is inclusive and that all residents can benefit from the regeneration project

LOCAL AMENITIES
can be improved by refreshing shop fronts and providing support to local businesses

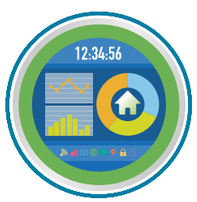
LOCAL SUPPLY CHAIN
is used and developed where possible, with the aim of providing ongoing employment opportunities and creating demand for home retrofit in the wider area

SCHOOLS
should be involved in educating and engaging children about the retrofit-led regeneration project

WORK SPACE
is offered across the estate by utilising disused areas, such as garages. Spaces are suitable for use by existing businesses and contractors carrying out retrofit

ENERGY STORAGE
could maximise the benefits of on-site renewable energy for residents. Electric vehicle charging points could also be introduced as a transport and storage solution

MONITORING IMPROVEMENTS
and educating residents ensures households fully realise the benefits of whole home retrofit



COMMUNITY GROUPS
promote engagement with the residents, ensuring that their voices are heard and that they take ownership of the project

SAFETY AND SECURITY
can be improved by renewing streetlighting, redesigning potential crime blackspots and incorporating safety features into retrofits, such as double glazing and new locks

ENGAGEMENT AND SUPPORT
initiatives should ensure that residents views are taken into account from the outset and there is a continuous point of contact

GREEN SPACES
should be enhanced with increased biodiversity and where possible turned into useable community spaces

RENEWABLE ENERGY
generation can be integrated into the project, creating opportunities for community owned projects that provide an ongoing income stream

WHOLE HOME RETROFITS
should reduce operating and maintenance costs and improve the health and wellbeing of residents

HEALTH SERVICES
may be better utilised by residents with better transport routes to local services and health consultations in the community

INFILL SITES
can be utilised for new housing which is appropriate to the needs of the local community

Infographic developed for UKGBC by PRP

Delivery innovations

To achieve this vision, new models are needed to overcome some of the barriers to delivery, including around training, education, community engagement and funding for the works. Building on ideas first proposed at the UKGBC Birmingham City Summit 2016, the Task Group developed proposals for two delivery innovations which could address some of these barriers – focusing on community engagement and the availability of funding for private householders.

© Be Onsite

COMMUNITY SOCIAL ENTERPRISE

WHAT IS IT?

The not for private profit Community Social Enterprise would bridge the gap between local authorities, contractors and residents, facilitating ongoing engagement with communities to understand the local area and ensure effective regeneration occurs. It would also provide training and employment opportunities for local people as part of the retrofit project, building a multi-trade workforce that cares about the community and delivers high quality work with pride. All surpluses would be reinvested back into the social enterprise and its activities.

WHY IS IT NEEDED?

Ongoing community engagement is essential to build trust, create demand and ensure lasting benefits from retrofit-led regeneration projects, but residents can often feel disconnected or confused by the regeneration process without a clear and consistent point of contact. At the same time, the construction industry is facing a shortage of knowledge and skills, particularly in the delivery of high quality retrofit. In low income areas with high levels of unemployment, recruiting and training local people to work on the regeneration project can enhance the local economic benefits, allowing skills to be retained and the development of a local supply chain.

KEY PRINCIPLES

The Community Social Enterprise would act as the key facilitator for communication with the local community throughout the project, working to secure the best social and economic outcomes for residents. The organisation would be involved from the initial planning stages, acting as a forum for residents to feedback on proposals and providing a consistent point of contact during the project. It would educate residents on how to manage and operate their retrofitted homes to minimise maintenance and running costs.

The organisation would also identify employment and training opportunities in construction for local people as part of the project. Working in partnership with the project contractors, it would offer training in home retrofit skills and act as a facilitator recruiting local apprentices. The organisation could also be established as a specialist retrofit contractor to deliver some of the retrofit works in-house. In this way, the organisation can help to build a local supply chain for home retrofit and maintenance services, creating local capacity to deliver home retrofits in the wider area.

HOW IS IT FUNDED?

Initial pump priming would be needed to establish the venture, recruit staff and deliver the first engagement initiatives. This could be funded by a combination of:

- Apprenticeship Levy
- Section 106 agreements
- Local Enterprise Partnerships
- Charitable foundations.

WHAT HAS BEEN DONE BEFORE?

- The Innovation for Renewal project delivered low energy retrofits to social housing in Rushenden and successfully used community engagement and monitoring programmes to educate residents, stimulate demand for measures and drive behaviour change.
- SOAR Build is a construction related social enterprise in Sheffield which trains and employs local young people and acts a subcontractor on regeneration projects.
- Be Onsite is a not-for-profit company in London which provides socially-excluded people with training and employment opportunities in the construction industry.

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LOCAL AUTHORITY REVOLVING FUND

WHAT IS IT?

A Local Authority Revolving Fund would provide a range of clear, accessible loan options for private householders to carry out whole home retrofit improvements. These should result in lower running costs, improved living conditions and property value-uplift. Loans would be attached to the property to enable structurally low costs and minimise repayments for those on lower incomes. Repayments would be revolved back into the fund and used to offer further retrofit loans to other householders, resulting in wide-scale regeneration of low income communities over time.

WHY IS IT NEEDED?

Area-based retrofit projects often focus on improving social homes, but a lack of appropriate funding options means that privately owned and rented homes can miss out on improvements. This leads to "pepper-potted" delivery which only addresses certain homes and fails to truly transform the area and lives of all residents.

KEY PRINCIPLES

The Local Authority Revolving Fund would provide clear, accessible and affordable financial options for owner occupiers and private landlords. The Fund would be designed to offer affordable loans which can cover the costs of whole home retrofit improvements as a minimum, as well as wider enabling works to ensure that private households do not miss out on the full benefits of improvement works.

Owners that have a sufficient equity stake in their homes are offered loans which are attached to the property and repaid in full when the property is sold via a local land charge. Owners that do not have a sufficient equity stake in their homes would not be eligible to receive a loan and would require other funding support. As well as minimising risk, this enables ongoing repayments to be tailored to different household circumstances. These repayment options could include:

- Regular repayments of interest and capital, fixed at affordable levels
- Regular repayments of interest only
- On-bill finance linked to expected energy bill savings.

HOW IS IT FUNDED?

The key challenge for establishing the Local Authority Revolving Fund will be securing the initial capital to provide funding for the loans and ensuring the scheme is financially sustainable. Over time, the initial capital will be paid back into the Fund and can be used to offer further retrofit loans. Initial funds could be acquired through:

- Local authority borrowing and reserves
- Local Enterprise Partnerships
- Central government borrowing
- Private sector investment.

WHAT HAS BEEN DONE BEFORE?

- Warm Up Bristol offered energy efficiency loans with a range of repayment options tailored to different household circumstances.
- West Midlands Kick Start offered equity release loans for energy efficiency measures which were repaid at the point of sale. The repayment was calculated as a percentage of the sale price.
- Manchester Care & Repair provides residents with interest free loans for energy improvements and revolves repayments back into the scheme.

Introduction

In recent years, there has been a growing political interest in urban regeneration, primarily to achieve social and economic benefits. The recent Estate Regeneration Strategy has signaled a renewed political interest in regenerating low income estates and has been reflected at a city level in work such as the GLA's best practice guide on regeneration.


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In the context of this report regeneration can be defined as the transformation of low income communities through concerted social, economic and physical action that revitalises an area and brings about lasting improvements and opportunities for residents. Many low income neighbourhoods across the country are in need of regeneration to improve their homes, access to opportunities, raise levels of employment, education and local pride.

A central element of many regeneration schemes is the improvement of local housing to enhance living standards for residents. This commonly means a focus on large scale redevelopment projects, demolishing old, low income estates to build new high quality homes.

While this will often be the preferred solution for a particular estate, regenerating the UK's cities will also require transforming areas where redevelopment is not appropriate, for example due to viability issues, site complications or local opposition. These estates will need a different approach to ensure they are not left behind.

Retrofit-led regeneration

Retrofitting houses with energy efficiency measures can create warm and healthy homes for residents. But retrofitting whole neighbourhoods, working with local people, ideas and skills, can create healthy sustainable communities.

Retrofit-led regeneration utilises wide-scale retrofitting of existing housing and buildings to transform low income areas. The delivery of high-quality whole home retrofits can be used as the catalyst for wider improvements to local amenities and infrastructure, and for community engagement and employment programmes. Together these interventions can help to revitalise an area, enhance the standard of living and provide lasting benefits and opportunities for the community.

Birmingham City Summit 2016

The Regeneration and Retrofit Task Group has its roots in UKGBC's Birmingham City Summit in February 2016. Co-hosted with Birmingham City Council, the Summit brought together local authority representatives, the private sector, third sector and academia to address some of the challenges facing the city in creating a more sustainable built environment.

Delegates visited a low income housing estate in the city to explore opportunities for energy efficiency retrofit of existing homes. The estate included a mix of council-owned social housing as well as a large number of privately owned right-to-buy properties. But on meeting with residents it was clear that simple energy efficiency improvements would only have limited benefits for householders, who faced wider issues of damp and poor maintenance in their homes as well as antisocial behaviour in the local area.

So it was proposed that a high quality home retrofit programme could be used to drive community-based regeneration which would increase standards of living, reduce carbon emissions and improve the city's housing stock. Initial ideas for delivery innovations were also developed which could help to address some of the key delivery barriers including securing community engagement and funding for home retrofits.

Task Group Aims and Scope

The task group was established in September 2016 to take forward the ideas from the Summit, investigating the benefits of whole home retrofit and how it can be used to drive the regeneration of low income areas. The Group comprised industry experts from a wide range of sectors who have come together to create a template of recommendations and a vision for retrofit-led regeneration projects.

The group specifically focused on low income areas, where the housing stock is likely to be in a poor state of repair and private householders are unlikely to have the means to fund home improvements. And although infill development and non-domestic buildings could form a part of retrofit-led regeneration projects, the group did not specifically look at new build options and commercial retrofit for regeneration.

This report outlines the three key areas explored by the task group:

1. **Why whole home retrofit?**
   Whole home retrofit has multiple benefits which can contribute to the regeneration of localities in a similar way to redevelopment. The task group brought together these wide-ranging benefits from existing sources.

2. **Beyond home retrofit: A vision for retrofit-led regeneration**
   Home retrofit alone will not regenerate communities, so the task group set out a 'vision' of wider improvements to the local area which can be undertaken alongside the retrofit works.

3. **Delivery innovations**
   To take this vision forward, the task group developed proposals to address some of the key barriers to the delivery of retrofit-led regeneration. A social enterprise could be used to enhance community engagement and representation, and a local authority revolving fund could provide finance options to private householders.

This report is not intended as a how-to guide for retrofit-led regeneration. Each project will be specific to the local context, with the approach tailored to the specific needs of the community and constraints of the site and surrounding area. The ideas and proposals are intended to provide guidance, stimulate further discussion and, crucially, encourage piloting of these approaches.

1. Why whole home retrofit?

The cornerstone of retrofit-led regeneration projects is high quality whole home retrofits that provide tangible benefits for residents and the local area. Whole home retrofit should deliver high energy performance standards as well as wider home improvements to make properties more livable and comfortable for residents, while reducing maintenance costs and possibly increasing property values.

The range of measures used will vary according to the context, but whole home retrofits should address energy performance through fabric energy efficiency and ventilation, and potentially the integration of renewable energy generation and storage. Quality of life can further be enhanced for residents by improving accessibility, upgrading amenities such as kitchens and bathrooms, addressing health and safety issues and integrating new security features. While the appearance of the property can be enhanced through aesthetic improvements such as decoration or roof line renewal, and general property maintenance and enabling works. And as far as practical, improvements should be tailored to the property and incorporate the needs of the individual household.

Whole home retrofit shifts the focus from delivering individual measures to providing outcomes for residents, so that householders can fully realise the benefits. This means it is crucial that the quality of work must be high and the outcomes should be guaranteed by delivering high levels of build quality, energy savings, air quality and standards of thermal and acoustic comfort. Solutions should be scaleable to allow area-based delivery, either undertaken in a single installation or in staged improvements with a clear plan for future upgrade works.

The Task Group undertook an extensive literature review of the benefits of high-quality whole home retrofit, which are summarised in the infographic opposite and explored in detail in this chapter. These demonstrate the wide-reaching positive impacts that whole home retrofit can provide for householders, communities and cities.

The benefits of whole home retrofit

HOUSEHOLD

£8.61 billion
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Acoustic insulation reduces external noise transfer and improves occupant health and wellbeing

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48% more
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CITY

Reducing energy demand is the most cost effective way to **reduce emissions** CO_2

Natural gas imports could be reduced by **26%** using a national energy efficiency programme [25]

For every £1 invested in retrofit an estimated **£1.27** would be returned in **tax revenues** [25]

Local energy systems benefit from reduced demand, especially during peak times, **and make the local grid more resilient**

For every £1 spent on reducing fuel poverty **42p** is expected in **annual NHS savings** [47]

23 person years of employment could be created for every **£1 million** invested in retrofit [28]

Infographic developed for UKGBC by PRP

1.1 HOUSEHOLDS

1.1.1 Health and Wellbeing

PHYSICAL HEALTH

An efficient heating system, high levels of insulation, and a well specified ventilation system can improve the health and wellbeing of individuals[1]. Energy inefficient homes are not only expensive to heat but can also damage the health of their occupants. The risk of respiratory and cardiovascular illnesses is higher in cold, damp houses, as is the risk of arthritic symptoms. Mould can also increase respiratory problems such as asthma and can irritate the skin, eyes, nose and throat[2].

Between 2000 and 2010 there were 25,000 excess winter deaths (EWD), on average, per year[3] and around 30% of these were due to cold homes[4]. The UK has one of the highest EWD levels in Europe despite its moderate climate, with deaths in the coldest quarter of housing almost three times higher than in the warmest quarter[5]. Many of these excess winter deaths could be prevented through warmer housing[6].

MENTAL HEALTH

Mental health problems such as depression and anxiety can arise from living in housing which is inadequate, and improvements to existing homes have been proven to reduce instances of mental health issues for those who live in them. Residents with bedrooms which have a temperature of 21°C are 50% less likely to suffer depression and anxiety than those which sleep in bedrooms with temperatures of 15°C[7]. Fuel poverty itself is also detrimental to health, through the financial stress that it causes to households.

Children living in cold homes are more likely to have mental health problems such as anxiety and depression[5], and suffer from negative effects including reduced educational attainment, reduced development and a greater involvement in risky behaviours such as drinking alcohol, smoking or truancy, all of which can minimise opportunities later in life[7]. In a survey undertaken by the National Children's Bureau, 10% of children living in cold homes reported being unhappy with their family life whilst only 2% who live in warm homes reported the same[7].

Energy efficiency improvements to homes have been proven to reduce instances of both mental and physical health issues for residents, with studies have reporting an increased sense of empowerment to residents and household pride[1]. In particular, improvements which allow residents to heat more rooms in the house can increase the amount of useable space, enabling greater privacy for residents and helping with social relationships in the home[1]. Even small changes within the home as part of a retrofit project can contribute to improved wellbeing and quality of life, for example easier to use heating system controls and new mechanical ventilation[1].

The planning and construction stages of a retrofit project can also be very stressful for residents and due consideration should be made to ensuring their wellbeing during these stages. A well designed and installed retrofit package of works will make positive contributions to wellbeing and quality of life, but an ill-considered package or one that is not installed to the highest quality standards could have negative impacts on the residents, causing health, wellbeing and quality of life issues[8].

AIR QUALITY

Poor ventilation can result in internal air quality issues, with raised levels of pollutants such as radon, carbon monoxide and nitrogen dioxide[5]. Higher relative humidity might promote mould growth which can worsen conditions such as asthma[5]. Academics have also recently linked indoor air pollution to diabetes, neurological diseases and even low birth weight and preterm births[9]. To ensure air quality is of a high standard, and that the health of residents is not worsened by retrofit that improves airtightness, adequate ventilation must be provided to the home throughout the year.


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Colour and proportion are also major factors in the perception of internal space, and can be used to aid navigation techniques for people with vision problems and dementia.

LIGHTING AND COLOUR

Whole home interventions provide an opportunity to improve indoor appearance through lighting and colour. Colour is the most dominant and visible aspect of interior design and can influence how we feel when we are in a space. An excess of direct sunlight can cause repetitive eye strain but blocking out natural daylight and relying on artificial lighting not only increases energy costs but also inhibits a view of the outside world. Interior spaces therefore require some variability of colour, light and contrast to provide balance, stress relief and enhance a sense of wellbeing[10].

Colour and proportion are also major factors in the perception of internal space, and can be used to aid navigation techniques for people with vision problems and dementia. Contrasting colours can highlight key areas such as staircase landings, entrances or toilet doors while lighting levels should be increased in transitional spaces so that any residents with reduced vision issues can pick up on different levels of contrasting colour to support and enable their movement.

ACOUSTICS

Replacement windows, external doors and new façades and insulation can reduce external noise transfer into the home, helping to contribute to residents' wellbeing. To ensure these are effective it is important that the design specification is carefully considered and the items are installed correctly. Internal works may also offer the opportunity to reduce sound transfer through party structures and partitions within the home through the installation of acoustic insulation and finishing boards or isolated partition structures.

Unwanted noise in homes can be a nuisance to residents and can cause ongoing health issues. In the short term unwanted noise can cause activity disturbance, speech interference and disturbed rest. A 2002 national survey reported an estimated 37 per cent of the population were bothered, annoyed, or disturbed to some extent by neighbour noise[11].

In the longer term, the presence of noise can cause increased levels of stress hormones, increasing the risk of cardiovascular effects (heart disease and hypertension). A WHO study found that at least one million healthy life years are lost every year in Western Europe as result of exposure to environmental noise[12]. This means that noise is the second largest environmental cause of ill health, after air pollution[13]. Furthermore, a UK study showed that exposure to noise above recommended levels resulted in an additional 1169 cases of dementia, 788 cases of stroke and 542 cases of heart attack in a single year[14].

QUANTIFYING HEALTH AND WELLBEING

A recent report from HACT, Clarion and Keepmoat uses data from the English Housing Survey to demonstrate the link between attributes of the home and its surroundings, and individual wellbeing, and apply a monetary value to improvements. The value to residents from improvements differs between age groups; however, the average improvement demonstrates the general trend. It was found that improving energy efficiency by one EPC band would create £217 of wellbeing value to every person living in a household, resolutions to scruffy gardens of £379 and rectification of serious condensation or mould growth would create £770[15].

Average annual cost of household energy bills

1.1.2 Energy Bills

Rising energy bills are a financial concern for householders[16] and prices are predicted to rise above inflation for the foreseeable future. The UK has among the lowest average energy prices in Europe, yet it has among the highest rates of fuel poverty[17]. This is because our energy inefficient homes are a major contributing factor to high energy bills.

Research from the Institute of Health Equity shows that the average annual cost of household energy bills rose from £605 in 2004 to £1,306 in 2013[18]. Similarly, a forward projection by the former Department of Energy and Climate Change (DECC) has estimated that prices are set to rise between 12 and 30 per cent from 2013 to 2020, meaning that the challenge of paying energy bills is set to continue[19].

With energy costs forecasted to rise further, driven primarily through government social and environmental programmes and network investments, this could have an impact on the ability of some residents to adequately heat their homes. Across Europe, 65% of households' fear rising energy prices and 40% worry about paying bills[20]. Furthermore, research suggests that just under two thirds of householders in the UK believe that there is nothing that they can personally do about high energy bills[21]. Currently, poor insulation means that £1 in every £4 spent on heating UK homes is wasted[22]. This offers an opportunity to reduce energy wastage, save householders money and reduce worry and stress, amid rising energy costs.

Retrofit measures are the best way for households to gain control of their energy bills and insulate themselves against future price rises. By installing low cost insulation measures the average household in the UK can reduce their heating use by 40% and reduce their annual energy bill by £300, saving £6 billion in heating costs nationally each year[23]. Retrofit encourages energy security and is key to offsetting most of the projected international energy price increases[24]. It is estimated that £8.61 billion could be saved in energy bills across housing stocks, after comfort take, if all housing was improved to EPC Band C by 2035[25].

1.1.3 Fuel Poverty

Rising energy bills have a disproportionately negative impact on those households which already struggle to afford adequate heating; 2.5 million households in England were classified as being in fuel poverty in 2015[26]. The risk of living in fuel poverty increases sharply as household income falls. Research shows that one in five households has been in energy debt with the average amount increasing from £320 in 2005 to £431 in 2015[27]. Furthermore, 3.8 million children come from families that are struggling to pay their energy bills[7].

One of the most sustainable ways of tackling fuel poverty and limiting the impact of increasing fuel prices is to retrofit the existing housing stock to improve the energy efficiency[5]. For low income households, reduced energy bills from retrofit measures are likely to increase their ability to pay, thus reducing the credit and collection costs accruing to energy companies[28]. Policies that permanently improve the efficiency and performance of the housing stock are more cost-effective in tackling fuel poverty than energy price policies and income support policies[29].

In some cases, improvements in home energy efficiency can stimulate increased energy consumption that counteracts the potential energy bill savings. This 'rebound effect' is often perceived as a negative outcome for residents, but for fuel poor households this is usually because they have been under heating their homes prior to the improvements.

Box 1: Fuel Poverty:
England uses a Low Income High Costs (LIHC) indicator to define fuel poverty. A household is fuel poor if they have above average fuel costs and are left with a residual income below the official poverty line. Scotland and Wales use an alternative definition of fuel poor households as those which spend 10% or more of their income on energy costs.

1.1.4 Maintenance Costs

Poor quality housing often has higher ongoing maintenance costs which can be reduced by addressing issues of cold and damp. Properties in EPC bands E, F and G have 48 per cent more repairs relating to damp and mould growth than the stock average[30]. Research for the GLA's RE:NEW programme shows that low energy homes require less maintenance and building management costs for landlords than those that are less efficient[32]. It found that Orbit Housing Group, which owns and manages 39,000 homes, could save an estimated £4 million in management costs over 20 years if they were to invest in energy efficiency measures in its properties.

There are also higher operational and maintenance costs associated with void periods for less efficient properties. Analysis from Sustainable Homes has found that social landlords managing a housing stock with average Standard Assessment Procedure (SAP) scores of 66 to 68 face operational costs of £200 to £400 for a void property[30]. This compares to just £50 to £150 per home for landlords with average SAP scores of 73 to 75, representing a 60% reduction which is mainly due to lower costs for repairs and refurbishment.

1.1.5 Safety and Security

Every year over 2 million injuries occur from accidents in the home – 35% of over 65s and 45% of people over the age of 80 are at risk from falling[33]. Studies have estimated falls attributed to poor housing cost the NHS between £1.5 and £2.5 billion annually[33]. These accidents have multifactorial causes, but addressing hazards in the home is one way of reducing their occurrence. The Secure Warm Modern Project in Nottingham estimates that by removing hazards in the home 12 hospital admissions a year, as a result of falls, could be avoided in the area[33]. Positive health outcomes have also been linked with the distribution of free smoke alarms to residents, with one study reporting an 80% reduction in the annual fire related injury rate over a four-year period[34].

Replacement doors and windows with enhanced security features can also ensure residents feel less stressed thanks to feeling safer and anxiety levels can be reduced due to the reduced fear of burglary. Victims of burglary have, on average, substantially lower levels of security in their properties than non-victims; homes with no security have over seven times the rate of burglaries than homes with high levels[35]. The Secure Warm Modern Project in Nottingham noted a significant reduction in burglary following security improvements, while increased resident pride in their properties also created closer integration between the police and community in addressing crime[33].

Properties in EPC bands

require

48% more

damp and mould-related maintenance and repairs

compared to

rated properties[31]

… low energy homes require less maintenance and building management costs for landlords than those that are less efficient

The benefits in action: Smart Homes Project – North London

The Smart Home Project, funded by £6.5 million from the Department of Energy Climate Change (DECC) Green Deal Communities fund, was led by Haringey Council on behalf of the London Boroughs of Enfield, Camden, Islington, Waltham Forest and Hackney. It delivered over 1200 retrofit projects between July 2014 and September 2016. The scheme targeted homes across all tenures – private rented sector and owner occupied, focussing on installing solid wall insulation (SWI) and tackling the 'hard-to-treat' homes across North London boroughs. Grants of £6000 were available to hard-to-treat homes or SWI and £3000 for other measures. In total £7,875,000 of work was carried out with benefits that spanned households, communities and cities.

A commitment to working with local SME's in the scheme meant that of the 65 new jobs created, 45 employed local people and 38% of the Smart Home work was undertaken by North London based companies. A further 46 jobs were safeguarded by the project that may otherwise have been lost without the scheme. These suppliers were also supported by the expansion of the 'Retrofit Works Cooperative' which comprised 30 local installers. As well as providing employment to local people and business for North London companies the scheme improved knowledge, expertise and strengthened relationships across the supply chain providing a strong foundation for future retrofit work.

The scheme led to average energy bill savings of £222 per household. This equates to £9,266,491 across the scope of the project, well over the cost of the initial investment. Household's also reported an increase in thermal comfort which is likely to improve their health and wellbeing.

One Haringey resident said;

"It's really improved how we feel about the house – we couldn't live with the cold. Our energy bills are down to £15 a month".

Alongside these social and economic benefits, there were average annual savings of 1.02 tonnes of CO_2 per household; this equates to an estimated 42,338 tonnes across a lifetime saved by the project. With the London Plan 'zero carbon' targets boroughs can apply for a cash in lieu contribution of £60 per tonne of CO_2 saved.

Source: CAG Consultants, 2016. Smart Homes Evaluation.

1.2 COMMUNITIES

1.2.1 Rent and Mortgage Performance

Energy inefficient homes are expensive to heat and more likely to be in rent arrears as tenants balance their cost of occupancy with income and other household needs[30]. Less efficient homes also have higher instances of voids and are likely to be empty for prolonged periods, further blighting neighbourhoods and negatively impacting social cohesion by increasing instances of anti-social behaviour.

Void properties are a significant cost burden on social landlords who can waste significant time and cost on remedial actions. Touching the Voids, a report from Sustainable Homes, analysed data from 25 Registered Providers for more than 500,000 homes and found the incidence of voids was 18% higher for Band E and F compared to Band D. Moreover, legal, court and staff costs declined 35% chasing rent arrears for more energy efficient homes[30].

Evidence from the US also suggests there is a robust relationship between energy efficient homes and reduced lending risk for mortgage providers. A Californian study undertaken in 2013 reviewed the loan data for 71,000 mortgage borrowers and found that people in energy efficient homes are 32% less likely to default on their mortgages[36].

1.2.2 Property Value

Although house prices are affected by size, location and dwelling type, the condition and energy efficiency of a property can also influence value. Analysis has shown that, compared to properties with an EPC G rating, those rated D, E, F have a 5% value premium and those rated A, B, C have a 10-14% premium[37]. This offers long term economic incentives to householders and landlords who undertake retrofit measures in their homes, beyond energy bill savings. In Europe, more than 2/3 households are making home improvements to increase the value of their property[20].

Price differentials associated with energy performance are greatest in areas with lower average property prices. A study of property transactions in Wales found that overall there are positive price premiums for dwellings in EPC bands A and B (12.8%) or C (3.5%) compared to houses in band D. There are also clear discounts paid for dwellings in bands E (-3.6%) and F (-6.5%)[38].

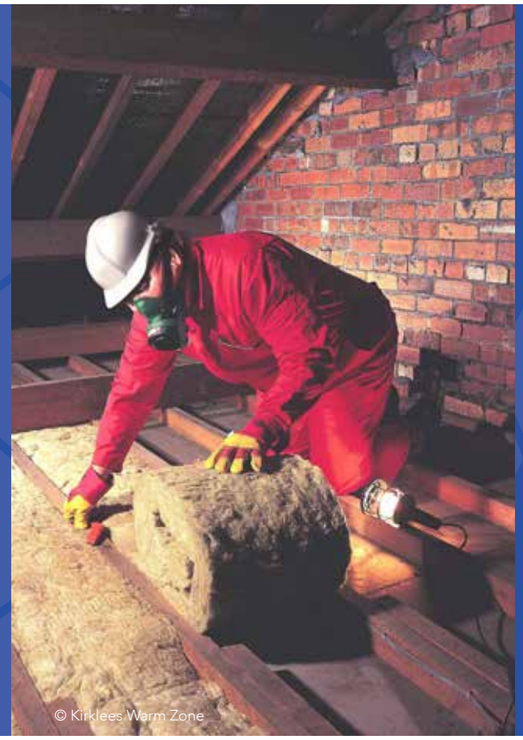
Increased property values can pose challenges for regeneration schemes by creating displacement, particularly in low income areas. Retrofit-led regeneration may provide opportunities to mitigate these effects by working closely with the local community to design the scheme and making improvements to properties without relocating existing residents. At the same time private owners and social landlords would see value uplifts for their assets which could help to offset some of the costs of improvements.

Investments in home improvements

BOOSTS

spending in the local economy

... Reduced demand and lower energy costs can increase disposable income for households or individuals which is then available to be spent on other goods or services.



© Kirklees Warm Zone

The benefits in action: Kirklees Warm Zone

The Kirklees Warm Zone was a local authority retrofit programme that ran from 2007 to 2010 in Kirklees, West Yorkshire. The aim of the scheme was to improve the thermal comfort and energy efficiency of every suitable, private sector home in order to tackle fuel poverty and reduce district carbon emissions.

The council's Affordable Warmth Strategy was adopted to work with relevant organisations to deliver these aims. All households were visited, on a street-by-street basis, followed by visits from trained assessors who carried out initial assessments. A £24 million budget came primarily from local council capital receipts and energy supplier obligations. This allowed the scheme to offer free standard cavity and loft insulation to every household, as well as other energy saving measures such as efficient light bulbs and heating systems (subject to household circumstances). In total the scheme installed loft insulation in 42,999 properties and cavity wall insulation in 21,473 homes.

Overall, the average SAP score of homes was improved by 5.6. This was estimated to increase the average property value by 0.67%, equivalent to £790 per home. This totals an increase of over £38 million across all the 51,155 retrofitted properties in Kirklees.

These retrofit measures have also had environmental benefits. Energy savings of almost 106 million kWh per year equates to emission reductions of 23,350 tonnes of CO_2. This translates to economic value of £30,567,535 in terms of avoided environmental damage from climate change.

Prior to the retrofit 39% of residents reported that their health was made worse by living in cold, damp homes. Modelling by the University of Ulster of post retrofit data suggests that the measures could have health benefits, both physical and mental, of £4.8 million. Furthermore, these installations were estimated to have saved households 3.9 million per year in energy bills and brought 1,375 households out of fuel poverty.

As well as improving residents comfort and health, the scheme created employment and training opportunities for local people. 106 full time jobs were created and between 200 and 250 freelance opportunities, many of which were in the local area. This equates to one job created for every £85,822 invested in the scheme.

Sources: Kirklees Council, *Kirklees Warm Zone, Final Report 2007-2010*; Kirklees Council, 2011. *Kirklees Warm Zone Economic Impact Assessment*; Kirklees Council, 2011. *Kirklees Warm Zone Scheme: End of Project Evaluation Report.*

1.2.3 Local Spend

Studies have shown that money investments in home improvements yields significant returns from increased local spending. Analysis of the Secure Warm Modern programme in Nottingham showed that every £1 invested through the programme generates local spend of £1.46 through orders to local tradespeople and suppliers[33].

The International Energy Agency has also highlighted that energy efficiency improvements in particular can have a lasting benefit for the local economy. Reduced demand and lower energy costs can increase disposable income for households or individuals which is then available to be spent on other goods or services[8].

1.2.4 Outdoor Air Quality

Emissions from inefficient gas boilers can produce significant nitrogen oxide emissions and contribute towards poor air quality. The London Environment Strategy highlights that the built environment accounts for 37% of NOx emissions in Greater London, mainly due to gas combustion from heating.

A report from King's College London[40] and Policy Exchange found that gas combustion from heating and cooking accounted for 21% of total NOx emissions in Greater London in 2010[9]. The Royal College of Physicians currently associate up to 40,000 deaths per year to outdoor air pollution[40] so minimising pollution from heating homes can help to reduce poor air quality and the associated health implications.

1.2.5 Resilience

FLOOD RESILIENCE

In areas where there is a high risk of local flooding, home retrofit works provide an opportunity for the installation of property level protection measures to mitigate risks to the property. Such measures could include barriers, non-return valves and airbrick covers which can be fitted to the outside of a property to prevent flood water from entering[41]. These interventions could help to minimise damage to the property and the residents' possessions, provide lower insurance premiums, protect landlords from claims from residents and could complement other flood defences in the local area.

OVERHEATING

Overheating is used to describe the conditions of a building that make occupants feel heat stressed or uncomfortable. Current guidelines outline temperature thresholds of 28˚C for living rooms and 26˚C for bedrooms[42]. Average annual temperatures in the UK have mirrored global increases with milder winters and hotter summers and more frequent and intense heatwaves. Consequently, cooling strategies in homes are becoming increasingly important.

Today, up to 20% of England's housing stock is potentially overheating[43]. Whole home retrofit provides an opportunity to integrate cooling strategies into the building design that can greatly reduce overheating risks in existing homes. Approaches to minimise overheating include: solar shading and shutters, heat and reflective finishes and cooling and ventilation systems[42].

1.3 CITIES

1.3.1 Local Employment and Economic Growth

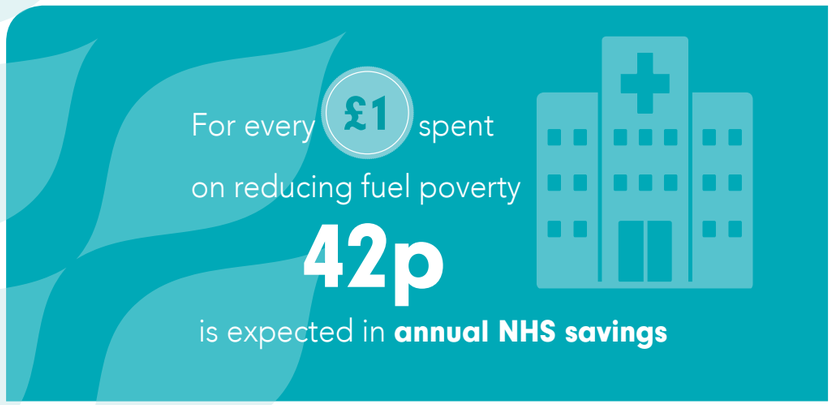
Home retrofit can create jobs and provide training to local people, as well as supporting economic development[21]. Analysis by Frontier Economics has found that energy efficiency projects can have comparable benefits to other major infrastructure projects outside of the energy sector[44]. A review of over 20 studies found that every £1 million invested in retrofitting homes resulted in the creation of about 23 person years of employment[28], and Cambridge Economics has estimated that a national programme to improve all homes up to EPC band C would create 108,000 jobs across the country[25].

Low income areas often suffer high unemployment rates due to a lack of employment and training opportunities for residents. Employing local people to deliver the retrofit works means skills are more likely to be retained in the area, thereby enabling future home retrofits to be carried out more efficiently and allowing the development of a local maintenance network[45]. For residents in deprived areas, employment can improve health as well as providing an income and skills training[46] .

1.3.2 Tax

Investment in home retrofit projects can also positively impact the public budgets through increased tax take. Income tax from employees working on retrofit projects, corporate tax paid by companies who are benefitting from subsidies on technologies they supply or install and fiscal benefits of reduced unemployment. A study of the KfW Energy-efficient Construction Refurbishment programme in Germany, which increased the energy efficiency of 617,000 homes[25], found that for every €1 spent on the programme €4 was paid back to the government via reduced welfare spending and increased taxes[45].

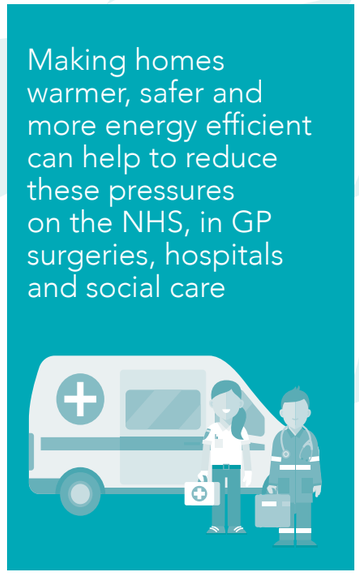
Modelling by Verco and Cambridge Econometrics calculated that a programme of home improvements to bring all homes up to EPC band C by 2025 would stimulate both increased economic activity and tax take. For every £1 invested by the government in retrofit schemes, it was estimated that £3.20 would be returned via increased GDP and £1.27 in tax revenues due to higher economic activity. The programme would be expected to pay for itself by 2024 and create net benefits thereafter[25].



1.3.3 Health and Public Spending

Evidence shows that there are significant avoidable costs to the NHS from poor quality housing and fuel poverty directly from both physical and mental illness. BRE estimates that poor housing costs the NHS £1.4 billion a year, with over half of this amount attributable to poor health due to excess cold[3]. Research by Age UK has found that GP appointments increase by 19% for every 1 degree drop in outdoor temperature below 5°C[47], while NHS expenditure rises by 2% in winter months when the most vulnerable, such as the elderly and young children, are susceptible to cold related illnesses[5].

Making homes warmer, safer and more energy efficient can help to reduce these pressures on the NHS, in GP surgeries, hospitals and social care. The Chief Medical Officer has highlighted that for every £1 spent on improving cold homes, 42p is expected in annual NHS savings[48]. The negative health effects of poor quality housing also extend to mental wellbeing, so retrofit improvements can also provide savings from the estimated £70 billion cost to the UK of mental ill-health per year through lost productivity, social benefits and health care[10].



1.3.4 Energy and Climate Change

Under the Climate Change Act 2008, the UK Government has targets to reduce greenhouse gas emissions by 80% by 2050 compared to 1990 levels, while several city authorities have set more ambitious targets for achieving net zero emissions by the same date[49]. The energy used in homes accounts for 14% of direct UK emissions, primarily from heating and cooking, with a further 6% of emissions from domestic electricity use[50].

The IEA's 2050 mitigation scenarios state that home energy efficiency is one of the most important emission reduction measures[28] and projections from the Committee on Climate Change show that meeting national targets will require buildings emissions to fall by around 20% between 2016 and 2030 and to near-zero emissions by 2050[50]. It is estimated that 85% of the UK's existing homes will still be standing and in use in 2050[51] so achieving these significant levels of carbon reductions will require a complete transformation of the UK's existing housing stock.

At least a quarter of heat used in buildings will need to be generated from low-carbon sources by 2030, but the proportion is only 4% as of 2015[50]. It is currently unclear what the most effective mix of technologies will be to achieve decarbonisation of domestic heating so different approaches will need to be tested. The technologies are likely to be most effective when deployed alongside energy efficiency measures, so delivering home retrofits to all homes in an area will offer a unique opportunity to trial different approaches at scale.

More energy efficient homes and the integration of low carbon generation would also take pressure off national energy systems. In 2015 imported natural gas accounted for 62% of the UK's consumption[21] and it has been estimated that bringing all homes to EPC C rating could reduce gas imports by 26% by 2030[25], making the UK more resilient to international energy price spikes. Reduced energy usage frees up energy capacity for other users increasing inputs to the production of goods and services across the UK[25].

The most cost-effective way to make the housing stock fit for 2050 is to make significant energy improvements as part of a package of measures including fabric efficiency and low carbon generation. This can help to reduce the time, cost and hassle of making multiple interventions at later dates. Whole home retrofits can provide a compelling offer to residents by providing guaranteed savings for significant energy improvements alongside wider improvements to the liveability and aesthetics of their home.

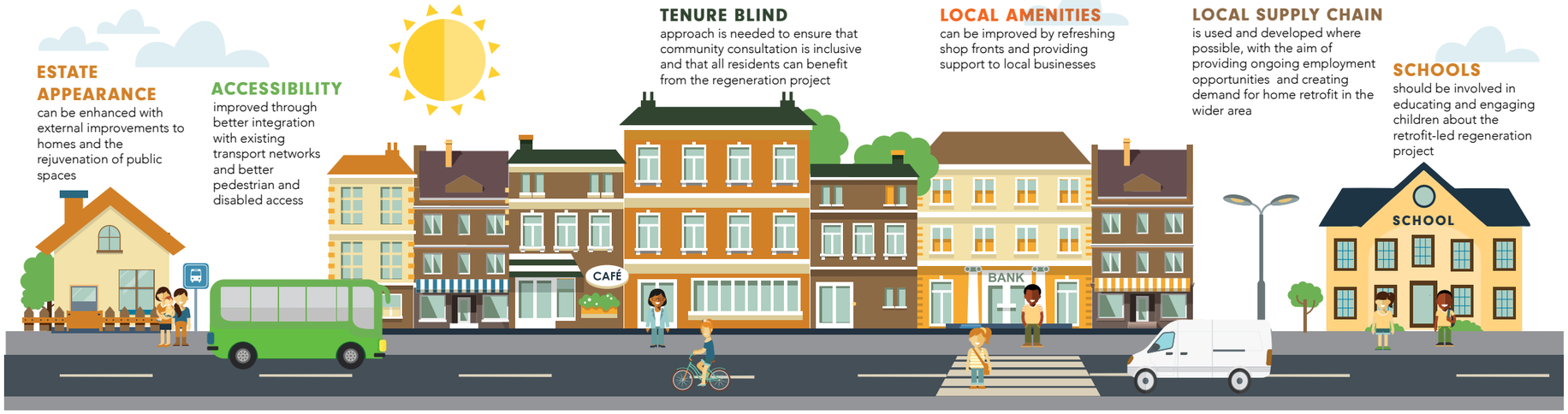
2. Beyond the home: A vision for retrofit-led regeneration

Whole home retrofits delivered at scale can create significant lasting benefits for residents, the community and wider areas, but upgrading the home itself is not enough to transform the economic and social situation of the local residents. Thriving communities also depend on high quality, sustainable public realm, good transport and connectivity, adequate security, and the provision of amenities and green space.

Therefore retrofit-led regeneration must look beyond improving individual homes, using the delivery of home retrofit as the catalyst for improvements to the local area. Such measures can help to instil pride, empower residents and create truly sustainable communities, turning a home improvement project into a comprehensive programme for retrofit-led regeneration.

As with most regeneration projects, it is important that residents are at the heart of the process, to ensure maximum benefits for local people. Retrofit-led regeneration poses particular challenges and opportunities. Engaging effectively with residents about improvements to their own homes is not easy, but it is helped by the reduced likelihood that households will be displaced throughout the project.

Our 'vision for retrofit-led regeneration' highlights just some of the measures which could be implemented alongside whole home retrofit to transform localities. This is only illustrative; every area regeneration vision will be different and should reflect both the place and its people.



ESTATE APPEARANCE
can be enhanced with external improvements to homes and the rejuvenation of public spaces

ACCESSIBILITY
improved through better integration with existing transport networks and better pedestrian and disabled access

TENURE BLIND
approach is needed to ensure that community consultation is inclusive and that all residents can benefit from the regeneration project

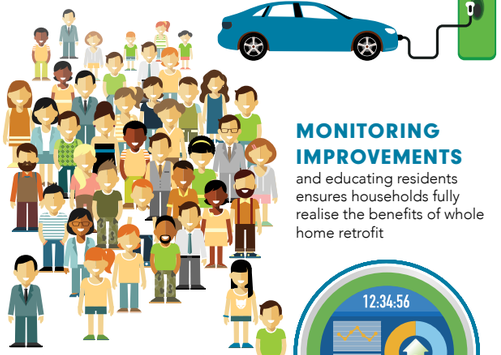
LOCAL AMENITIES
can be improved by refreshing shop fronts and providing support to local businesses

LOCAL SUPPLY CHAIN
is used and developed where possible, with the aim of providing ongoing employment opportunities and creating demand for home retrofit in the wider area

SCHOOLS
should be involved in educating and engaging children about the retrofit-led regeneration project

WORK SPACE
is offered across the estate by utilising disused areas, such as garages. Spaces are suitable for use by existing businesses and contractors carrying out retrofit

ENERGY STORAGE
could maximise the benefits of on-site renewable energy for residents. Electric vehicle charging points could also be introduced as a transport and storage solution



MONITORING IMPROVEMENTS
and educating residents ensures households fully realise the benefits of whole home retrofit

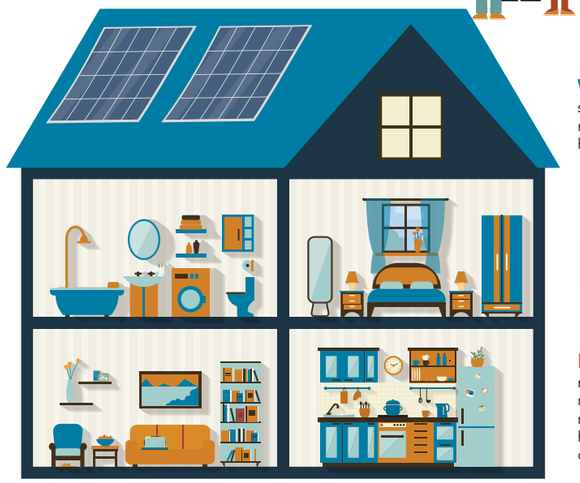
COMMUNITY GROUPS
promote engagement with the residents, ensuring that their voices are heard and that they take ownership of the project

SAFETY AND SECURITY
can be improved by renewing streetlighting, redesigning potential crime blackspots and incorporating safety features into retrofits, such as double glazing and new locks

ENGAGEMENT AND SUPPORT
initiatives should ensure that residents views are taken into account from the outset and there is a continuous point of contact

GREEN SPACES
should be enhanced with increased biodiversity and where possible turned into useable community spaces

RENEWABLE ENERGY
generation can be integrated into the project, creating opportunities for community owned projects that provide an ongoing income stream



WHOLE HOME RETROFITS
should reduce operating and maintenance costs and improve the health and wellbeing of residents

HEALTH SERVICES
may be better utilised by residents with better transport routes to local services and health consultations in the community

INFILL SITES
can be utilised for new housing which is appropriate to the needs of the local community

Infographic developed for UKGBC by PRP

2.1 COMMUNITIES

RESIDENT ENGAGEMENT AND SUPPORT

Community engagement initiatives are crucial from the outset of any regeneration project to ensure residents views are understood and integrated into the planning. This is particularly true of retrofit-led regeneration where residents will receive improvements to their own homes are likely to be in situ during the works. As far as possible, improvements to homes and the local area should be tailored to the needs of individual households and the community.

Throughout the project delivery phase there also needs to be a consistent and trusted point of contact for residents to allow them to keep up to date with developments and raise any concerns. Once retrofit works have been completed, residents should be educated on how to most effectively use their improved homes so that they can fully realise the benefits. Providing ongoing support will ensure residents get the most out of the project, and also provides an opportunity for feedback and lessons learned which could help to inform the design of similar projects.

A TENURE BLIND APPROACH

Right-to-buy has led to owner occupiers and tenants in private rented properties often missing out on home retrofit improvements as part of area-based delivery schemes because appropriate funding is not available. Retrofit-led regeneration should be open to all households, inclusive in consultation and, where possible, take a tenure blind approach to ensure that all residents can benefit fully from the regeneration project. Pepper-potting should be avoided to prevent disrupting communities and to avoid uneven regeneration.

SOFT COMMUNITY INFRASTRUCTURE

By working collaboratively with local charities and community groups, the social benefits of improvements can be multiplied and sustained after the regeneration project is completed. Working with organisations such as Citizens Advice, workshops and educational groups could be established to offer residents advice on training, employment and money management.

Involving local schools to engage and educate local children about the regeneration project can also be an effective way to create interest and understanding in construction and engineering. Expertise from contractors or consultants working on the project, could be fed into education and events at schools to inspire future generations and create community support for regeneration. This approach could also encourage lifestyle changes at home through education in energy saving and climate change.

Involving local schools to engage and educate local children about the regeneration project can also be an effective way to create interest and understanding in construction and engineering.

2.2 ESTATE IMPROVEMENTS

ESTATE APPEARANCE

As well as increasing the energy efficiency of homes, retrofit should be used to improve the external appearance of properties, helping to instill a sense of pride among residents[1]. Simple measures, such as refreshing facades and painting the outside of houses can significantly improve the overall appearance of an estate, with investment in the fabric of local homes creating a feeling that the community is valued[33]. Home improvements can also be complemented by revitalising dilapidated or vandalised buildings and underused public spaces. Doing so can improve a sense of ownership over the local living environment and reduce perceptions of dereliction[1].

PUBLIC SPACES

Working on home retrofit provides an opportunity to promote wider sustainability measures, like biodiversity, in an area. Renewal of public spaces can make people feel safer, happier and more likely to utilise public spaces for recreation and social interaction[52]. Access to safe, green spaces can increase resident interaction and promote healthier, happier lives.

Green spaces should be enhanced with increased biodiversity and where possible turned into usable community spaces that are easily accessible. For example, unused, poorly maintained public space could be converted into allotments or community gardens. A sense of community can also be fostered by allowing residents to take ownership of existing and new public spaces, while encouraging activity, healthy eating and social interaction amongst neighbours.

Green spaces should be enhanced with increased biodiversity and where possible turned into usable community spaces that are easily accessible.

SAFETY AND SECURITY

A wide reaching whole home retrofit programme can improve community cohesion, promote engagement and lead to reduced social problems in communities due to better quality housing and urban environment[1]. Close engagement with the existing community during the retrofit project could also lay the foundations to establish a local neighbourhood watch. Increased local pride from improvements to properties has the potential to encourage a closer working relationship between the community and local police[33].

When adding external wall insulation to properties the outdoor lighting may need to be replaced. This can provide a good opportunity to enhance the external security features, such as lighting and fencing, to save time, money and hassle to residents down the line. Alongside home improvements, safety in public areas can be improved by adding or enhancing street lighting in an area. Consideration should be given to addressing 'blackspots' for antisocial behaviour in the area, which could involve opening up areas with natural surveillance or blocking alleyways between properties.

LOCAL AMENITIES

Increasing the provision of amenities and commercial space in the local area can enhance the benefits of the retrofit project by encouraging investment, increased local spending, and creating local employment opportunities for residents. Disused spaces and buildings, such as garages, could be utilised by contractors that are carrying out the estate regeneration programme, and could then be repurposed for local businesses once the project has been completed.

The retrofit project could also be used to refresh local high streets and shop fronts. This could entail working in partnership with existing local businesses or inviting new retailers such as supermarkets to invest in the area. Unused units could be used to bring amenities to the area which would meet the particular needs of the local community such as health centres, post offices, nurseries or libraries. If these establishments cannot viably be based in the area then spaces such as community centres could be used to house short-term services. For example local health providers could bring temporary screening or consultation clinics to the area, improving access to these services for residents.

INFILL DEVELOPMENT

Although a retrofit-led regeneration project will of course focus on improvements to the existing housing stock, there may be land available in the area which would be appropriate for infill development that could complement the overall regeneration project. These might include underutilised public spaces or problematic garage sites. It may also be appropriate to establish a viability threshold for homes retrofit because some properties in need of more extensive improvements may be more cost-effective to rebuild, thereby providing further opportunities for new construction.

The provision of new homes could offer opportunities to increase density and create new homes which are appropriate to the demographics of the local community, for example age-appropriate housing available to older local residents. Property sales could also allow for cross-subsidy of investment in home retrofit, particularly for the most vulnerable residents who are least able to afford improvements.

2.3 SERVICES

ACCESS AND TRANSPORT

Resident engagement and community consultation are vital elements of area-based retrofit delivery and could provide the basis for sustainable travel initiatives such as car sharing clubs and the 'walking school bus' for children. The home retrofit works themselves also provide an opportunity to install electric charging points for residents, which would be cheaper than having to install them separately at a later date.

Improving public footpaths and links to local cycling networks will also promote social interaction, improve health and, by removing roads and planting trees, improve outdoor air quality[52]. Opportunities could also be explored to extend existing bus routes into the community which could provide residents with easier access to employment opportunities, schools and health services in surrounding areas.

ONGOING MAINTENANCE AND MONITORING

Monitoring and maintaining the performance of properties is essential to ensure that the retrofitted homes are working as intended and that households fully realise the benefits of the improvements. Maintenance service providers could attempt to use the local supply chain in order to support the local economy. This would create local employment opportunities and help to keep skills and knowledge developed during the retrofit project in the local area.

A regular point of contact for residents is also vital both during and after the retrofit-led regeneration project. This can improve trust and ownership of the project, allowing residents to report any issues and ensure proper maintenance of their home. This ongoing relationship also provides an opportunity to offer information and support to residents on how to manage and operate their retrofitted home and tailored advice on energy savings and behaviour change.

LOCAL ENERGY GENERATION

Low energy homes provide opportunities to install renewable energy generation and further reduce bills for residents. Energy efficient fabric enables the effective use of heat pumps in homes to tackle the challenge of low carbon heating and these could be used as the basis for a fossil fuel-free heat network retrofitted to homes and buildings in the local area.

In terms of electricity, roof-mounted photovoltaics can provide benefits to individual homes, while community owned projects could be developed that offer ongoing income streams shared by all residents. Integrating energy storage into properties, potentially utilising local electric vehicles, would also maximise the benefits of renewable energy for residents and could provide the first building blocks for the development of a local smart grid.

Improving public footpaths and links to local cycling networks will also promote social interaction, improve health and, by removing roads and planting trees, improve outdoor air quality

3. Delivery Innovations

To achieve this vision, new models are needed to overcome some of the main barriers to delivery of retrofit-led regeneration schemes, including around training, education, community engagement and funding for the works. Building on ideas proposed at the UKGBC Birmingham City Summit 2016, the Task Group developed proposals for two delivery innovations which could address some of these barriers.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Delegates at the City Summit identified a particular need to improve the energy performance of homes in low income areas which have high levels of fuel poverty. But rather than just installing energy efficiency measures, it was proposed that high quality retrofit could be used to regenerate the area and address a broader range of social and economic issues for residents. Two 'breakthrough innovations' were proposed to address two particular barriers for retrofit projects in low income areas – ongoing community engagement and the availability of funding for private householders:

- A Community Interest Company (CIC) could be established for the benefit of local residents which would deliver repairs, deep retrofit measures and create opportunities for local employment and training. It would also act as a bridge to the community as a trusted source of advice and the representative of residents' interests throughout the project.
- A Local Authority Revolving Fund could be used to finance large scale area-wide regeneration schemes, which would aggregate diverse funding sources and offer a range of payment options to householders in different tenures. Repayments made back into the fund would be recycled into further regeneration projects.

The Regeneration and Retrofit Task Group has taken forward these two innovations, developing more detailed proposals for a Community Social Enterprise (building on the CIC) and a Local Authority Revolving Fund. These two innovations have been developed separately but the Task Group view them as complementary models which could be used in conjunction with one another to increase the ambition of retrofit projects and turn them into regeneration schemes.

The following proposals consider some of the key issues for establishing and operating the innovations. The concepts have deliberately been kept flexible to ensure they can be utilised in a wide range of circumstances and the particular models used will depend on the specific context. The next steps for taking forward the ideas are to apply them to specific projects and undertake trials of their operation.

3.1 COMMUNITY SOCIAL ENTERPRISE

The not-for-private-profit Community Social Enterprise would bridge the gap between local authorities, contractors and residents, facilitating ongoing engagement with communities to understand the local area and ensure effective regeneration occurs. It would also provide training and employment opportunities for local people as part of the retrofit project, building a multi-trade workforce that cares about the community and delivers work with pride. All surpluses would be reinvested back into the social enterprise and its activities.

3.1.1 Why is it needed?

Ongoing community engagement is essential to build trust, create demand and ensure lasting benefits from retrofit-led regeneration projects. But achieving initial, and sustained, community engagement is a complex task, with a DECC pilot study in 2014 finding that securing initial engagement is the most challenging aspect[53]. Involving communities from the outset allows a common goal to be developed and creates more successful retrofit-led regeneration projects. A clear, shared vision is essential to ensure that the regenerative activities are successfully implemented, welcomed and maintained.

Residents can also feel disconnected or confused by the regeneration process without a clear and consistent point of contact. For example, a resident may speak to one organiser during initial stages but may have to liaise with many others across the lifetime of the project. This can create confusion and a lack of consistency and cohesion resulting in a poor retrofit experience for the household or homeowner.

At the same time, the construction industry is facing a shortage of knowledge and skills, particularly in the delivery of high quality retrofit. There is currently a fragmented supply chain for home improvements and a lack of multi-skilled labour to deliver integrated whole home retrofits to consistently high standards. It is often essential to bring in specialist contractors from outside the local area to undertake retrofit work, but this means that skills are taken elsewhere once the project is completed.

In low income areas with high levels of unemployment, recruiting and training local people to also work on the regeneration project can greatly enhance the local economic benefits. As well as providing opportunities during the project itself, this also allows skills to be retained in the areas and can help the development of a local supply chain.

Case Study: IFORE[54]

Innovation for Renewal (IFORE) was a European project funded by the ERDF Interreg programme that supported the exchange of ideas and expertise across the channel; in Rushenden (Kent) and Outreau (Pas-de-Calais). The €6.3 million scheme targeted social housing to install renewable energy systems and deliver retrofit, with the overall aim of reducing carbon emissions and fuel poverty.

At the heart of the project was resident participation and engagement, a key element in encouraging behaviour changes and take-up of the scheme. In Rushenden, a 'Green Doctor' provided a consistent and constant point of contact for households, offering energy advice, monitoring residents' attitudes to the scheme and engaging with households.

Monitoring energy savings and resident's attitudes was essential to maintain engagement and record lessons from the project. For example, in Outreau, tablet PCs were used for residents to oversee their energy consumption and understand the benefits of retrofit. A questionnaire, undertaken in Rushenden after the project was complete, found that nearly 50% of residents felt empowered by the scheme and could pass on the information that they had learnt.

The Young Energy Champion Programme, in Rushenden, targeted 3000 children aged between 5 and 16 to encourage environmentally friendly behaviours and put energy into the curriculum. Involving young people in a retrofit initiative is important as they can successfully advocate and promote behavioural changes at home and understand the links between energy efficiency, renewables and climate change.

To find out more about IFORE visit http://www.ifore.eu/

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Case Study: Spacious Place

Spacious Place is a social enterprise, based in Burnley, that works with local residents to provide them with opportunities for training and employment. The scheme targets some of the most disadvantaged residents, providing them with support, on-site construction training and jobs in retrofit, from energy assessments to insulation installations.

The project provides a Personal Development Programme which covers practical work experience, well-being support and financial management. Assisting individuals in retrofit training and delivery allows them to get involved in improving homes in their local areas, as well as providing them with an income and skills.

To find out more about Spacious Place visit http://www.spaciousplace.co.uk/

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3.1.2 Key principles

SECURE THE BEST OUTCOMES FOR RESIDENTS

The most important initial role for the community social enterprise would be to act as the key conduit for communication into the local community. It would specifically address the issue of poor community involvement (and possible dissatisfaction) during estate regeneration programmes, helping to realise the ambition of enhancing local social and economic wellbeing by designing itself and delivering improvements which work for local people.

The organisation would need to be involved from the initial planning stage of the project to provide community liaison outreach, disseminating the options for the project plans to residents and providing a forum to discuss these and provide feedback. It could then act as the voice of local residents, engaging with other project stakeholders to ensure key issues and concerns are heard.

As well as representing residents, there is also a role to engage residents to build trust around the whole home retrofit solutions and educate residents on the benefits. Doing this will help to build support for the project as well as giving residents the opportunity to tailor their home improvements, within the bounds of the project. The IFORE project focussed on resident participation and engagement to build trust, educate households and monitor the outcomes, which resulted in cohesive and effective regenerative vision[54].

Importantly, the social enterprise should provide a trusted, known and common point of contact for residents who can often feel disconnected or confused by the regeneration process. Beyond the initial project, it could work to educate residents on how to manage and live in their retrofitted homes to minimise running costs and make the most of the measures. There is also the opportunity for ongoing engagement with residents after the project completion to help drive lifestyle and behavioural change as well as addressing snagging issues.

CREATE EMPLOYMENT OPPORTUNITIES FOR LOCAL RESIDENTS

As well as acting as a representative of the local community, the social enterprise should also promote and encourage use of local labour during the regeneration project and identify employment opportunities for local people. In this way, it would seek to maximise the economic benefits of the regeneration project for residents, using the construction project to bring lasting skills to the local area.

To achieve this, the social enterprise could adopt one of a number of potential roles according to local circumstances. It could work with project contractors to offer training in home retrofit skills to local people and act as a facilitator bringing local apprentices in to work on the project. Alternatively, the organisation could go further and set up as a contractor to deliver some of the retrofit works in-house and provide ongoing maintenance services based in the local area.

APPRENTICESHIPS AND TRAINING FACILITATOR

Whilst employing local labour is often a stated objective for many construction projects, it can be difficult for contractors to recruit local people with an interest in and commitment to construction apprenticeships. Given its role working closely with the local community, the community social enterprise would be well placed to act as an intermediary, working in partnership with the project contractors to identify individuals and offer structured training in construction and retrofit skills. The Spacious Place initiative, in Burnley, has taken this approach and works with local residents to provide opportunities for training and employment[55].

Case Study: SOAR Build[56]

SOAR Build is a construction related social enterprise in Sheffield. It is a joint venture partnership between the public and private sector, specialising in community regeneration. SOAR Build acts as a contractor/subcontractor on projects and provides ongoing maintenance support and specialist trades including external wall insulation, plastering, decoration and ceramic tiling.

Their mission is to be a successful business in supporting the construction industry through local employment, thus creating opportunities for wealth and economic regeneration in local communities.

To find out more about SOAR Build visit http://www.soarbuild.co.uk/

Case Study: Be Onsite[59]

Be Onsite is a not for profit company in London which aims to address the skills gaps in the construction industry by providing socially-excluded people with industry training and employment opportunities. This allows them to provide the property industry with a skilled workforce to help deliver high quality home improvements.

This is achieved via a five-step process:

1. **Select** – seek and identify individuals willing to make a real commitment to turning their lives around.
2. **Skill** – provide industry-specific training to ensure employees get the skills they need.
3. **Employ** – give employees employability training, on-the-job experience and find them a suitable position.
4. **Support** – combine training with emotional and practical support to help employees stay on track.
5. **Sustain** – provide the right skills and prolonged support to help employees build sustainable careers.

The scheme has provided over 700 people with tailored, industry training and more than 500 have found permanent, paid employment. To date, over 90% of Be Onsite employees remain in employment.

To find out more about Be Onsite visit http://www.beonsite.org.uk/

CONTRACTOR AND MAINTENANCE PROVIDER

Going a step further than acting as a facilitator, some social enterprises have set up as contractors to deliver retrofit work directly in the local area. The SOAR Build social enterprise in Sheffield has taken this approach by employing local young people and training them in a range of skills including plastering, tiling and installing external wall insulation[56]. Following this approach, the community social enterprise could establish itself as a specialist retrofit contractor by training a multi-skilled workforce that can install multiple measures in-house.

This would allow the organisation to employ local people themselves and act as a contractor/subcontractor on the regeneration project and the ongoing maintenance provider for the retrofitted properties. This would require a flexible approach to contracting in order to comply with procurement rules, but it could realise significant benefits in building trust with residents who will see that the work is being undertaken by skilled local people.

In doing so, it could also help to establish a local supply chain for home retrofit, keeping the knowledge and expertise based in the local area once the regeneration project has been completed. By showcasing the regeneration project as an exemplar of what can be achieved, the community social enterprise could stimulate demand for home retrofit among able-to-pay households outside of the regeneration area, thereby creating a forward pipeline of work.

3.1.3 Setup

STAKEHOLDERS

Finding the right partners is critical to the success of the community social enterprise, which could be led by a single organisation or established as a joint venture. A local authority would be well positioned to lead the establishment of the social enterprise as a recognisable body that could help to create trust within the local community. They will also have existing interests in fuel poverty, community energy and employment strategies in the local area and could provide a further pipeline of projects for the social enterprise to continue their work. Registered Providers (RP) who manage a significant number of housing units in the local area could also take up a leading role because they are likely to be key players in local regeneration plans.

Alongside a local authority or RP, local community groups will be important stakeholders to involve in the organisation. The social enterprise could build on existing groups where appropriate, for example there may already be an active residents' association in the area with a track record of representing residents. But it is likely that existing groups will only be able to represent a subset of residents in the regeneration area so the social enterprise would need to ensure that all households can be fully represented and engaged in the project.

Another key partner would be a developer or contractor who could bring construction expertise to the social enterprise. A construction industry partner could help to establish high quality training for local people and could either employ apprentices identified by the social enterprise or support the organisation to become established as a contractor itself.

BUSINESS PLAN AND GOVERNANCE

A primary step in setting up any social enterprise is determining the business plan. The first question to answer is what roles it will undertake; whether it will act as a facilitator for apprenticeships or set up as a contractor, or whether it will transition from the former to the latter over time. This will depend on the specific context for the project, for example 'is there a sufficiently high quality supply chain already in place to deliver the project?' and 'is there the expertise and local workforce available to establish a new contractor?'

Closely linked to these questions will be deciding the geographical area that the social enterprise will cover. While it could be limited to the regeneration area, it may be more appropriate to increase the scope to district-wide, probably linked to a city or district council or even Local Enterprise Partnership (LEP) area. This would allow the social enterprise to contribute to other regeneration projects in the area, thereby helping to make the best use of the resources and expertise invested in the organisation. For a contractor in particular, understanding the geography of local demand will also be key to deciding whether there is a sufficient pipeline of work for the business to be viable.

Once the scope of the organisation has been decided, the business plan and governance structures can be developed. There are several different legal forms that a social enterprise can take, such as a Community Interest Company, Company Limited by Guarantee, and Industrial and Provident Society[57], and the form any social enterprise takes will depend on a number of practical factors such as control over strategy, access to finance, and the values of the company in terms of participation. These arrangements will necessarily link to the terms of reference which need to be established around the company and may also link to the setting and monitoring of Key Performance Indicators.

Precedents exist for such collaborations between social enterprises, local authorities and local communities for retrofit works so drawing on the lessons of these examples may provide further inspiration for the model. Some aspects of such partnerships may be defined in the governance arrangements, but others (such as joint ventures) will require a particular set of expertise which the company will need to make sure it has access to.

Precedents exist for collaborations between social enterprises, local authorities and local communities for retrofit works

FUNDING

The community social enterprise will need to have access to start-up funding – for example through grants, loans, equity finance, venture philanthropy, crowdfunding, or other routes. Specialist finance providers and products exist for social enterprises, with many of these profiled in Social Enterprise UK's start up guide[57]. Different information will be required depending on the specifics of the finance being sought, but in general basics such as the business model, legal structure and amount of finance being sought will need to have been established – particularly as the legal structure also affects the form of finance that a social enterprise can access.

In this instance, the organisation could also consider initial funding from the following sources:

- **Apprenticeship Levy**
  The project contractor could use the social enterprise to support its obligations under the Apprenticeship Levy. As part of the project contract, the contractor could be required to guarantee the operational budget of the organisation for a set period of time.
- **Tender conditions**
  As qualification for contracts, the procurement tender could include a requirement for the contractor to work with the social enterprise, either as a subcontractor or to identify and train apprentices. The tender could also include a specified percentage of local labour to be used on the project, with the social enterprise in a position to assist with recruitment.
- **Section 106 agreements**
  A number of local authorities are exploring the potential for contributions from section 106 agreements to help fund improvements to existing housing stock. Any funds allocated to the social enterprise would not be directly used to improve the housing stock but it could be considered for this funding on the basis that it would stimulate local demand for retrofit and help to build the local supply chain.
- **Local Enterprise Partnership**
  Local Enterprise Partnerships (LEPs) have been allocated structural funds from the European Regional Development Fund to help support local economic growth. These funds may be accessible to the social enterprise if it can provide a robust model for bringing additional employment opportunities to the local area.
- **Charitable foundations**
  Charitable funds which are focused on delivering social outcomes may be willing to offer grant funding for the initial setup and operational costs of the social enterprise. It is likely this funding would have conditions attached to demonstrate ongoing social impact so this would need to be factored into the operations and activities of the organisation.

Once the organisation is established with a track record, it may be in a position to operate as a viable business which can meet its own fixed costs. This could include income contract service revenues won on the open market, for example pursuing ECO funding for the installation of energy efficiency improvements in the local area. Opportunities for cross-subsidising may also exist, such as offering landscaping services to deliver a profit that can support activities which deliver on the social mission of the company.

3.1.4 Enablers

HIGH QUALITY LOCAL WORKFORCE

As with any new social enterprise, it is vital to find the right individuals to lead the community social enterprise and help to build the organisation. The successful operation of the organisation will be heavily dependent on finding employees and volunteers with the required skills to set up and manage the organisation, and the motivation to make it a success. Recruiting from within the local community may be beneficial for increasing trust but it is unlikely that the required skill-sets will all be available in the immediate area.

Equally, creating employment opportunities for local people will only provide ongoing economic benefits if the new workforce is both committed and well trained. From the outset, this will mean identifying whether there is a potential workforce to develop in the local area, and the geographical scope for recruitment may need to be adjusted accordingly. Apprentices will also need to be sufficiently committed to learning and work in order to make the most of this opportunity so the social enterprise should be clear about how it will select the right candidates.

Equipping the new apprentices with the appropriate type and level of skills will also be key to the success of the venture. The training provided must be of a high standard and tailored to working on retrofit projects, in particular this could utilise Retrofit Coordinator training to create better understanding of how the various elements of whole home retrofit work together[58]. Rigorous quality control procedures should be also in place for the work itself because poor quality installations would represent a reputational issue for the community social enterprise.

ESTABLISHING PARTNERSHIPS

Creating an effective partnership between a local authority, a developer and local community groups and ensuring ongoing commitment from stakeholders will be a key determinant of the success for the social enterprise. From a perspective of a local authority, there are likely to be various different teams who have an interest in the project but may be risk-averse in setting up new ventures. At the same time, a construction industry partner will need to ensure that its supply chain is able to support the work programme and there is buy-in throughout the project team for effective collaboration with the social enterprise. And existing community groups will need to be carefully engaged to ensure a sense of ownership is felt among all local residents.

CONSUMER DEMAND

Obtaining customer consent to proceed with works is perhaps the biggest potential challenge to ensuring the success not only of the community social enterprise but also of the regeneration project itself. The organisation will play a vital role in engaging with residents and in doing so it must be able to demonstrate its value in representing the community. It therefore must be involved in the project planning from the outset, with agreement from all project partners on the organisation's role and responsibilities.

Other specific measures will also need to be employed to increase consumer demand for home retrofit improvements including the availability of funding and finance (see the Local Authority Revolving Fund), an effective marketing and communications plan and the creation of 'show homes'. As the consistent point of contact for residents throughout the project, the social enterprise will need to be fully aligned with all of these initiatives.


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3.1.5 Legal and policy considerations

The social enterprise model is well established in the UK with over 70,000 of them already operating across the country, but they do face some unique organisational challenges. For example, as well as ensuring a successful financial bottom line, in a social enterprise you also have to ensure success in terms of your social/environmental mission – otherwise known as the triple bottom line.

Linked to this, not all incentives geared to encourage start-ups are suitable for social enterprises. However, since the establishment of the first UK Social Enterprise Action Plan by the Cabinet Office in 2006, a series of policy measures have been designed to encourage the growth of the sector, with a particular focus on social value (including the Social Value Act 2012) and social finance in recent years. Support also exists from networks such as Social Enterprise UK, which has produced a start-up guide for social enterprises[57].

3.2 LOCAL AUTHORITY REVOLVING FUND

A Local Authority Revolving Fund would provide a range of clear, accessible loan options for private householders to carry out whole home retrofit improvements. These should result in lower running costs, improved living conditions and property value -uplift. Loans would be attached to the property to enable structurally low costs and minimise repayments for those on lower incomes. Repayments would be revolved back into the fund and used to offer further retrofit loans to other householders, resulting in wide-scale regeneration of low income communities over time.

3.2.1 Why is it needed?

The high upfront costs associated with whole home retrofit are a barrier to widespread uptake amongst homeowners, landlords and councils. While improvements to the energy efficiency of buildings can save money on bills, the initial outlay is often beyond the affordability of the average resident. To ensure that every household in an area can benefit from whole home improvements, a range of compelling funding offers are needed which are relevant to all types of tenures and resident circumstances.

Privately owned properties in low income areas pose a particular problem because they are less likely to have the means to pay for improvements than residents in more affluent areas. A lack of appropriate funding options means that privately owned and rented homes (often right-to-buy) can miss out on home improvements during area-based projects which focus on social housing. This leads to "pepper-potted" delivery which only addresses certain homes and fails to truly transform the area and lives of all residents.

Even if loans are made available to these households, it can still be difficult to balance the high upfront costs against the need to keep repayments affordable. The size of loans needed to make whole home improvements would involve long repayment periods, which would necessitate fixed low interest rates to ensure they remain affordable.

3.2.2 What is the idea?

A local authority-owned fund would be able to offer patient capital and structurally low interest rates. The aim is to create a sustainable loan fund where repayments made back into the fund are recycled for future projects. This will allow installer companies to build up knowledge of its existence and avoid boom and bust situations, where funding is only available for short periods.

The Local Authority Revolving Fund should provide affordable financial options for owner occupiers and private landlords making home improvements. The Fund should offer loans which can cover the costs of whole home retrofit improvements as a minimum, as well as wider enabling works to ensure that private households do not miss out on the full benefits of improvement works. Loans could be designed to require a set percentage of funds to be spent on energy efficiency measures achieving an agreed energy performance, with the remainder available for other home improvements (see HEEPS programme Box 2).

The loans would be attached to the property and repaid in full via a local land charge at a termination event – when the property is sold or if the property ownership is transferred. Owners would therefore only be able to access the loans if they have a sufficient equity stake in their property. Owners that do not have a sufficient equity stake in their homes would not be eligible to receive a loan and would require other forms of funding support.

Box 2: Home Energy Efficiency Programme for Scotland

The Home Energy Efficiency Programmes for Scotland (HEEPS) was launched in April 2013 to deliver a step-change in energy efficiency through retrofitting existing homes. The HEEPS equity loans scheme offers a maximum loan value of £40,000, limited to 50% of the property's estimated market value, of which 55% must be spent on energy efficiency with the remaining 45% eligible for wider repairs[60].

Case Study:
Manchester Care & Repair

Manchester Care & Repair is a charity working to improve the homes and lives of older and disabled people. Older and disabled people are most likely to live in unfit housing, yet, if they are receiving means tested benefits or a limited pension income, there is no element to cover repairs and maintenance. Care & Repair assists the older or disabled person to assess their options, obtain finance and supports them through the repair or adaptation process.

On behalf of Manchester City Council, Manchester Care & Repair also administers The Home Energy Loan Plan (HELP), which provides residents with a finance mechanism for home improvements which will improve the energy efficiency or thermal comfort of their homes. To date, the HELP loan fund has made 1135 loans, which have a value of over £3.3 million, available to residents.

Loans under £3,000 have a setup charge, depending on how much is borrowed and an annual administration charge of £26 per year of borrowing. For example, a £1,500 loan repaid over 12 months (1 year) incurs a setup charge of £50 and an annual administration charge of £26. There is no interest charged on the loans, however loans above £3,000 and up to the maximum of £10,000 are subject to a setup charge of £200 and an annual administration charge of £64 per year of borrowing.

To find out more about Manchester Care and Repair visit http://www.careandrepair-manchester.org.uk/

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Up until a termination event, the homeowner would make ongoing repayments to help cover administration costs and recycle capital back into the Fund early. These repayment options should be tailored to different household circumstances and could include:

- **Regular repayments of interest and capital**
  Monthly repayments covering both capital and interest fixed at affordable levels for the householder. Available to customers who can afford monthly repayments, with the repayment period and potentially the interest rate adjusted according to affordability.
- **On-bill finance linked to expected energy bill savings**
  Fixed repayments of capital and interest paid through the household energy bill. Repayments could be limited to the expected energy bill savings in a similar way to the Green Deal Golden Rule, or they could be set above this amount at an affordable level for the householder.
- **Regular repayments of interest only**
  Fixed monthly repayments which cover the interest on the loan only. Available to customers on lower incomes who can only afford smaller monthly repayments.
- **Compounded interest and capital paid at point of sale**
  No monthly repayments but interest compounds annually and the loan is repayable in full when the property is sold or ownership is transferred. Only available to households that do not have sufficient income to cover ongoing repayments but have sufficient home equity which will allow costs to be covered though a termination payment. The administrative costs of these loans may need to be offset by ongoing repayments from other types of loans being paid back into the Fund.

There are of course ethical issues to consider when offering loans to low income households so it will be vital that repayments are affordable and tailored to individual circumstances. High quality home improvements are therefore essential to ensure that the debt can be offset as far as possible by lower running costs through guaranteed energy bill savings and increased property value.

As with any loan mechanism, the Local Authority Revolving Fund itself will not drive significant demand for home retrofit. As such, it will need to be introduced alongside other measures and incentives to encourage demand, one of which could be the role of the Community Social Enterprise to engage local residents (see above). A retrofit-led regeneration scheme should provide the ideal situation for launching a fund by providing the initial demand to get the scheme up and running.

A retrofit-led regeneration scheme should provide the ideal situation for launching a fund by providing the initial demand to get the scheme up and running.

Case Study: Warm Up Bristol

Warm Up Bristol, set up in 2014, aimed to provide a long term, accessible and sustainable loan mechanism to improve the energy efficiency of the domestic housing market. In 2014 Bristol City Council invested £2 million of unspent capital grant funding into the ethical revolving loan scheme.

The scheme targeted private owner occupied and the private rental sector offering loans with fixed interest rates with no setup fees but including options for overpayments, and early repayments without additional charges. Depending on their circumstances, residents were offered a secured or unsecured loan, with loan terms of up to 15 years.

The scheme successfully implemented over 1,000 energy efficiency measures, particularly solid wall insulation, but was ended in September 2017 due to a lack of demand.

To find out more about Warm Up Bristol visit https://warmupbristol.co.uk/

3.2.3 Setup

STAKEHOLDERS AND PARTNERS

The first step in establishing a Local Authority Revolving Fund is to define who will have ownership of the scheme. This could be a single local authority, or multiple, working together on a single fund. Joint working would offer the prospect of lowering setup and operational costs but it may add complications if local authority borrowing is to be used.

A Fund run by a local or combined authority would need clear internal ownership and administrative resources to manage it. This could fall between teams so clarity would be needed to ensure it is run effectively and is clear to users. There may be need to set up a special purpose vehicle or organisation to solely deliver the scheme. Depending on the context, leadership could sit with a Housing, Carbon/Sustainability or Regeneration teams. Assistance and expertise will be needed from Finance teams, while input will be required from Environmental Health Officers, Public Health Officers and Planning and Development Management Officers. At a political level, it is also important to identify sponsors in the form of Local Councillors to secure support.

BUSINESS MODEL AND GOVERNANCE

Consideration should be given to whether the Fund will provide loans directly from the local authority, or whether a special purpose vehicle (SPV) company is required. For example, Bristol City Council set up a Community Interest Company to manage the 'Warm Up Bristol' loan scheme[61]. Delivering the Fund from within a local authority without a separate company will be administratively simpler and cheaper to establish, but may not lend itself to low cost operation which can serve multiple authorities. Establishing an SPV would also increase the flexibility to refinance the Fund at a later date.

It is vitally important to confirm the compliance arrangements with the FCA and obligations under consumer protection legislation. There may be scope for this to be done via a single umbrella body such as the Local Government Association (LGA) to ensure a common view across all authorities. This will inform how loans can be sold and by whom, and what liabilities the lender may have to carry in relation to selling and administration.

Setting the geographical scope of the Fund will shape the market and customers for the scheme. The Fund could be made available to households across the entirety of the participating local authority or it could be restricted to defined areas, either based on indicators of need or using defined regeneration areas. Making funding available across the whole local authority area would offer the biggest potential market, and issuing a larger number of loans would help to lower the costs to consumers. But careful design may also be needed to ensure that sufficient funds remain available for households in the regeneration area, for example offering variable interest rates based upon eligibility could help to limit allocation of the fund to able-to-pay householders in the wider area.

Estimates of the underlying need in the area of operation and the expected conversion rate to actual demand will help to establish an implied funding need. While this will only be approximate, this is important to clarify the funding options, administrative arrangements and cost recovery for the scheme.

Case Study: Kick Start

The West Midlands Kick Start Partnership scheme, which ran from 2003 to 2012, assisted vulnerable homeowners in carrying out home improvements and modernisations to their homes as part of the government's Decent Homes Standard. The scheme offered technical and financial advice, project management and loan finance.

Loans were available to those who would not normally be able to secure one through the normal sources of private finance. Typically, these were people who may have bought their property through 'right to buy' schemes or people who were on low incomes but owned their property. This meant improvement works would not be carried out directly by a landlord, RSL or local authority.

Loans were based on a loan to value repayment rate. For example, if a homeowner was lent £15,000 and their property was valued at £100,000 then that meant 15% of the value of the house was being loaned. The loan was redeemed on sale of the property and, if the value had increased, 15% of the sale value was repaid. If the value of the property remained the same or had reduced, only the initial loan amount was payable.

Kick Start gained significant experience in community engagement and got to understand how and where to effectively engage with residents to encourage them to take loans and undertake improvement work.

To find out more about the Kick Start scheme see: http://eservices.solihull.gov.uk/mginternet/Data/CPH%20Economic%20Development%20&%20Regeneration%20Decision%20Session/201006151815/Agenda/Appendix%20A%20-%20att24773.pdf


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FUNDING

The key challenges for establishing the Local Authority Revolving Fund will be securing capital for the loans and initial funding for setup costs and marketing. Over time, the initial loan capital will be paid back into the Fund and can be used to offer further retrofit loans, which is a key differentiator of a revolving loan model. The rate at which the Fund revolves will depend upon the type of loans being offered, for example a higher proportion of equity release loans with no ongoing repayments would result in a slower rate. So local authorities may also consider refinancing the fund from other sources to ensure there is sufficient capital to meet demand.

The Fund should aim to operate as a quasi-commercial operation recovering its own financing, marketing and operating costs. Once a sufficient number of loans have been issued, it should be possible to cover these costs through income from interest repayments, but the initial setup and marketing costs will still pose a significant challenge. It may be difficult to meet these initial costs from existing local authority budgets so funding may need to be sought from central government or Local Enterprise Partnerships. In the longer term, if the Fund does not achieve significant scale administration costs will either push up customer costs or require an operating cost subsidy.

Local authority borrowing and reserves

A number of previous home retrofit programmes have used local authority reserves to provide the initial loan capital. The 'Warm Up Bristol' scheme was set up along these lines with the goal of it leading to no capital or revenue implications to the Council. It was initially financed by around £2 milllion of unspent capital grant funding awarded to Bristol City Council in 2014 being invested into an ethical revolving loan scheme[61]. Similarly, the Kirklees 'Warm Zone' scheme made use of capital from the sale of an airport to fund improvements, although these were in the form of grants rather than loans[62]. However, many local authorities are unlikely to have sufficient reserves that can be committed to the Fund unless the scheme is relatively low in value.

Most local authorities are therefore likely to use the alternative funding route of borrowing capital from the Public Works Loan Board (PWLB). This would help to ensure that the cost of capital is kept low due to the lower rates available to local authorities through the PWLB than for commercial lending. A PWLB loan would be made directly to the local authority, whether or not the Revolving Fund has an SPV company, meaning this would probably require political support to authorise the additional borrowing. It should be noted though that while this would affect on public sector debt levels, it would be within prudential borrowing rules because it would be backed by the income from the loans.

Central Government grants

Some of the more successful retrofit loan schemes have ultimately been funded by central government grants. This route may allow a greater number of local authorities to establish their own funds regardless of their own financial circumstances, but it would require strong political support from the Government. At the same time a reliance on central government grants can lead to uncertainty and short-term offer. For example, the Kick Start scheme in Birmingham was forced to cease issuing new loans when funding from DCLG was withdrawn.

Instead of providing the initial capital, central government could also play a role in guaranteeing a Fund to reduce the cost of borrowing for householders. This setup has been utilised as part of the Scottish HEEPS trial, with the capital risks effectively underwritten by the Scottish Government[60].

Local Enterprise Partnerships

Local Enterprise Partnership covering the local authority may be able to contribute some start-up capital to the Fund. LEPs have been given the responsibility to allocate European Regional Development Funding in order to support economic growth in their areas, and the jobs and investment offered by a retrofit-led regeneration project should mean that a Revolving Fund is an effective way to achieve this aim. It is unclear what funding may be provided to LEPs once the UK leaves the EU, but if they are to maintain the same role of promoting local development then further structural funds may be made available.

Private sector investment

Private investment from institutions such as banks or pension funds could be used to help recapitalise the Fund, allowing it to revolve faster for investments in further projects. Once the initial capital has been allocated to loans, the fully deployed Fund could be sold onto a private investor. The fund would need to be structured so that such a sale is possible and the interest rates and the terms of the loans must be fixed to protect the residents from changes being made to their repayments. It is unlikely that the full value of the loan book could be realised through a sale to a private investor, but this may be deemed necessary to free up capital for further loans.

Investor Confidence Project

The Investor Confidence Project (ICP) is an initiative developed in US to help leverage private investment into building energy efficiency projects. ICP offers a consistent and transparent framework which brings together existing technical standards for developing projects, determining savings, and documenting and verifying results. The project was awarded Horizon 2020 funding to develop frameworks for the European market.

Projects that are compliant with the framework protocols can be certified under the ICP's Investor Ready Energy Efficiency international (IREE) certification scheme. The certification signals to investors that a building retrofit project meets industry best practices at each step of the retrofit process, from project planning through to measurement and verification. To qualify for certification, the frameworks must be implemented by accredited professionals.

ICP Protocols and IREE certification are currently available for commercial buildings and multi-unit residential blocks, but not for single domestic dwellings. However, there is the potential to utilise the principles of ICP for area-based delivery to individual homes. As such, the protocols could be used to set requirements for installations funded by the Local Authority Revolving Fund. This would help to safeguard the investment for the local authority and potentially make the fund more attractive and secure if it is to be sold on to private investors.

Further information about ICP including the current protocols are available at europe.eeperformance.org

Case Study: Brussels Energy House Loans

The Brussels Energy House Loans, launched in 2008, is a partnership between the Regional Administration Brussels Environment and the Regional Budget, and a banking institution (Credal). The scheme offers a combination of loan, subsidy and guarantee funds for insulation, ventilation and heating packages to provide households with a funding mechanism for energy efficiency measures.

The loans are from €500-€25k, with 0-2% interest over a maximum of a 30-year period. To date the bank has dispersed €4,524,848 of loans, of which only one has not been repaid.

To find out more about Brussels Energy House Loans see: http://www.energy-cities.eu/db/Brussels_green_loans_infinite_2014_en.pdf

Brussels Energy House Loan website (in French): http://www.maisonenergiehuis.be/fr/incitants-financiers

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3.2.4 Enablers

QUALITY ASSURANCE

High quality home improvements and clear eligibility criteria for the supply chain are important to provide protection to the local authority and customers. This will mean working closely with the industry to determine effective quality assurance procedures which do not create undue burden. The Each Home Counts Review identified a number of recommendations for supply chain accreditation in this field[63]. This is important to provide sufficient confidence and redress for customers, and to drive up standards in the quality of work by ensuring there is sufficient monitoring and enforcement by a robust accreditation body. Consideration could also be given to requiring a Retrofit Coordinator or Clerk of Works to reduce the risks associated with multiple measure installations[58]. The protocols of the Investor Confidence Project could also provide a framework to ensure the quality of planning and monitoring for the improvements[64].

CONSUMER DEMAND

A lack of demand is one of the key barriers to implementation and this has proven to be the case with many existing schemes offering loans for energy efficiency improvements. A major reason for low take-up is often low levels of awareness on the part of potential customers that loans for retrofit are available. In this case people who may well be eligible for a loan simply don't know that the loans are available. Even when people are aware of the availability of loans for retrofit, they do not think that they would be eligible. Potential loan recipients may also be unaware of the potential benefits of a loan in providing them with cost savings through reduced energy bills, improved comfort and health benefits. The Brussels Energy House Loan scheme undertook research into the issue of awareness and it turned out that over half of respondents did not know about the scheme. Out of the 45% respondents who knew about it, 82% did not consider applying for a loan for various reasons, mainly because they believed they were not eligible or did not need it[65].

Nonetheless, it should be noted that universally available and attractive finance on its own will not encourage significant demand. This can be seen in the example of the HEEPS programme, which has shown that even a 0% finance offer is insufficient on its own to stimulate widespread consumer demand[60]. It is therefore important that the Fund is introduced alongside other measures specifically designed to increase demand. As well as local marketing and incentives, the Community Social Enterprise could help to provide a baseload of demand in the regeneration area.

TECHNICAL EXPERTISE IN THE LOCAL AUTHORITY

Local authorities would require a broad range of expertise in-house to administer a Revolving Fund, including financial management, marketing and communications, customer services and legal and consumer protections. Each of which will require support from across teams within the local authority, although some of this expertise could be brought in through partnerships, for example with financial institutions or credit unions.

3.2.5 Legal and policy considerations

ABILITY TO FINANCE

Under the Local Government Act 2003, a local authority may borrow for any purpose relevant to its functions or for "the prudent management of its financial affairs", and the amount borrowed is governed by CIPFA's "Prudential Code for Capital Finance in Local Authorities" and by the Local Authorities (Capital Finance and Accounting) (England) Regulations 2003. Borrowing from the PWLB for the Fund should be compliant with the prudential borrowing rules because it would be offset by the income from repayments.

FCA AUTHORISATION

Most lenders require Financial Conduct Authority (FCA) authorisation to lend, although under certain criteria local authorities do not need FCA permission. These criteria do not necessarily cover all possible circumstances of lending in respect of retrofit and regeneration projects so it is essential that the position is properly investigated if local authorities are to utilise this route. In order to provide additional clarity to local authorities, the Government should request that the FCA define more clearly the circumstances and products that would not require relevant permissions.

ENERGY COMPANY OBLIGATION

An additional option which could help to capitalise the Fund would be to allow energy companies to pay in the scheme as a buy-out for their Energy Company Obligation targets. This would involve making a contribution into the fund in return for deemed savings which would count against their overall targets. This would require legislation change to enable targets to be met in this way.

Get involved

The Community Social Enterprise and Local Authority Revolving Fund concepts draw on existing initiatives but have been tailored to the needs of retrofit-led regeneration projects. The next step for developing these two innovations will be trialling these approaches on real projects. We welcome expressions of interest from Local Authorities, Registered Providers, developers and the construction supply chain.

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Glossary

Comfort Take – After energy efficiency improvements have been made to a property the resident may choose to increase heating temperatures to improve comfort levels. This can offset some or all of the potential energy savings from the improvements. This is particularly common among fuel poor households who were previously unable to afford to heat their home to adequate temperatures.

ECO – The Energy Company Obligation is a government policy which sets targets for domestic energy suppliers to deliver energy efficiency measures to households

EPC – Energy Performance Certificates provide an A-G rating of the energy performance of a property. EPCs are required at the point of sale of rent and are produced from an assessment undertaken by a Domestic Energy Assessor.

EWD – Excess Winter Deaths are the difference between the number of deaths during the winter months (December – March) and the average number of deaths during the preceding four months (August – November) and the following four months (April – July).

FCA – The Financial Conduct Authority is the regulatory body in the United Kingdom for financial markets and financial firms providing services to consumers.

GLA – Greater London Authority

LEP – Local Enterprise Partnership

LGA – Local Government Association

LIHC – Low Income High Costs is the official measure of fuel poverty in England. Under the LIHC indicator, a household is considered to be fuel poor if: [1] they have required fuel costs that are above average (the national median level), [2] were they to spend that amount, they would be left with a residual income below the official poverty line

PWLB – Public Works Loan Board's function is to lend money from the National Loans Fund to local authorities, and to collect the repayments.

RP – Registered Providers of social rented homes

SAP – Standard Assessment Procedure methodology which is used to calculate EPC ratings

Section 106 Agreements – legal agreements between Local Authorities and developers; these are linked to planning permissions and can also be known as planning obligations

Social Enterprise – an organisation that applies commercial strategies to maximise improvements in human and environmental well-being- this may include maximising social impact rather than profits for external shareholders

SPV – Special Purpose Vehicle

SWI – Solid Wall Insulation

Whole home retrofit – an approach that is focussed not only on the household improvement measures, but on achieving outcomes for residents and regeneration area.

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