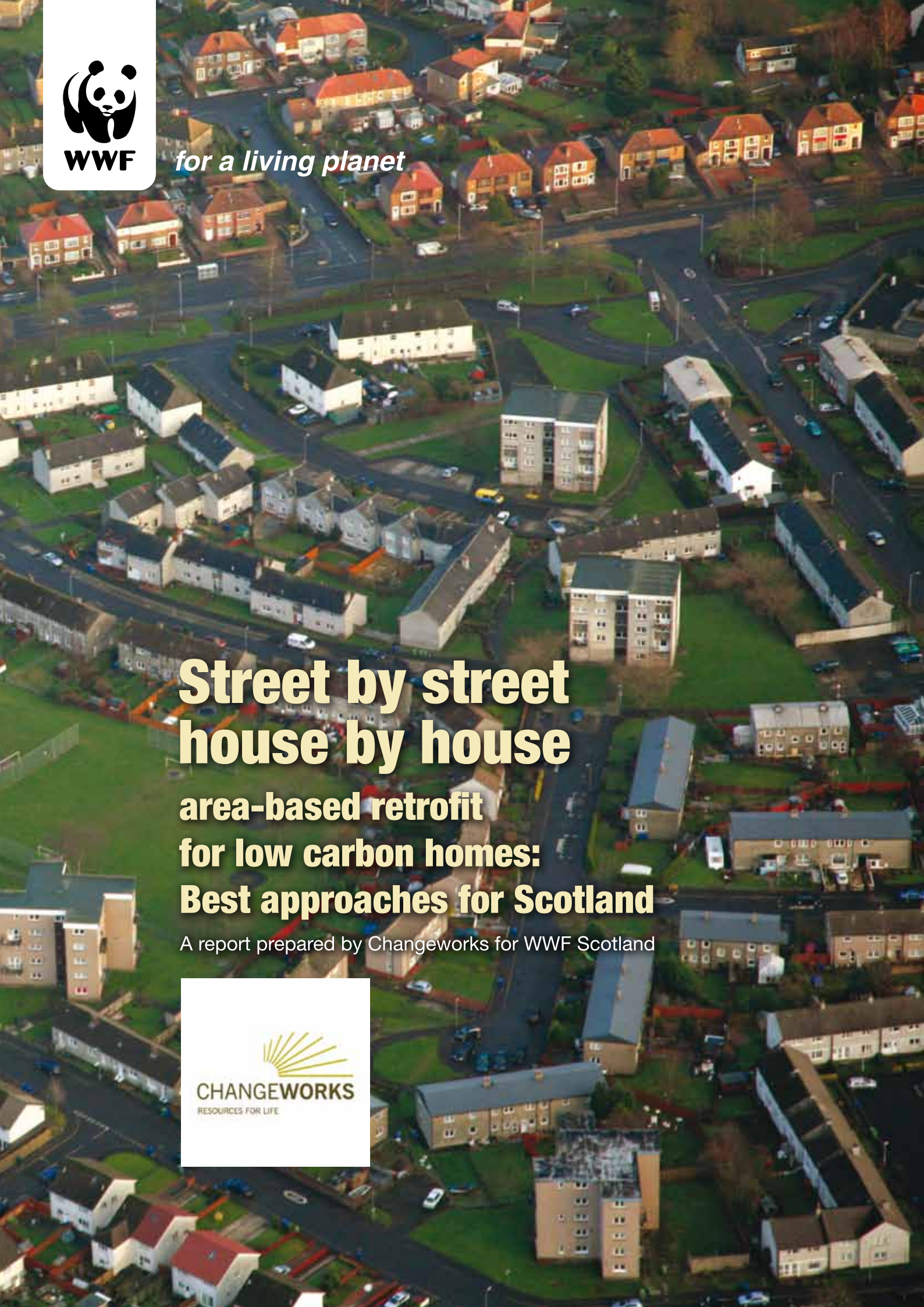

WWF

for a living planet

Street by street house by house

area-based retrofit for low carbon homes: Best approaches for Scotland

A report prepared by Changeworks for WWF Scotland

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RESOURCES FOR LIFE

April 2010

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Street by street house by house

area-based retrofit for low carbon homes: Best approaches for Scotland

Foreword

This report is based on the WWF Scotland conference, 'Street by street, house by house, area-based retrofit for low carbon homes: Best approaches for Scotland' – an event I found both fascinating and inspiring. From policy development to what's happening on the ground it provides a good analysis of where we are – and where we need to be – in this vital sector. You cannot fail to conclude that we still face a tremendous challenge to deliver warm homes and reduced climate emissions on the timescales required.

We all know that housing probably offers the easiest, most cost-effective and popular way to deliver carbon emissions reductions. At the same time, we would address fuel poverty and create green jobs. We know what needs doing but we are failing to get the right measures in the right homes on anything like the scale needed.

From the conference it is clear that the neighbourhood approach can result in higher take-up, lower costs of installation and administration. We very much welcome the £10m 'universal' scheme announced in the 2010–2011 budget. It will be great to see the results of this new scheme, but we need to move much faster if the housing sector is to deliver.

This report suggests how current schemes and the supporting policy framework need to change in order to meet the carbon emissions and fuel poverty targets Scotland has set. It explores the financing options, looks at whether free loft and cavity wall insulation should be a feature of all area-based schemes, as well as recommending the urgent introduction of minimum energy efficiency standards for private housing.

Scotland has the best climate legislation in the world and a tough target for 2020 but our excellent international example will only remain credible if we deliver on real reductions. The housing sector is key to this and we hope this report will help Scotland accelerate along the path we have already started down.

We want to thank our partners, Changeworks, for their hard work in supporting the conference and writing this report. Thanks also to our funders for their support and input: the Scottish Government, the Energy Saving Trust, and the Sustainable Development Commission Scotland.

Dr Richard Dixon

Director, WWF Scotland

Contents

1. Introduction

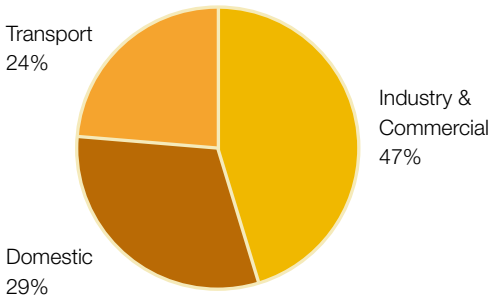
With housing accounting for around one third of Scotland's emissions, and reductions proving hard to deliver in other areas such as transport, climate change targets won't be delivered without increased action in this sector. Identifying the quickest and most cost-effective way of achieving deep cuts from individual properties across Scotland is essential. The area-based approach is viewed by many as the best means to deliver the scale and pace of change required. This report aims to summarise current approaches to area-based schemes in Scotland and how they should be supplemented. It draws on a cross section of case studies and the findings of a major one-day conference organised by WWF Scotland 'Street by street, house by house, area-based retrofit for low carbon homes: Best approaches for Scotland'[1].

Eighty delegates attended the conference, representing local authorities, fuel suppliers, installers, community groups, environmental organisations and policy makers. Together they discussed and debated the key barriers and opportunities to the roll out of a more intensive approach. The findings of workshops and plenary sessions from the day have informed this report. This report considers case studies, discusses key issues and then goes on to suggest the way forward.

1.http://scotland.wwf.org.uk/streetbystreet/

Scottish final energy consumption by demand sector 2006

Source: DECC Regional Consumption Data 2006, June 2009 update.



2. Context: Housing and climate change targets

The scientific evidence in relation to risks of uncontrolled climate change is compelling and this is at last being reflected at policy and political levels in terms of targets to reduce emissions. In this respect, Scotland is a world leader, through setting ambitious targets in law. The Climate Change (Scotland) Act 2009 sets the statutory framework for greenhouse gas emissions reduction in Scotland by setting an interim 42% reduction target by 2020, en route to an 80% reduction target for 2050, punctuated by annual targets to be set by Ministers. The Renewable Heat Action Plan for Scotland has set out the target that 11% of the heat consumed in 2020 will be from renewable sources. The report states:

"efforts to meet the target in the domestic sector will require retrofitted micro-renewables as well as district heating schemes."[2]

Critical to meeting these targets will be addressing household energy use, which accounts for 29% of energy consumed and 30% of greenhouse gases[3]. Improving the energy efficiency of the domestic sector will not only be critical to tackling CO_2 emissions but also to realising statutory obligations to reduce fuel poverty by 2016 set out in the Scottish Government's Scottish Fuel Poverty Statement in 2002. This means tackling a legacy of housing that's not energy efficient and ensuring that new housing rapidly becomes carbon neutral. *A Low Carbon Building Standards Strategy for Scotland* (Scottish Building Standards Agency 2007)[4] established a 'route map' for achieving significant improvements in new buildings. However, the report only touched on improving the energy efficiency of existing housing and their carbon reduction was hardly addressed.

Carbon Countdown for Homes (WWF Scotland 2008)[5] sought to redress this balance recognising the need for an integrated strategy "to bring together related policy objectives, and a suite of delivery mechanisms". Many of the issues addressed by this report and its recommendations have direct relevance to area-based initiatives and how they can be delivered. The report contained a simple definition for an area-based scheme stating that: "all residents within an area are offered an improvement package to bring their homes up to a required standard no matter what the tenure or financial circumstances of the householder."[6]

To date, mainstream energy efficiency programmes such as the Carbon Energy Reduction Target (CERT) and its predecessors have focused on the most cost effective measures. However, despite over a decade of these programmes, there still remains considerable work to insulate the nation's lofts and cavity walls. The UK Government has set as an amition that all lofts and cavity walls, where practicable, be insulated by 2015.

Scottish Government projections show one scenario for meeting climate change targets would require 625,000 cavities to be filled, 202,400 solid walls treated, 1.5 million lofts better insulated and 1.6 million boiler upgrades[7]. Projections show that current rates of delivery will fall short of this target[8], despite the subsidised costs and quick payback times for some measures that are available to households. This has been acknowledged by the Scottish Government:

"Opportunities for cost-effective improvements in energy efficiency exist. However, in the domestic sector, take-up of energy efficiency measures has been disappointing despite successive campaigns." [9]

This implies new models of delivery will be needed, with the most tried and tested option being area-based schemes.

Area-based schemes might help to accelerate the roll out of loft and cavity wall insulation, however unless more expensive measures such as solid wall insulation are offered, significant parts of the stock, such as historic and solid wall properties will not be reached. *Home Truths: A Low-Carbon Strategy to reduce UK housing emissions by 80% by 2050* (Boardman 2007) recommends that area-based approaches need to include low and zero carbon technologies, rather than just energy efficiency measures, if 2050 targets are to be met.[10] With estimates that upgrading standard properties could cost £3,000 to £4,000 and £12,000 to £20,000 for harder to treat properties[11], the need for economies of scale are even more pressing.

This report discusses the limited progress to date and emerging programmes aimed at harder to treat properties. This report uses the description set out in the UK Government consultation 'Heat and Energy Saving Strategy', that a whole-house strategy means

"considering a household's energy and CO_2 impacts as a whole, and establishing a comprehensive package of measures (including microrenewables where appropriate) to address them."[12]

Tackling properties on this scale and intensity perhaps bears more resemblance to the Housing Action Areas and General Improvement Areas of the 1960s and '70s than a Warm Zone. It is also a long way from the current schemes being delivered in Scotland at present, although it's important to capture and build on the best elements of these projects when considering the way forward.

2. Renewable Heat Action Plan for Scotland: a plan for the promotion of the use of heat from renewable sources, November 2009, http://www.scotland.gov.uk/Publications/2009/11/04154534/0

3. DECC, Regional Consumption Data 2006, June 2009 update, in Conserve and Save: A consultation on the energy efficiency action plan for Scotland, Oct

4. A Low Carbon Buildings Standards Strategy For Scotland, Scottish Government 2007 http://www.sbsa.gov.uk/sullivanreport.htm

5. WWF Scotland Carbon Countdown for Homes' 2008 p.26 http://scotland.wwf.org.uk/research_centre/index.cfm?2121

6. 'WWF Scotland Carbon Countdown for Homes' 2008 p.26

7. Conserve and Save Consultation On the Energy Efficiency Action Plan For Scotland, Scottish Government October 2009 p.72

8. Ibid p.58

9. Ibid p.25

10. Home Truths: A Low-Carbon Strategy to reduce UK housing emissions by 80% by 2050, by Brenda Boardman, November 2007

11. Presentation to the WWF Scotland Street By Street Conference by David Adams, Knauf Insulation 22 October 2009

12. Heat and Energy Saving Strategy, Consultation, Department of Energy and Climate Change, February 2009

3. Case studies

3.1 Introduction

This report includes ten contemporary case studies to illustrate a range of approaches to the development of area-based schemes in Scotland. This is not a comprehensive picture of all schemes in Scotland but a cross section of how different groups and areas have rolled out energy efficiency within a given area. Comparing and contrasting schemes is problematic, as most are at different stages of delivery and there is no consistency in evaluation and reporting of outcomes. Furthermore, it's important to recognise that most of these schemes were only able to fund limited measures (mainly cavity and loft), and most had limited data on homes that already have had these measures installed. These factors invariably reduced the proportion of properties that could be treated by each scheme.

3.2 Urban and Suburban Schemes

The Low Energy Saving Scheme (LESS)

Solas Insulation Ltd delivered LESS in partnership with West Dunbartonshire Council and Scottish Hydro Electric in 2008. A follow up scheme in Inverclyde Council was launched subsequently in 2009. LESS is a community-based model developed by Solas Scotland, which delivers CERT-backed insulation measures and provides referrals to other programmes for energy saving and income support. The measures being delivered are conventional cavity fill and loft insulation, with 10,000 homes targeted and 3,500 (35%) engaged. 867 measures were delivered, although some homes may have received more than one measure. Between 3 and 4% of homes targeted received either cavity wall insulation or loft insulation. Average annual savings were £187.74 compared to installation costs for the household of £135 of loft insulation and cavity wall at £144. The more intensive marketing and targeted approach allowed the installer to deliver lower prices. An integral part of the marketing activities was endorsement from the council and local politicians. Although the project targeted both the CERT 'priority group' and 'able to pay' customers, it also established clear referral paths for other support and income maximisation. As a franchise model, utilising existing funds, LESS is easy to duplicate and roll out. However, whilst LESS is a step forward, it also shows the limitations of existing CERT-based schemes in terms of the response rate that can be achieved even with a well co-ordinated and focused promotional campaign and keen pricing package.

Dundee Community Energy Partnership

Until recently, Dundee hosted the best example of an area-based scheme in Scotland. Dundee City Council delivered the DCEP project in partnership with Transco, the Claverhouse Group, Scottish and Southern Electric, ScottishPower and the Energy Saving Trust from 2002 to 2005. The project covered the whole Dundee City Council administrative area. The Energy Saving Trust provided direct funding for running costs, and measures were installed using a number of existing funding streams such as Warm Deal, the Central Heating Programme and Energy Efficiency Commitment (EEC) the forerunner to CERT. SCARF, a local energy advice service, developed a simple integrated energy, benefits and income maximisation advice package delivered by an advice worker. The project sought to visit all properties within the area targeting 75,524 households on a ward-by-ward basis. 60,224 households (83%) were contacted by a home visit and 12,500 by post (17%). 28,331 (39%) homes received surveys. 874 properties received measures and a further 753 received follow-up energy advice and benefits checks. The programme found that almost 70% of those identified as being in fuel poverty already had measures in place or were ineligible for grants. For these individuals the options were to provide energy advice and focus on realising benefit entitlements[1]. Given this context, the single biggest factor in helping lifting people out of fuel poverty was the provision of benefit checks and increases in household income[2].

The innovative aspect of this project was the recruitment and training of unemployed over 50s by the Claverhouse Group to undertake the household surveys. Dundee's experiences pose a number of questions, firstly the feasibility of a city area-wide approach and whether a more targeted area-specific approach would have yielded better results. The project managers also questioned whether in hindsight the outsourcing of the surveying element of the project aided the overall delivery of the project. In terms of replication, it is notable that apart from a project with some similarities in South Lanarkshire, and a feasibility study in Edinburgh, this model has not been rolled out in Scotland. This may in part be due to the unique mix of the project specific funding.

1. CAG consultants (2004) The Benefits of Community Based Energy Efficiency Projects: Report for the Energy Partnership for Homes
2. Scottish Power Energy Efficiency Commitment Annual Report 2004/5

Linlithgow Climate Challenge

©Linlithgow Climate Challenge

Linlithgow Climate Challenge provides a good example of a community group working in partnership with the Energy Saving Scotland advice centre. The project used local knowledge and community action and activities to supplement the advice centre's area-based promotional campaign.

These Energy Saving Scotland advice centre campaigns, branded "hot spots', are along similar lines to the LESS model where an intensive promotion is used to deliver favourable prices from an installer through achieving higher conversion rates and economies of scale. The advice centre's role involves securing the best deal from the installer then acting as a first point of phone contact for householders before making a referral for the installation. Promotional material is co-branded by the advice centre and the local council. In the case of Linlithgow, the community group worked closely with the advice centre's Community Engagement Officer to develop a series of supporting events and local press releases and door knocking. Local politicians were also engaged. 7,000 households were contacted by the advice centre via a mail shot and a further 700 letters were hand delivered by Linlithgow Community Challenge. The result of this work was 137 loft insulation measures delivered and 78 cavity wall insulations, with the Energy Saving Scotland advice centre being pleased with the quality of the leads and conversion rate generated by the project. A further phase of the project has taken place utilising thermal imaging as a promotional tool.

The advantage of the approach is that it avoided duplication and maximised synergies between an active community group and its local advice centre. This is also a model that would be easily replicable in terms of roll out given that every area of Scotland is covered by an Energy Saving Scotland advice centre. It does, however, provide further evidence of the challenge of promoting mass take up of low cost insulation measures across an area, even with a sustained and well-organised marketing campaign backed by an active local community.

The Home Insulation Scheme (HIS)

The most extensive programme of area schemes in Scotland to date commenced in October 2009. Whilst it is too early to know the outcome of this programme. it is important to document this approach given that it reflects the methodology of a major Scottish Government programme. It drew its inspiration from the successful scheme in Kirklees[1], which offered free insulation across an entire municipal area. The Scottish Government, however, decided to go for a scaled-down version of this model with a £15m 'hybrid' programme. This offered free insulation only to the CERT priority groups but to all for loft top-ups. Funding was also made available for additional enabling measures such as loft vents, scaffolding and assistance with higher travel and storage costs in the islands. The scheme makes at least £9m available for energy efficiency measures of which £750,000 was provisionally allocated to the enabling fund[2]. There is also access to the Energy Saving Scotland Home Loan scheme, which offers interest free loans to those householders wishing to carry out further energy efficiency work, for example, in hard to treat properties for which loft or cavity insulation is unsuitable.

Progress in setting up the scheme has been rapid from its inception in the early months of 2009 to selecting areas in late spring, with delivery starting in late autumn. The first year of the scheme is due to be completed in March 2010. The scheme aims for a high uptake of energy efficiency measures through doorstep energy assessments, benefit checks and/or tariff checks. HIS uses the economies of scale, enabled by an area-based approach, to offer householders an attractive deal, in terms of free or discounted insulation measures, and to minimise the time and effort associated with arranging for measures to be installed. HIS areas range from a citywide scheme in Stirling to one covering parts of Kirkwall and Stromness in Orkney[3].

HIS is managed by the Energy Saving Trust on behalf of the Scottish Government and delivered through the network of Energy Saving Scotland advice centres operated by the Trust. The Trust also delivers the Scottish Government's support programme for the fuel poor, the Energy Assistance Package (EAP), which operates across the whole of Scotland. This dual management of HIS and EAP enables full integration of the two packages with fuel poor households identified by HIS doorstep visits being referred for help under EAP.

Under the Home Insulation Scheme an estimated 99,283 dwellings will be targeted by March 2010. Scottish Government is providing £15m funding (with matching funds being sought from local authorities, utility company Carbon Emissions Reduction Target and householder contributions) by March 2010. The total housing stock in Scotland is estimated at approximately 2.4 million dwellings. Based on current delivery, the remaining housing stock of around 2.3 million houses could cost £355m to reach and engage under the Home Insulation Scheme. To complete a sweep through all Scotland's houses would take over 20 years based on 2009 levels of funding (assuming no efficiency savings in scheme delivery are possible), failing to fulfil the potential of housing to help meet Scotland's 42% carbon emissions reduction target by 2020.

The Scottish Government has committed to increase its support for area-based schemes from £15m in 2009-10 to £25m in 2010-11. This will consist of £15m continuing investment in the Home Insulation Scheme and an additional £10m for a new universal access area-based scheme in targeted areas. If this additional investment is maintained in future years, this could enable coverage of Scotland to proceed at a faster pace.

Whilst the Scottish Government aspires to much higher levels of take up than other schemes, due to the intensity of approach, it does not offer subsidised measures aimed at hard to treat properties, other than the current offer of interest-free loans. Nor can HIS ensure that every property eligible for cavity wall and loft insulation will be tackled. This is an issue for all area-based schemes which could be addressed with the enabling powers in the Climate Change Act (Scotland) Act for the introduction of minimum energy efficiency standards. However, it is important to note that the current activities reflect the first phase of a programme which could increase in its reach and capacity.

1. Kirklees Council see: http://www.kirklees.gov.uk/community/environment/energyconservation/warmzone/warmzonefaq.shtml

2. Scottish Government Supplementary Evidence to the Scottish Parliament Local Government and Communities Committee October 2009

3. For a complete list of 2009-2010 schemes see Scottish Government, areas covered under HIS until March 2010, http://www.scotland.gov.uk/Topics/Built-Environment/Housing/quality/his/areas

HIS Programme delivery model

- 18 advisors will target 13,000 homes in Edinburgh and 14 advisors will target 10,000 homes in Fife
- Both HIS Edinburgh and HIS Fife are aiming to deliver targets in 19 weeks
- Advisors receive City and Guilds energy awareness training and are briefed on the Energy Assistance Package (EAP) to enable them to identify which households may qualify for the programme
- Advisors have flexible working hours to cover evenings and weekends to ensure as high an engagement rate as possible
- Each house receives up to 3 visits in an attempt to contact the residents, which means each advisor knocking on approximately 40 to 120 houses a week depending on whether residents are in on the first attempt or must be revisited.
- Households suitable and willing for insulation measures are directly referred to the partner installer
- Households which qualify for the EAP are referred to the Energy Saving Scotland advice centre

HIS Edinburgh and Fife: Development of an area-based scheme

The City of Edinburgh Council, working with Changeworks and the Energy Saving Scotland advice centre South East, successfully bid for a Home Insulation Scheme (HIS) project to target the Craigentinny and Duddingston electoral wards. Craigentinny and Duddingston, with approximately 13,000 dwellings were selected because they have a good proportion (compared to other areas in Edinburgh) of low rise properties which are ideally suited for CERT-supported loft and cavity wall insulation measures. The number of social rented properties was also modest; this is important because in most cases council capital programmes will have already put insulation in place for these properties.

The Energy Saving Scotland advice centre South East used the national Home Energy Efficiency Database (HEED) to analyse the potential uptake of loft and cavity wall insulation, as well as clients for the Scottish Government's Energy Assistance Package. Furthermore, a number of pockets of fuel poverty were identified from a previous council property mapping exercise. This exercise demonstrates that the Council holds limited data on housing types beyond properties that are currently, or were formerly part of, its stock. HEED proved a useful targeting tool at a citywide level. The scheme is now (end of December 2009) at the delivery stage, which is being managed by the Energy Saving Trust, with the delivery team, (which will also target 8,995 homes in Fife) managed alongside the staff of Energy Saving Scotland advice centre South East.

The schemes aim to engage (speak) with over two thirds of the targeted households. Of the households engaged with, the aims are delivery of energy efficiency advice, Home Energy Checks completed, referrals to installers or the Energy Saving Scotland advice centre for the EAP. The Energy Saving Trust manages promotion of the schemes via local and national media. Promotional activities include online marketing, direct mail, PR, door knocking, branded uniforms and cars, posters and information stalls at local events. The scheme is also being promoted to private landlords through local authority landlord fora. The key to the scheme is the low price offered to householders: £99 for cavity wall insulation, £125 for virgin lofts and free loft top-ups. These prices are guaranteed for the duration of the project and similar to the best CERT-subsidised prices available in the city but these prices are more variable and time limited. Loft top ups are free compared with a best price of around £150. Alongside this the HIS enabling fund is available to help with loft clearance and access issues outside the scope of CERT funding.

Whilst it is too early to draw any conclusions on the success of the planned approach, HIS does illustrate that areas can be selected, and teams recruited within a short timeframe. It also reinforces the message that certain economies of scale can be secured. Furthermore, because HIS is being delivered in areas across the country it should yield useful comparisons between areas with different housing stock profiles and social and economic characteristics.

3.3 Urban Combined Heat and Power Schemes

Combined heat and power or district heating schemes represent a form of area-based approach. CHP offers a more efficient model of electricity generation, utilising heat that would otherwise be wasted. A case study of one of the leading Scottish schemes in Aberdeen is summarised in WWF Scotland's *Carbon Countdown for Homes*. A further project has been rolled out in Falkirk using this model but many other projects seem stuck at the feasibility and design stage (e.g. Edinburgh) due to the absence of the 'pump priming' grants that made these schemes feasible. A key feature of these schemes was the focus on social housing in multi-storey flats.

A wider retrofit scheme along similar lines could prove more challenging as this would require home-owners to replace their heating system and commit to a single company for their energy needs. A further issue surrounds the deployment of biomass systems in urban areas because of air quality concerns; this is both an issue in relation to carbon savings and financial viability of the schemes because renewable incentives can't be accessed. The picture is better in rural areas where Community and Renewable Energy Scheme grants are helping to develop a number of smaller biomass schemes, although these are more focused on new build and community facilities than retrofitting existing residential properties.

If the current barriers could be overcome, the CHP/district heating route would seem to be the best way of delivering the large-scale replacement of heating systems, both on and off the gas grid, especially if biomass can be employed. This is acknowledged by the Scottish Government that states:

> **"District Heating Networks are now highly efficient … a number of local studies have identified significant opportunities for energy saving. Equivalent work needs to be carried out to investigate likely opportunities in other areas."**[1]

A good starting point in terms of moving this forward on an area basis would be the strategic use of heat mapping by local authorities. However, this will have to be accompanied by other policy changes because to date there has not been the level of deployment for which there is potential.[2]

1. Conserve and Save Consultation, Scottish Government, October 2009, p.123
2. Ibid p.123

© Aberdeen City Council

3.4 Rural schemes

Fintry Community Energy Project: A community initiated non-means-tested area based scheme

The Fintry Development Trust developed and delivered the Fintry Community Energy Project in partnership with the Energy Agency. The benefits of this scheme and similar programmes are covered in a separate in-depth report, *Achieving Our Potential: An Analysis of area based approaches to energy efficiency in Scotland's homes* (WWF Scotland and the Energy Agency, 2009, prepared by Cambium Advocacy). Key aspects of these schemes are however summarised to allow comparison with the other case studies.

The project was funded by income from Fintry's community-owned wind turbine. The essential difference from the other schemes is the level of community ownership and the fact that free insulation measures were delivered. This demonstrated significantly better levels of engagement and measures. In Fintry, all of the village's 333 households received information and 78% completed a survey with 46% of households receiving measures such as cavity wall and loft insulation. Comparable results were achieved in Girvan and Hadyard Hill. In terms of promotion, it seems comparable to the other projects with the use of leaflets, letters to all householders and local press coverage and engaging existing community groups.

Perthshire Street-by-Street Energy Audit and Insulation Programme area-based scheme tailored to three different communities

The Perthshire street-by-street energy audit and insulation programme is run by three community groups, Comrie Development Trust, Alyth Environmental Group and Letham Resident's Association and covers the areas that these groups operate in. The project is run in partnership with the North East Energy Saving Scotland advice centre, SCARF, Scottish and Southern Energy, Perth and Kinross Council and Historic Scotland. The project launched in Comrie in December 2008 and will run till March 2010. Alyth will run from February 2009 to February 2010. Letham will also run from 2009 to 2010. All three communities have a mixture of socio-economic groups. Comrie has a mixed housing stock, ranging from pre-1900 to post-2004. Alyth has a predominantly owner-occupied traditional (pre-1940s) housing stock, while the project in Letham solely covers council housing.

The project will see a methodical, street-by-street approach to energy efficiency in homes and community buildings in these three communities. Local Energy Awareness Advisors have been employed and trained to undertake survey work and liaise with householders. After completing an Energy Saving Trust 'Home Energy Check', each household receives a full report on the energy saving measures they might adopt. These could range from loft insulation to draught proofing and room thermostats.

The advisors can signpost householders to grant funding and loans and the overall project has organised for a preferred contractor to undertake the work. When carrying out the home visits, the Energy Advisors can also discuss other energy efficiency measures with householders including travel options and provide referrals for detailed microrenewable advice[1].

So far, 400 (30.58%) of the 1,308 households in Comrie and 400 (28.57%) of the 1,400 households in Alyth have received visits from energy efficiency advisors. Data on measures installed is not available yet. However, a few useful lessons have been learnt such as the time needed to secure a partner installer, which meant the prices could not be promoted. Employing local contractors was problematic because they required to be accredited to deliver CERT-supported measures, which was not worthwhile for small contractors. Another innovative element of the scheme is the use of the enabling fund to tackle issues such as loft clearances and any joinery work, which are not funded through CERT but often block installations. The group also felt the Home Energy Check Report needs to be developed to tell a family more about the specifics of their home and is of limited use in encouraging people to be more energy aware.

1. http://www.alancaldwellassociates.co.uk/street-by-street-energy-audit-and-insulation-project

Other rural projects

Community Powerdown[1] is a consortium of development trusts funded via the Climate Challenge Fund. Part of its work is inspiring projects similar to those in Comrie and Fintry. In addition, a number of Home Insulation Scheme projects are being rolled out across remoter rural areas and in the islands. These projects will be completed between autumn 2009 and spring 2011, providing further data for analysis and comparison.

3.5 Hard-to-treat

There are few examples of tackling hard-to-treat properties (e.g. non-brick cavity, detached, semis and terraces, on an area-basis. Not only are these properties more expensive to treat, they also invariably involve achieving the co-operation of multiple owners. There are examples of tackling blocks with multiple properties, for instance Lister Housing Co-operative's Energy Heritage project[2] and local authority external cladding programmes. This is despite the fact that in Scotland 36% of properties are flats and 25% have solid walls[3]. Further complications arise if a block or stair is mixed tenure, with social rented, private rented and owner-occupiers. This contrasts with the other schemes summarised in this approach that predominantly focus on low-rise, conventional build owner-occupied properties. Further challenges exist in off-gas areas especially where properties are isolated and dispersed.

Aberdeen Warmzone

The pilot project ran between August 2008 and April 2009, and the full project was launched in September 2009. The pilot project covered areas of multiple deprivation with a high proportion of first-time buyers and private tenants. Most of the houses were 'hard-to-treat' granite tenements with solid walls. The engagement campaign included posters, informal talks with individuals running local community hubs such as churches and corner stores (ideal locations to pass on word-of-mouth promotion), involvement of local installers/ agencies, and door knocking. 'Income maximisation' and free offers were used to engage occupants, and private landlords were telephoned with the offer of free communal draught proofing before being offered other fixed price, project-managed measures. The pilot demonstrated that this proactive approach resulted in 5.76% homes taking up loft insulation and 4% upgrading to 'A' rated boilers, whilst a range of other lower cost measures were delivered. The project co-ordinator believed the income maximisation element of the project had been important as an engagement tool.

Although having only completed the pilot stage, the project demonstrates that it's possible to engage residents in hard-to-treat buildings on the same basis as conventional area schemes. The key to this however has been the role of the Council in providing funding to co-ordinate the project and the fact that this builds on previous Victorian tenement schemes in Aberdeen. Again this scheme seems replicable, and a similar approach is being piloted in Edinburgh, but is not yet a fully developed area-based scheme.

1. http://www.communitypowerdown.org.uk/
2. http://www.changeworks.org.uk/content.php?linkid=373
3. Evidence On Tackling Hard to Treat Properties, Scottish Government Social Research, 2008

© Fife Solar

Fife Solar

Whilst most area schemes concentrate on conventional measures, new models are emerging that will deliver more expensive measures that are needed for hard-to-treat properties and those off the gas grid. The Fife Solar project is one such example set up by Fife Council in partnership with the South East Energy Saving Scotland advice centre, Changeworks, Action for Warmth and Eaga. The area covered by the project included a mixture of house types including bungalows, terraces and two storey flatted properties. Many homes were off the gas grid, with a high incidence of fuel poverty. Building on the bulk procurement of solar thermal panels by Fife Council, the project offered the same package to owner-occupiers. 4,000 flyers were distributed across the project area backed with a range of other promotional activities. 192 property surveys were completed, yielding the installation of 63 systems (including 1 GSHP & 4 ASHP). Although this level of uptake appears low, it is in fact extremely good for these more expensive technologies and, in fact, compares well to some of the conventional schemes summarised in this report. The reason for this is that measures were around £1,000 per installation cheaper, before grants, due to economies of scale. The lesson is again that it is feasible to promote more expensive technologies on an area basis. This also indicates that area-based schemes could prove critical in delivering the economies of scale that make these schemes viable.

3.6 Summary of existing schemes

Table 1, opposite, illustrates the shared aspects of the schemes in terms of delivery. Apart from scale, the principle difference being whether there is a door-to-door aspect of engagement. As schemes begin with different starting points, it is not possible or fair to comment on comparative effectiveness.

Table 1. **Area schemes summary**

	Urban				Rural				
Area-based projects	Aberdeen	Dundee	Edinburgh HIS	Fife HIS	Comrie, Aylth	East Fife Solar	Fintry	LESS	Linlithgow
Numbers of households	9K	73K	13K	10K	4K	4K	333	15K	5K
Activity									
Advice	✓	✓	✓	✓	✓	✓	✓	✓	✓
Basic measures	✓	✓	✓	✓	✓	✓	✓	✓	✓
Renewables						✓			
Income maximisation	✓	✓	✓	✓				✓	
Events	✓	✓	✓	✓	✓	✓	✓		✓
Other	✓	✓			✓		✓		✓
How									
Mailing	✓	✓	✓	✓	✓			✓	
Leaflets	✓	✓	✓	✓	✓	✓	✓	✓	✓
Door knocking	✓	✓	✓	✓	✓		✓	✓	✓
Referrals	✓				✓			✓	
Measures / Properties									
Standard	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hard-to-treat	✓	✓			✓	✓			
Tenure									
Social housing		✓			✓				
Private owned	✓	✓	✓	✓	✓	✓	✓	✓	✓
Response rates							NA		NA
0 – 2%									
2% - 5%						✓			
Over 5%									
Over 10%	✓	✓	✓	✓	✓		✓	✓	
Measures take up			NA	NA	NA				
0 – 2%		✓				✓			
2% - 5%									✓
Over 5%	✓						✓	✓	
Over 10%							✓		
Staffing numbers									
1-3	✓							✓	
4 or more		✓	✓	✓	✓	✓	✓		✓

3.7 Future schemes

Community Energy Saving Programme (CESP)

As should be apparent from the previous case studies, area-based schemes are dominated by and reliant on funding under the Carbon Emissions Reduction Target, which primarily focuses on lofts and cavity wall insulation measures. Having realised that this is not reaching many areas, the UK Government placed an additional £350m requirement on energy companies to fund measures targeting areas that combined high levels of fuel poverty (using the Index of Multiple Deprivation as a proxy). In each scheme, companies would be required to tackle a high proportion of all properties, each receiving multiple measures – a whole-house approach. The schemes are designed using a complex scoring matrix which delivers bonuses for certain measures to address hard-to-treat housing such as solid wall insulation and heating system upgrades. The design of the scheme seems likely to be biased towards urban areas with high levels of social housing. The Department of Energy and Climate Change (DECC) has proposed that the scheme is a "bridge to the future" looking beyond the current round of CERT, which will run to the end of 2012. The first company to release its plans (Scottish Gas), has announced provisional areas in Dundee and Glasgow. On a proportional basis, a further six or seven schemes could be delivered in Scotland each with between 500 or 600 houses of which upwards of 40% might receive measures. In the longer term, the UK Government Low Carbon Transition Plan calls for all UK homes to be offered a 'whole house package' by 2030

Whole-house solutions: Retrofitting for the Future

As yet, there are no examples of whole-house area-based schemes in Scotland, nor elsewhere in the UK. This will change once CESP is rolled out. The UK Government's Technology Strategy Board (TSB), through a £10m competition focused on low-rise housing, has considered the challenge of this type of retrofit[1]. This competition focused on delivering an 80% carbon saving against a 1990 baseline figure. Secondly, the project hoped to develop solutions that could be rapidly scaled up and rolled out, factors critical to developing area-based schemes. As part of this competition, the City of Edinburgh Council and Changeworks secured a £20,000 feasibility grant to model and develop a design solution for a timber framed 1940s council house.

Working with Heriot Watt University, the team developed a solution that would not only be relevant to the Swedish Timber House in question but other low-rise council housing of non-conventional construction, particular those requiring internal or external cladding. The team determined that critical to roll out was minimising the need for tenants to vacate the premises, which would entail decant costs and management expense associated with temporary accommodation. Secondly, the solution needed to meet the needs of different tenants both now and in the future. This meant options such as biomass, which would be impractical for some tenants, had to be ruled out. Invasive internal insulation solutions were also felt to be impractical, so external cladding solutions were found. For heating systems, it seemed clear that only connection to a district combined heat and power network could deliver substantial savings beyond those of an efficient gas modern boiler. Since the competition focused on just one house, and would need to be delivered within a short time frame, a ground source heat pump was included in the final design – something that would be more relevant to a rural location. Another issue that arose with the whole-house solution was the need to replace new windows and replace with tripled glazed alternatives to achieve the necessary carbon savings. In fact, replacing the windows made sense due to the impact of the external insulation on the realignment of the window sills. Finally, the project needed the roof extended to accommodate the new wall line due to the external wall insulation. This roof work could however be combined with the installation of photovoltaic panels, which was the final measure needed to achieve the 80% saving.

The total cost, per property, for the works was £67,000 (inclusive of professional fees), which is still cheaper than a new build, but the future design life of the building would have to be considered. However, these costs could be brought down for a large-scale programme. A realistic estimate of the time needed for installation was a minimum of 13 weeks, during which time the building's occupants would have to live with considerable disruption.

What the Retrofit project illustrates is the complexity of tackling one particular property type, with elements of the building at different parts of their design life (e.g. new windows or heating systems). It also showed that different packages of work sit well together, where others might be better delivered separately over time. When considering area-based schemes, these issues would be multiplied many times over. This indicates that it's not sufficient to target areas but also specific property types within these areas, which have common features. Decisions also need to be made early in relation to district heating systems so that building owners can plan investment in replacement heating systems, especially social and private landlords. Furthermore, it may not be sensible or cost effective to seek 80% reductions from every property within an area and decarbonising the grid will also have a role to play in meeting higher targets.

The ultimate lesson however is that if government is serious about delivering deep cuts from whole-house solutions, this is not something that can be entered into lightly and will require very careful selection of building types, areas and measures. Early pilots also seem necessary although these must be a prelude to action and not an excuse to delay a wider roll out.

1. http://www.innovateuk.org/competitions/retrofit-for-the-future.ashx

4. Lessons from the case studies

A number of themes emerge from the case studies. These are:

4.1 Funding

The configuration of schemes is largely a product of the funding that is available. At present, CERT-funded measures dominate all the schemes, even those focused on tenements. The Climate Challenge Fund is also a strong driver of schemes. These funding streams will be influential until March 2011 (CCF) and December 2012 (CERT).

4.2 Promotion and engagement

There is not a massive difference in how schemes are promoted although some schemes aim for higher levels of engagement. This follows a pattern of promotion via mailings, related marketing activity, doorstep visits and household surveys.

4.3 Monitoring and evaluation

The way schemes record and monitor their activities is not yet consistent, making comparisons between them problematic. Protocols need to be agreed if effective comparisons and evaluations are to be feasible. For instance, research for this report found different ways of recording engagement and accounting for the costs of the projects. This meant comparing the projects in terms of costs per tonne of carbon saved was problematic.

4.4 Partnerships

Every project was delivered via a partnership of agencies with different organisations taking the lead. Critical to all schemes seems to be the involvement of the fuel companies in terms of providing CERT funding for measures. Despite clear evidence of extensive promotion, the level of properties actually being treated is in most cases below 10%. This would indicate that, without a significant increase in the level of activity and a wider range of incentivised measures, climate change targets wouldn't be met. Higher rates have however been achieved where free measures have been provided. Further use of non means-tested schemes would determine if this is the most effective way of delivering carbon savings and lifting households out of fuel poverty at a reasonable cost and at the pace of change required.

At present, there are two contrasting approaches: HIS, essentially a top-down and centrally-managed scheme and Climate Challenge Funded projects that are bottom-up. However, ultimately all schemes are to a greater or lesser extent influenced by the rules surrounding CERT, which are dictated by the Department of Energy and Climate Change and the regulator Ofgem. For instance, it is complicated for public bodies to match fund against CERT so that free insulation can be offered. For the same reasons, the measures on offer are limited to those the energy companies have calculated as most cost effective. Furthermore, the way utility companies manage their CERT obligation can also dictate which installers can deliver much of the work, where this targeted and when installations take place. In the past, this has resulted in stop start levels of activity and varying prices over time. Whilst CESP is more area focused, it continues to put utilities at the heart of any partnership.

With housing accounting for around one third of Scotland's emissions, reductions will be hard to deliver in other areas such as transport.

4.5 Hard-to-treat homes

There is clear evidence from these case studies that more should be done to tackle hard-to-treat properties on an area basis, such as tackling flats, off-gas rural properties and rolling out renewables. The pilots have delivered outcomes, which demonstrate the potential. Local authorities, especially in relation to multi-tenure flats, seem to have a key role here.

4.6 Whole-house retrofit area programmes

The implications for deep and immediate cuts across the stock should not be underestimated in terms of cost, complexity and acceptability to the public. Specific packages of complementary measures need to be developed, and targeted at specific property types; this might then help to identify the areas that should be tackled, e.g. going after certain types of low-rise properties. Rather than a 'big bang' approach, it might also be appropriate to have rolling programmes focused on specific measures, for instance roof replacement, cladding or heating programmes delivered separately which eventually deliver a whole-house upgrade overtime. To start this, however, homes and districts would need to be assessed to develop long terms plans for roll out. There is, however, already evidence from relatively modest programmes such as Fife Solar that, even with renewable technologies, economies of scale for specific package of measures can be secured through an area approach.

5. The key issues

The conference brought together 80 delegates from a wide range of backgrounds and perspectives. There were a number of recurring issues that delegates believed should be addressed if the development of area-based schemes in Scotland were to be successful. In most cases this related as much to the wider policy context in which area-based schemes are delivered, as to the specifics of schemes themselves.

5.1 Funding and measures

The first and most critical issue was the funding situation, which was seen as driving most schemes. Key observations included the fact that funded measures still focus on the 'low hanging fruit', and although there are still considerable carbon savings to be achieved through these, area-based schemes increasingly need to be planned on a whole-house strategy to avoid revisiting properties over time and to provide solutions for all house types.

Overall, it was felt that the funding environment was complex, fragmented and changeable over time – often being stop go in nature. This meant schemes being developed to short timescales, and not being sustained over time to allow schemes (or installation businesses) to grow and develop in a sustainable way. As this was a recurring issue of the conference, Changeworks has mapped the funding environment, to illustrate the different schemes that must be combined in an area-based scheme focused on whole-house treatments. Diagram 1 shows the range of schemes in operation across Scotland at present; some of these are nationwide, others of which are area specific (e.g. HIS) and others that vary in design and delivery at a local level (e.g. climate challenge fund).

5.2 Providing information to the public

Many delegates felt that accessing information on energy efficiency, options for action, and available grants can still be overwhelming for the public, as illustrated in the diagram. The conference agreed that the process of matching a householder to grants, and measures suitable to them, should be seamless from the client's point of view. This was especially important if more complex whole-house area-based retrofits were to be considered. In short, the public should get one package of measures, with an attractive financial package to match, and not have to piece together different funding streams for insulation and renewables. Fixed timescales for installation and guaranteed prices were just one of many features that could be delivered via an area-based approach.

Several delegates noted the opportunities to build on the existing one-stop approach delivered by the Energy Saving Scotland advice centres. A representative from a local authority acknowledged that:

"The Energy Saving Scotland advice centres go some way in providing a one stop shop, and more joined up working between local authorities and the advice centres could build on this. The choice and application of schemes should happen behind the scenes and the public shouldn't have to worry about it."

A utilities company delegate picked up this theme:

"Installers and other delivering organisations should have a behind-the-scenes system to search and access funding".

An installer echoed this stating:

"A basic national level framework should be complemented by working with trusted local contacts and community advocates."

Schemes need to be tailored to the communities and the properties they will cover. For example, the Energy Saving Trust's Home Energy Check surveys need to be adapted when administered to predominantly hard-to-treat dwellings, and promotional incentives need to be tailored to the target group (such as tenants or owner-occupiers).

The conference delegates concurred with the evidence from the case studies, that benefits and income maximisation advice should be an integral part of the information provided by schemes, and that this was essential to tackling fuel poverty.

5.3 Standards

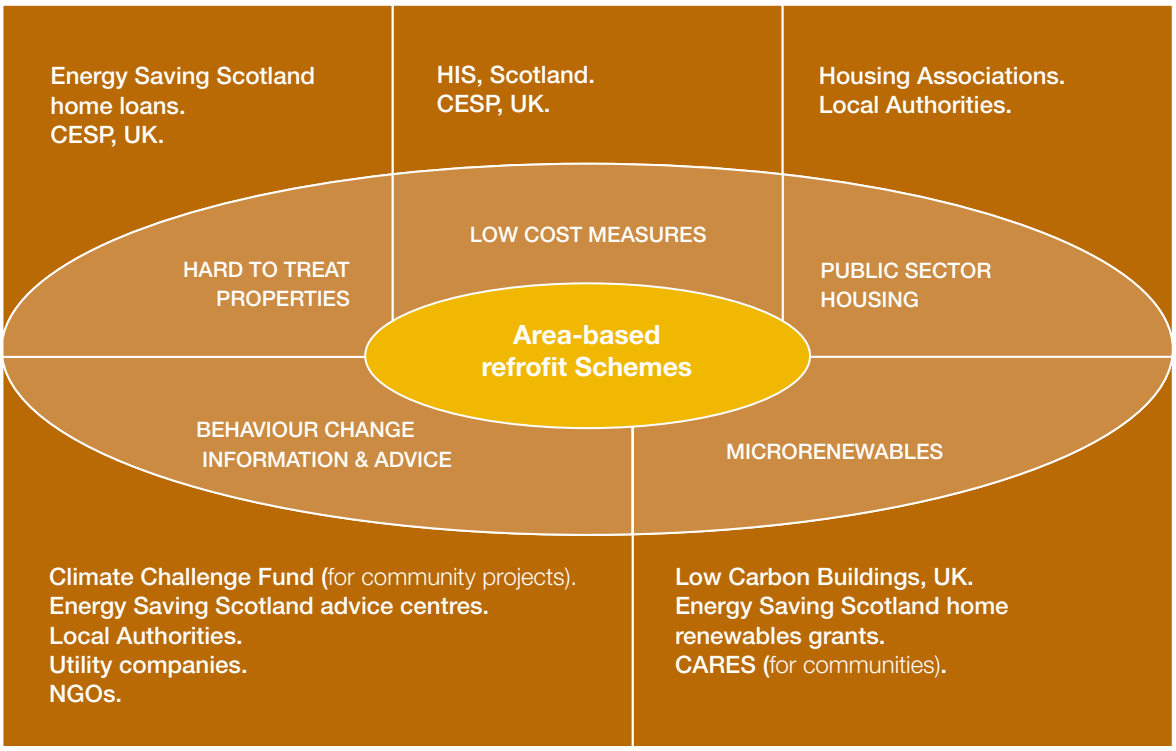
In relation to climate change and fuel poverty targets, the delegates felt that the Scottish Housing Quality Standard for thermal efficiency was inadequate and needed to be raised significantly. Specifically, the NHER ratings of 5 or 6 (for gas and electrically heated properties respectively) should be raised to a minimum of 8. Furthermore, these targets should be applied to other tenures and not just the social rented sector. These improvements would be best achieved in a gradual approach with a set timetable for short, medium and long-term improvements. The issue of the Tolerable Standard also required revisiting, in relation to what should be deemed acceptable in terms of thermal efficiency. By determining what standards needed to be achieved, this would help to identify early candidates where an area-based scheme would be of most benefit. A looming legislative deadline for compulsory upgrading would also assist in promoting area-based measures providing a stick to match the carrot. There seemed to be a wide consensus that government would need to 'grasp the thistle' on this issue, so that a clear signal could be given to all property owners, managers and installers.

5.4 Hard-to-treat homes

Most delegates agreed that more schemes are needed to target hard-to-treat properties, and properties that have no natural gas supply. Early action is needed to identify the technologies and the areas where roll out is needed.

Traditional stone-built homes, listed buildings, tenements and high-rise flats are usually classed as 'hard-to-treat' properties, and it was felt that it was no longer acceptable to delay action. For conservation grade properties, it was felt that both planners and householders needed to be more aware and receptive to installing measures, including micro-renewables. Area-based schemes could help in ensuring consistent standards in these areas, which would help both the planners and the householders.

Diagram 1. **Agencies and funding for area-based schemes**



5.5 Funding more expensive measures

A number of delegates highlighted the need to introduce 'pay-to-save' schemes, which are easily understood, trustworthy and accessible. Some delegates believed these should be tied to the property rather than the householder, given the long payback times involved with more expensive technologies and retrofits. It was felt that no or low-interest loans such as the Energy Saving Scotland Home Loans could help to minimise cash flow problems for households installing expensive measures. Such loans were seen as an essential part of the mix in terms of the tools available to deliver area-based schemes. For people to see the value of these loans, the Energy Performance Certificate regime would have to be more influential with regard to influencing property values.

5.6 A whole-house approach

Although delegates supported a whole-house approach, opinions were divided on whether the package of measures should be implemented all at once, or in a phased approach, in line with other scheduled refurbishments at a timetable sufficient to meet carbon emission reduction targets and address fuel poverty. The method of implementation will depend on the capacity of individual schemes, the immediate impact on householders (e.g. the need to decant or not) and needs of the community in which they are working. During the plenary session one installer noted:

> **"Whole-house packages delivered in one blitz are very expensive and disruptive. Install measures in bite-sized chunks when appropriate. e.g. when redecorating or upgrading a house.".**

5.7 Tackling fuel poverty

As stated previously, there was almost universal agreement that schemes should incorporate an element of income maximisation, through the identification of low-income households and their referral to other agencies, either through phone advice as part of the Energy Assistance Package (EAP) or referral to a local benefits advice service. In addition, the EAP needs to provide a national service to respond to anyone in need, whether in an area-based scheme or not.

Delegates acknowledged the potential contradiction between carbon savings and tackling fuel poverty, and the implications of the percentage of potential energy savings that may be taken as improved comfort (the 'comfort factor'). This has to be taken into account when estimating the carbon savings from the housing stock. This is most likely to occur in fuel poor households where the dwelling was previously under-heated. After measures are installed, these households may use the same amount of energy whilst enjoying a warmer home. Schemes that work with a large number of fuel poor households should allow for the 'comfort factor' when estimating the likely CO_2 savings. Whilst this discount should be taken into account, these schemes shouldn't be penalised for delivering proportionately less CO_2 savings, given the wider social benefits of warmer homes.

5.8 Tenure specific issues

The private rented sector can be very challenging to engage with, but schemes like the Aberdeen Warmzone have successfully engaged with this sector by proactively following up contacts for private landlords. More incentives are needed to encourage take-up by private landlords given that national data, including the Scottish House Condition Survey, indicates that it is the worst performing in relation to energy efficiency standards.

Whilst it was felt that current incentives (Landlords Energy Saving Allowance, Energy Saving Scotland small business loans and CERT) were not yet effective, there was debate over how and when compulsion could be introduced for the private rented sector. Energy Performance Certificates were seen as a favoured vehicle for establishing minimum standards, which could be phased in over time. In terms of area-based schemes, delegates thought the landlords register should be able to be utilised.

5.9 Involvement of local skills and resources

Some delegates felt that area-based schemes, initiated from or working with, community groups or representatives tend to deliver higher levels of take up. This was attributed to a community's trust in established relationships, a sense of ownership over the scheme, and a better understanding of the community from the outset.

It was noted that involving local installers creates jobs and improves the skill pool within a community. However, many local installers do not have the skills or accreditation required to work with suppliers. To support local employment and economic development, projects need to provide enough lead-in time to give installers the opportunity to get accredited. This means financial assistance for training, or at the very least, information on necessary accreditations and where and how they can be acquired.

5.10 The use of incentives and compulsion

The issue of the time and costs associated with current schemes was discussed at length and it was acknowledged that current rates of progress could no longer be deemed adequate. In this regard, two parallel schools of thought emerged. Firstly, providing insulation for free and, secondly, the greater use of compulsion in the near future targeting where incentives have failed. During the conference, an installer noted that:

"In a perfect world, measures would be free, but we are working with finite resources and need to consider how to achieve our targets within our means."

meanwhile a representative from a non-governmental organisation argued that:

"Free medical care exists, free school meals are likely to be introduced and even free public transport is being considered. Maybe we shouldn't be un-ambitious in pushing for free energy efficiency measures."

Meanwhile another community-based organisation noted that:

"69% of the fuel poor households identified did not qualify for any existing grants. The organisation attributed the high uptake of measures to their project being non-means tested."

In terms of compulsion, it was felt that this could be done best when the occupancy of a property changed and this might be linked to Energy Performance Certificates. A representative from a utility company noted:

"We are now at the point when compulsion is likely to become necessary, but it needs to be phased in."

This was echoed by an installer who stated:

"Statutory obligation or compulsion should be phased over a six year period."

6. The way forward

It's beyond the scope of this report to provide definitive answers, but instead to identify the key issues identified at the conference that need resolution and more clarity. What is clear is that overall there is considerable interest and activity directed at developing and delivering area-based energy conservation schemes in Scotland, and this activity has accelerated in recent years. However, there is a long way to go before Scotland starts delivering the type of schemes at the scale required that will be needed to allow climate change targets to be met. In short, today's schemes will take too long and improve too few properties to far too low a standard. A shift to a genuine whole-house approach, that takes a comprehensive sweep through the area, would representative a fundamental paradigm shift to something not yet seen in Scotland. The debate at the conference indicates that a major shift in policy would be needed to deliver this type of change, as well as a significant increase in investment – from government with additional funding levered in from householders, energy suppliers and other stakeholders. The overall view of conference attendees was that urgent attention needs to be given to:

6.1 Better evaluation of existing schemes

Existing schemes need to be evaluated in relation to total cost per tonne of carbon saved and the proportion of houses where the opportunity to install measures was actually taken.

This report has found it difficult to compare current schemes, as they have been monitored differently and vary on how they report on certain aspects of each project. Ultimately, this comes down to carbon savings and cost and how many households have been raised out of fuel poverty. These calculations should include both the costs of installing the measures themselves and associated promotional work. Schemes should also be assessed collectively and not in isolation, if evaluation is to be meaningful. Benchmarks of underlying levels of activity in each prior to a scheme need to be developed to accurately determine what the added value of scheme is. A fair judgement of schemes also needs better data on the total number of properties that could be treated via particular measures e.g. cavities not yet filled. Furthermore, the spin-off economic benefits, both locally and collectively, need to be captured. This report has identified critical issues, but more evidence is needed to draw firm conclusions on the overall worth of different approaches.

6.2 Increase overall effectiveness

Current approaches are not yet adequate to address climate change targets and must be supplemented, so more properties are treated, and so areas don't need to be revisited. This might involve greater provision of free measures, if evidence indicates this is most effective (see point 1).

Generally, the percentage of households installing measures is low, despite a range of approaches and concerted effort. Only free schemes offered evidence of significant levels of uptake, and further analysis is required of this approach. Current rates of progress are incompatible

with meeting climate change targets. Data must be collected to compare the costs per tonne of carbon saved, comparing free and means tested schemes. This must assess the costs of visiting an area and the number of visits required to achieve decent levels of progress. A key element to any future scheme should be an integral benefit check to maximise effectiveness in tackling fuel poverty.

6.3 Target areas of harder to treat properties

Harder-to-treat properties, especially flats, should not be excluded from the benefits of area-based schemes, as is generally the case at present. Programmes should be rolled out into these areas immediately.

Schemes remain focused on CERT-friendly low-rise mid to late 20th century housing. Few schemes tackle harder-to-treat properties, such as those with solid walls. This needs to change and should start with flats and tenements, even if this is only focused on basic measures such as lofts and older boilers, to begin with. Models exist to do this, and need to be rolled out across urban Scotland.

6.4 Pilot whole-house area-based schemes

There is an urgent need to pilot whole-house area-based retrofits, to learn how to manage this new approach and develop models suitable for large scale roll out.

At present, no scheme is delivering, or is even close to delivering, a whole-house approach, that provides householders with a comprehensive package of retrofit measures. Delivering such an approach in the future utilising today's plethora of funding schemes and local and national agencies would be problematic. Pilots, such as the CESP scheme, will take place and these must be used to pinpoint what packages of measures work best with common property types. To be viable, it seems clear that areas should be selected in relation to the property mix rather than arbitrary administrative boundaries.

6.5 Selecting priority areas

A timetable for a rolling programme needs to be put in place immediately. This must ensure that every area in Scotland will have been treated by the time climate change targets need to be met by 2020.

As virtually every property in Scotland will need some level of treatment, the selection of areas is somewhat irrelevant. Timescale is much more important because it is ultimately a question of when an area will be reached, rather than whether it needs to be tackled. In the short term, it seems logical therefore to tackle 'easy wins' e.g. those areas most suited to CERT measures and those areas where fuel poverty is most endemic. These areas may not be coterminous, because much of the social housing stock may already have had basic measures installed by local authorities, and fuel companies' CERT obligations require them to reach sufficient numbers of 'able to pay' customers. Targeting urban areas, where combined heat and power would be viable, and rural off-gas areas, where fuel costs are highest, seems sensible. Ultimately, whatever areas are chosen they should be part of a rolling programme.

6.6 Funding

The funding environment requires consolidation and rationalisation, and should be more long term. As a minimum, all funds need to be centrally managed for each area, and packaged on a whole-house basis for householders.

Ultimately, the amount and nature of funding will dictate the nature of schemes and the level of progress. At present, CERT is the key factor shaping schemes and this is likely to remain the case until 2012. CCF has also allowed communities to develop up their own schemes. CESP will also influence the next set of area-based schemes up to 2012.

Current levels of investment are inadequate to the task and the way schemes are funded is highly fragmented and complex. These multiple funding streams make developing whole-house solutions more problematic as different pots support different measures such as renewables. As a minimum, one agency should control all the funds for an area-based scheme, and be able to offer a single package to each householder in that area. For the customer, the process should be seamless, with any complexity 'reserved to the back office'. The Energy Saving Scotland advice centres operating at regional level working closely with local authorities seem well placed to take on this role.

Whatever the funding package, it should be established for the long term allowing adequate time for schemes to be developed and delivered, offering certainty to suppliers and installers. Variable stop start mechanisms are the antipathy of the long-term strategic approach that is necessary. The wheel needs to keep turning not be reinvented.

6.7 A consistent delivery model

The one-stop shop offered by the Energy Saving Scotland advice centres should be built on, reinforced by local authority action and communities delivering grass root promotional activities.

There are a wide variety of different models being adopted, although in many ways they deliver the same product, in terms of energy advice and insulation measures. Again things could be simplified and duplication avoided if a more strategic approach was taken. In particular, it seems sensible to negotiate deals for installations at a level where genuine economies of scale can be achieved. Secondly, a multitude of short-lived initiatives and marketing brands should be avoided. Again, this points towards local authorities and Energy Saving Scotland advice centres being at the heart of any scheme.

This is not to say that communities don't have a vital role. However, this role should focus on their areas of strength and expertise, being more focused on local engagement and promotion as trusted intermediaries that take responsibility for this critical aspect of the schemes. The role and benefit of employing local installers also needs to be factored in when developing schemes.

6.8 The supporting policy framework

Overall, the policy framework needs to be strengthened to give area-based schemes the necessary tools to get the job done through offering better incentives aligned to compulsion.

Ultimately, area-based schemes are a more intensive and geographically focused version of other programmes. They are therefore as good or as bad as the tools at their disposal. The conference focused on four areas where capacity needs to be enhanced:

a) Compulsion through setting and enforcing minimum standards in a way that would compel householders to participate thus ensuring an entire area can be tackled at the first time of action. Delegates at the conference proposed that this needs to be linked to a beefed-up Energy Performance Certificate regime.

b) Incentives for more expensive measures need to be much more attractive and widely available. There seems particular merit in longer-term loan funding and using a 'pay as you save' model.

c) An increase in minimum standards across all tenures that reflects the reality of climate change and fuel poverty targets. This would be phased in over a number of years. To have different standards for different tenures within an area would make managing an area-based scheme more complicated and risk having to revisit an area.

d) Tackling the private rented sector, through a package of incentives and more importantly penalties, based on reasonable minimum standards.

e) Tackling the issues that are hindering the roll out and adoption of district heating and CHP schemes especially in urban areas.

7. Conclusion

There is a great deal of experience in delivering area-based schemes in Scotland that can be built on. The rate of future progress will firstly depend on factors such as the availability of resources and the priority given to this issue by Government, organisations and individuals. Secondly, it depends on whether Government policy sets out a strategic and credible programme of future action on energy efficiency. There is sufficient evidence that area-based schemes can help because they generate economies of scale. However, these economies alone may not be sufficient, which means facing critical issues such as the need for forms of compulsion to ensure that every property in the area, that can be treated, is treated, and the consideration of whether free measures might offer a more cost-effective approach. Whilst this is a daunting prospect, the most important message from the conference is that ultimately:

"Significantly more will be spent on fuel than on the cost of energy saving measures. We are not putting people into debt. Energy efficiency makes sense – climate, energy security, fuel poverty, job creation, comfort and costs less. It doesn't get much better than this."

David Adams, Knauf Insulation

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