

**Greater Manchester Low Carbon Economic Area
Work Package 1 – Domestic Retrofit**



**An Action Plan for
Changing Consumer Behaviour**

January 2011

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1. Executive Summary and Recommendations

2. Introduction

A carbon (CO₂) reduction plan, and in particular a domestic retrofit programme, is unlikely to achieve its aims without the positive engagement and participation of the consumer. Estimates indicate that consumer behaviour can contribute up to 30% as a factor in determining whether or not CO₂ reduction targets are achieved. Suggesting that where behaviour change measures are not built into programmes from the outset, expected CO₂ savings are not achieved. Action to encourage households to change behaviour is an essential component in reducing carbon emissions and energy consumption in the home, particularly when linked to physical retrofit.

This report develops activity undertaken by the Greater Manchester Low Carbon Economic Area (LCEA) Domestic Retrofit Behaviour Change Group which reports to the LCEA Core Strategy group and to the Association of Greater Manchester Authorities (AGMA) Environment Commission. It considers how consumer behaviour can be influenced to reduce energy usage in the home. It outlines successful activity that has already taken place in consumer behavioural change highlighting the experience and knowledge of a range of practitioners in this field. The report showcases projects undertaken in Greater Manchester, the UK and Europe.

The report makes recommendations about steps which should be taken by policy makers and programme managers in Greater Manchester to progress consumer behavioural change. It recognises that there is no single prescription for achieving behaviour change and that a range of interventions, dependant on context, are required to be considered.

2.1 Greater Manchester Context

The coordinated approach to implementation being developed under Greater Manchester's LCEA designation presents an opportunity to affect behavioural change throughout the conurbation. Greater Manchester is currently embarking on a programme of upgrading the existing housing stock through investment in low-carbon technologies. This programme will take decades to complete and will have touched every home in the area at its conclusion. This physical intervention process in individual homes provides a unique and valuable trigger point and opportunity to influence the way people understand and use energy. It is important that householders understand how to benefit from better insulation and micro-generation technologies and at the same time can be encouraged to think about energy use and how they can benefit from controlling energy consumption.

There are just fewer than two million residential properties in Greater Manchester. Data suggests that 66.5% of these properties are owner-occupied, 7.7% are privately rented and 25.7% are classed as social housing. Of these it is estimated that 8.3% of properties have unfilled cavities and 12.8% of properties have solid walls that are untreated. Nearly one fifth (19.1%) of households have less than 100mm of loft insulation and approximately 19% of properties have between 100 and 250mm and 61% have 250mm or more¹. Figures from 2008 show that Greater Manchester had a total of 5,511 kt of CO₂ emissions from the domestic sector.

Greater Manchester recently submitted a successful ERDF bid to secure funding for five social housing retrofit programmes to be carried out in the conurbation by 2013. The five projects include biomass heating systems, solid wall insulation and insulating system build properties covering 2,975 properties. Each of the retrofit projects will be complimented by an awareness and behavioural change programme to ensure that the occupants of the improved properties are best able to understand and take advantage of the upgrades that have been carried out on their homes. It will be important for the result of this behavioural change programme to be effectively analysed in order to demonstrate best practice.

2.2 Obstacles and Challenges

A common factor for all households is that fuel costs have escalated over recent years. For many this is a major driver to behavioural change. However, certain types of housing such as older properties with solid walls are expensive to treat may deter many households from going beyond basic measures such as roof space insulation and draft proofing.

There is a particular challenge in encouraging private landlords to install measures when the financial and comfort benefits of action undertaken will benefit the tenant/user rather than increasing the return to the landlord.

2.3 Fuel Poverty

The definition of fuel poverty is when a household spend 10% or more of its disposable income on fuel costs. As such, there are particular challenges for those on low incomes or fixed incomes. As such low income owner-occupiers may not be in a position to undertake measures which will reduce the cost of fuel bills. Private sector tenants may face difficulty in encouraging their landlord to undertake physical measures. It is recognised that certain groups, for example, the elderly or those who spend a long time in the home, are reluctant to use new heating systems on the grounds of cost or the fear of getting into fuel debt. There is also clear evidence that lack of affordable warmth directly contributes to health problems.

In the social housing sector a large majority of properties now meet the Decent Homes Standard², but further measures are needed to ensure that social housing has good energy efficiency standards. This sector has a high number of households on low income and those who are considered vulnerable. An on-going programme of information and action will be required to ensure that physical measures are supported by advice and information for the user.

- **What are the barriers and opportunities for behavioural change in Greater Manchester?**

3 What are we trying to achieve?

There is a considerable awareness of climate change issues in Greater Manchester and of the need to conserve energy resources generally. However this is not necessarily seen as a problem which needs addressing on a personal level. The key issue is how to change awareness into individual action and sustaining behaviour change. The overall strategic object of the Behavioural Change Group is as follows

“Deliver energy aware households efficiently managing home energy use. All GM homes to be fitted with Smart Meters and have access to in-depth behavioural change energy advice by 2015.”

Strategic Objective:

- *Deliver energy aware households efficiently managing home energy use.*

Success Criteria

- Provide access to in-depth behavioural change advice to complement installation of smart meters in all GM homes.
- Minimum 75% adoption of energy efficiency measures by households within areas or sectors targeted
- Adoption of more energy efficient energy practices within targeted households.

The above success criteria is in line with the strategic objectives outlined for the LCEA.

- **Do you agree to the success criteria outlined above?**

4 Behavioural Change

The following section reviews academic theory and research into consumer behavioural change.

4.1 What is it and how can we influence people?

There are many studies and theories that seek to explain the barriers and motivations that contribute to human behaviour. Behaviour is itself complex and multilayered and the way humans behave is influenced by a range of individual, contextual and environmental factors. The degree of complexity and interaction of these factors on individuals is not uniform making the design of one-size-fits-all behaviour change strategies difficult to achieve. There are three inter-related factors that influence how a person is likely to behave. These are detailed below:

1. Whether the immediate environment is conducive or facilitates performing a particular behaviour at all,
2. The behaviour and views of our social groups, peers, family and friends,
3. Our internal tendencies and preferences including our knowledge, values, beliefs, attitudes, self-efficacy.

However, it is possible to adopt a broad understanding of how consumer behaviour can be influenced and, in some cases changed, by reviewing previous and on-going academic work.

Research⁴ suggests that there are barriers or pre-requisites for behaviour that need to be satisfied before an individual will act on an issue. These can be simplified into five questions as follows:

- Do I understand that there is a problem?
- Do I care about the problem?
- Do I know what to do about the problem?
- Will my solution work or make a difference?
- What will others think of me if I act?

A subsequent study⁵ explains the context in which these questions are answered in the minds of individuals with particular reference to climate change. They have proposed a model that illustrates how factors that influence decisions about climate change can be placed into an organisational framework that may help policy-makers to track and address the often complex manner in which individuals react to these issues. The model sets out five initial responses to the threats that climate change are perceived to have on the life of the individual. The full list of psychological processes that can influence the ability to cope with the implications of climate change include:

- Threat appraisal (the assessment of impacts) such as perceived risk and severity, and perceived vulnerability and resilience
- Coping appraisal (the assessment of response) including self-efficacy, response efficacy costs and benefits, situation constraint, and strength of community
- Attributions (who is responsible for climate change)
- Affective responses (how emotional responses to climate change are influencing concern)
- Motivational processes (factors influencing the choice of response).

The way people weight the five reasoned behaviour questions depends on the characteristics of the individual. Research⁶ based on a hierarchy of human needs segments the population into three main types of people. These are outlined below:

1. Inner directed '**pioneers**' - Pioneers like to meet challenging and intriguing people and connect through their own networks. They like to be associated with good causes where they can put their values into practice. Their reaction to threats is to do something about it themselves and they search for brands that bring new possibilities.
2. Outer directed '**prospectors**' - Prospectors like to meet important people and connect through big brands and organisations. They like to be associated with success and don't like threats to the things that they have worked for. Their reaction to threats is to organise and they search for brands that make them feel good.
3. Security driven '**settlers**' - Settlers like to meet people like themselves and people they know. They connect through clubs and family and like to be associated with tradition. Their reaction to a problem is to look for somebody do something about it and they search for brands that make them feel secure.

The implication of this values-based understanding is that a strategy based on a single approach such as encouraging people to work together will only appeal to one section of the community. On this evidence, multiple strand strategies should be designed to appeal to different groups. This might be achieved in one single initiative if it was flexible to cater for the variation in individual unmet needs.

In order to move an individual from inaction to act, most though not all of these questions need to be answered in a positive manner. How the individual can be influenced has been summarised in a new report for the Cabinet Office⁷. The report's title 'MINDSPACE' is a mnemonic for nine of the most 'robust, non-coercive influences on behaviour including the nature of the messenger, incentives, what other people think and do (norms), defaults (pre-set options), salience (things that are novel and relevant), priming (sub-conscious influences), emotional responses (affective factors), public commitments to act, and ego (things that make us feel good about ourselves).

The challenge for policy-makers is understand the existing position being taken by the public, and to prescribe strategies and campaigns that fit the prevailing attitude.

While all of the influencers are capable of manipulation, the Group believes that two are particularly suited to the task facing retrofit planners. These are 'incentives' and 'norms' sometimes referred to as 'nudge' and 'think' respectively. Accepting an incentive does not required a change of mind. In the longer-term this is not desirable, but will achieve two objectives. First, it leads to once in a while transactions such as buying a new boiler, or insulation which does not required repeated behaviour. Second, it allows the resident to experience the benefits of the purchase with the potential to overcome inertia to consider other similar behaviour in the future⁸.

The 'think' element is associated with discussions between peers (neighbours and friends) which has the potential to create a consensus around the need to support 'green' initiatives and overcome doubts by listening to those who have become convinced of the arguments to live a more sustainable life.

4.2 Influencing people in their home to invest in retrofit measures

A recent study⁹ carried out by Salford University showed that a significant number of people said they already have loft insulation (75%) and double glazing (85%). These levels of adoption

contradict government estimates which estimated that there are 14 million insulation measures like loft, cavity and solid wall to be carried out in Britain's homes¹⁰. This demonstrates that more than 50% of the housing stock would benefit from additional insulation. This discrepancy may be an over-statement by householders in response to the survey question but, more likely, it reflects the belief that partial adoption of some form of insulation constitutes a satisfying of the question. This may also inhibit motivation to invest more money in additional energy conservation levels, particularly if the perception is that the existing levels are adequate. It is also the case that retrofitting solid wall insulation to older houses (either external or internal to existing walls) is still rare. It is also very likely that most British houses have an incomplete set of energy conservation measures.

The above study found weak associations between the adoption of energy saving measures and concern about climate change. This may indicate that the home-owners had a stronger motivation to purchase these measures and the likely influence for this decision is financial savings. Government¹¹ estimates show that householders can save approximately £45 per year by 'topping-up' thin loft insulation and £115 per year with cavity wall insulation. In the latter example home-owners can achieve a payback period of less than two years making cavity wall insulation an attractive investment. However, the interest or stated adoption levels in the study may mask an underlying reluctance to move beyond modest levels of investment in energy saving measures.

The Royal Institute of Chartered Surveyors take the view that homeowners are less likely to invest in energy efficiency because 'the barriers holding back demand are much stronger than the drivers for it, and are primarily behavioural and financial; specifically there is a lack of a reasonable return on capital and an unwillingness to pay high upfront costs for longer term benefits'¹².

While policy-makers need to consider all the research in this area to inform their decisions, it may be more useful to concentrate on ways to motivate owner-occupiers to take property-level action. The results of the Salford University study suggest that people do care about the threat of climate change and its implications for their houses and thought that it was right for them to act and suggesting that they thought their actions would make a difference. There was a good degree of knowledge about what to do about energy conservation, but little evidence the home owners thought that the existing levels or absence of energy measures for their house was a problem¹³.

The implications of this are that policy-makers have some more work to do on basic education and awareness, but that this will not be enough to sway home-owners to invest more in their property. The larger challenge for authorities is to overcome the barriers that home-owners already perceive that they have acted sufficiently to the threats. This could be as a result of any investment in energy saving measures regardless of its potential to further reduce energy consumption. Home-owners may also believe that the Government is not serious about energy conservation because there is not enough evidence that others (e.g. companies and local government) are leading by example. One alternative approach to counter these attitudes could be to offer incentives to invest in property-level measures using non-financial rewards such as public transport, fruit and vegetable, and access to further education classes¹⁴. Such 'nudge' schemes, in association with active green community 'think' groups may overcome two of the weaker elements in the influences on reasoned behaviour in this context. Firstly, they may overcome the under-emphasis on the 'problem' by circumventing the decision-making process entirely. Secondly they may be to dissipate any feeling of doubts about whether taking acting action may be seen as strange by neighbours and peers.

The evidence suggests that an effective behaviour change campaign directed at people who own their own homes (70% of the existing house stock) needs to adopt an engagement strategy that seeks to change the context of their decisions and not rely exclusively on changing their minds. Prior to any behavioural change measures being implemented it is first crucial to understand the baseline position of where people are. The Sustainable Development Commission¹⁵ explained this by stating that 'any intervention aimed at changing behaviour needs to start from an understanding

of where people are (not where policy-makers think they are) and take account of motivations and barriers while also recognising that people's acceptance of change is often dependent on how involved they feel they have been in the decision'.

4.3 Summary

Based on the plethora of research into constructive effective behaviour change interventions on a variety of issues, research leads us to conclude that any attempt to encourage behavioural change towards implementing a retrofit measure must be tailored to the specifics of the individual and their circumstance. There are a number of suggestions for effective engagement:

- Community-based working may be more effective than large scale campaigns due to the need for messages to be relevant to the target audience in order to be most effective.
- Messages should lead with what the household could gain from changing their behaviour as opposed to lose. Gains may be in the form of immediate financial savings, internal 'feel good' factor, increasing the value of property, or gains that people get from conforming to the norm.
- Individuals could be encouraged to make public commitments which tend to increase people's sense of responsibility to maintain behaviour.

Participatory based action can be encouraged where people can pool their resources and time in order to adopt retrofit measures. This may make solutions more affordable if purchases are being made, via economies of scale, and will encourage conservation behaviour as a social norm. Strategies that utilise incentives, positive reinforcement or rewards could be devised to facilitate particular behaviours. In order to have a real impact the onus here would have to be on ensuring that these are individual, appropriate, tangible, close in time to the behaviour.

5 Consumer Guidance and Support

There are currently various sources of guidance and support for consumers to assist them in changing their behaviour in relation to both installing an insulation measure and altering their behaviour in the long-term to sustainable lifestyle choices. At a local level the Energy Saving Trust has provided funding for an EST advice centre covering the Greater Manchester authorities. The advice centre provides energy efficiency advice to home owners through a free phone advice line and at community, business and local authority out reach events. Other guidance and support provided by the advice centre includes:

- Online home energy check,
- Literature on a range of topics loft insulation, cavity wall insulation, recommended products, solid wall insulation and heating controls,
- Referral to a registered installer, and
- Transport energy advice.

Other local and national organisations that provide consumer guidance and support include:

- WRAP,
- Love Food Hate Waste Campaign,
- Fair Trade,
- Utilities,
- Help the Aged,
- Citizens advice, and
- Local Authorities.

6 Training and Skills for Energy Advice Provision

It is clear that there are many facets to encouraging behaviour change, not least marketing, local campaigns and engagement with communities. This section concentrates on the skills and training issues for those providing energy advice to households.

6.1 The need for skills and training - recent reports

There have been a number of recent reports considering skills and training required for those providing energy advice. One of the most recent concludes that:

- Enhanced technical knowledge is required
- Comprehensive practical knowledge of technologies is required
- Knowledge of certification standards for installation is required ¹⁶

In the reports review of the existing disparate sources of advice, the recommendations for defining the best way forward include:

- There needs to be a re-evaluation of skills, for example a point based system (e.g. Qualifications and Credit Framework) developed to distinguish between different levels of expertise
- Continuous professional development is needed for new technologies
- It is important to establish ongoing monitoring and accreditation

6.2 Current Landscape for Advice

6.2.1 Advice Providers

There are many advice providers currently operating in the field. They do not all claim to be energy advisors but nevertheless they are in a position to influence households

Nationally they have been identified as:

- Energy Saving Trust
- Energy Suppliers
- Domestic Energy Assessors and Home Inspectors
- Large Retailers

Locally/Regionally they have been identified as:

- Local Authorities
- Housing Associations / Registered Social Landlords
- Local / Regional not for profit organisations
- Small scale local organisations
- Installers, builders, tradesmen

An addition to this list includes agencies which provide fuel supplier/fuel debt advice. This advice should be linked into energy efficiency advice as part of the solution to fuel debt.

The different levels of advice of energy efficiency advice can be categorised as follows:

Level 0: All marketing and information that raises awareness of the need for action
 Level 1: Generalised information on how to take action
 Level 2: General advice about the home in question without a home visit
 Level 3: Detailed advice specific to the home in question involving a home visit
 Level 4: Level 3 plus support to implement actions

6.2.2 Existing qualifications and courses for energy advisors

To date the City & Guilds 6176 Energy Awareness has been recognised as the baseline for energy advisors in the fuel utilities, Energy Saving Trust Advice Centres, local authorities and other advice providers. The planned 'Green Deal' will include Home Energy Advisors at its core, and these will require a higher level of qualification. However there will continue to be advice provision at different levels from several providers so it is important to consider the training and skills needed for this broad range of provision.

Current certified course include the following:

- C&G 6176 (01)Energy Awareness (Level 2)
- C&G 6176 (02) Renewable Energy in the Home
- C&G 6049 - Provide Energy Efficiency Services (NVQ)
- Home Energy Advisers (Level 3)

There are several training packs and courses available for community groups and tenant groups which are not certificated. For example:

- Tenant Empowerment Training: The Energy Saving Trust and the Housing Corporation
- Working as an energy champion in your housing association: NEA
- Keeping Warm in Your Home A Housing Association's Tenants Guide: NEA

Short courses from NEA include:

- Modular Energy Awareness and Fuel Poverty
- Fuel Poverty in Social Housing

6.2.3 Energy Saving Trust Endorsed Advice

The Energy Saving Trust (EST) provides an Endorsed Advice service for organisations who work to the quality standards approved by EST. Where third party organisations can demonstrate through assessment that they meet the standard, the EST will publicly endorse their service. To ensure continued adherence to their standard past an initial assessment, the EST conduct regular monitoring to both protect the reputation of their brand as well as to help ensure third parties are fully exploiting the opportunities to save energy with each customer. The EST states that Endorsed Advice services are suitable for any organisation providing energy saving advice to consumers whether over the telephone, face to face, in the home or in store.

6.3 Development of qualifications for the 'Green Deal'

The Government's Green Deal is the new approach to domestic energy efficiency. The Green Deal framework will enable private firms to offer consumers energy efficiency improvements to their homes at no up front cost, and recoup payments through a charge in instalments on the energy bill. Due to the need for legislative changes it is not possible for the full roll-out of the Green Deal to take place immediately and therefore it is expect it to be launched in the autumn of 2012.

It is envisaged that Green Deal Home Energy Advisers (HEA) will be key and in many cases they will be the first customer contact with the scheme. The expectation is that the HEA will be a skilled and qualified advisor who will encourage and motivate householders to make both lifestyle changes and improvements to their properties. It is likely that access to Pay as You Save (PAYS) scheme PAYS, where households could receive up to £6,500 to make energy efficiency improvements to their homes, will be agreed and arranged only through a registered HEA. Green Deal advisers who hold the Level 3 Certificate - Energy Advice in the Home will register with an Accredited Body to become authorised HEAs. They will undertake energy audits for individual households. From these the HEA will produce a report identifying and recommending ways in which individual households can reduce their energy consumption, thereby reducing their fuel bills and carbon emissions (likely to be an EPC or similar). Recommendations will go beyond physical measures relating to the building and include changes to occupants' behaviour to reduce energy use. A follow-up will then take place.

The National Occupational Standards (NOS) for Home Energy Advisors were published in 2009, but are currently undergoing review as the development of the 'Green Deal' progresses.

The National Occupational Standard includes:

- Work in a safe, effective, professional and ethical manner.
- Prepare for the provision of energy advice.
- Conduct site visits to inspect property and provide initial energy advice to clients.
- Prepare and explain Home Energy Audit reports.
- Monitor the implementation of energy advice recommendations and provide follow-up services.
- Promote community action to reduce energy consumption.
- Promote low and zero carbon energy technologies.

6.4 Summary

Much emphasis is currently being placed on the planned Home Energy Advisors for the proposed Green Deal. However this is still two years away and it is crucial to provide advice on behaviour change to all tenures of housing. Some households will be making purchasing decisions for energy efficiency measures, and others will not. Current training packages should be reviewed for their appropriateness for different groups with a view to monitoring quality of provision.

7 Past and Present Activity

What constitutes success for climate change behaviour change programmes can be and as such this report includes a review of local and national schemes. Success is reported against the outcomes required and whether emission reductions are measured directly (through energy use data) or indirectly (through assumptions).

Two levels of householder behaviour change outcome are discussed in this report.

- To change behaviour so those who have not installed full insulation measures will do so as a short-term intervention.
- To change longer-term behaviour as part of a sustainable lifestyle, so that emissions savings from the insulation measures become part of a low carbon lifestyle.

It is considered that the first outcome is strongly motivated by financial savings on fuel bills and can be measured directly by the number of measures installed. The second outcome is traditionally more difficult to measure directly. Most of these schemes use indirect measurement and very few include longer term follow up information.

7.1 Greater Manchester

There are a wide range of projects, programmes, schemes and campaigns underway across Greater Manchester (GM) which are aimed at influencing consumers behaviour. These have been organised into types of initiatives.

- Advocate and Champion
- Reward/ incentive/requirement
- Publicity and Education
- Pledge
- Campaign groups
- Community group
- Eco-Homes

7.1.1 Advocate and Champion Schemes

The table below details a short description of the project and where possible includes a basic evaluation of whether these schemes include effective behaviour change monitoring.

Organisation	Project Description	Monitoring & Results
Global Action Plan - Eco Teams	A very successful programme which works with small groups of householders to support them through a range of environmental behaviour change activities which includes energy, waste and water over several months. Introductory event held in Manchester and a very active group is based in Bollington, Cheshire.	Behaviour change is actively measured through energy use monitoring and targets over the training period. Over 4,000 households have participated since 2000. It is claimed that these households have used 21% less energy, lower their CO ₂ emissions by 17% and reduced waste by 20%. However, these figures are estimated
Action for Sustainable Living – The	Working in Trafford, Stockport and Manchester across a range of partnership groups. Local Project Manager Volunteers are trained	Behaviour change is measured indirectly. Energy and carbon savings are calculated via

Energy Academy	<p>and supported to set up activity groups and projects.</p> <p>AfSL also ran the Energy Academy again enabling volunteers to support energy efficiency in their communities.</p> <p>Resilient Homes programme which uses non-cash incentives to encourage energy efficiency and flood prevention has been run in Trafford</p>	<p>assumed savings/changes based on the number of volunteers, pledges, events, insulation measures installed and contacts the schemes have gained. Energy consumption tracking is not used to measure long term success. The Altrincham pilot achieved the following results: 191 HECs completed, 17 Volunteers recruited, 988 residents engaged 4,300 tonnes of CO₂ saved (estimated)</p>
Energy Saving Trust - Green Communities	<p>Groups active in Stockport and Trafford. A two year programme is initiated by an existing local community group. Year one is based on running a discounted energy efficiency insulation campaign.</p>	<p>Behaviour change is measured both indirectly and success is measured by the number of properties insulated and assumed carbon emissions saved. No household energy consumption monitoring is used.</p>
Carbon Co-op	<p>A project in Moss Side, Manchester engaging with a small area of householder to encourage sustainable activity to reduce carbon emissions. Range of approaches include HEC surveys, smarter meters, energy monitor provision, a local information manual and training.</p>	<p>Behaviour change is measured directly and indirectly. Number of workshops, events attended, number of measures adopted, monitor readings or surveys from sample households. Qualitative information includes blogs, diaries, workshop responses and pledges. Reduced energy usage is recorded by the smarter meters with an element of local competition used to encourage further reductions.</p>
Local Community Groups	<p>Several groups are actively promoting sustainable lifestyles within their local communities including Rochdale Earth Café, Bolton Green House, Oldham Saddleworth Community Hydro, Salford Lower Kersall and Spike Island Grow Cook Eat.</p>	<p>Behaviour change success is measured indirectly. Project success is measured by level of active engagement, project outcomes and numbers of people involved. There is no direct measurement of energy or carbon saved through behaviour change.</p>
Local Authority Green, Eco, GLO Champion networks	<p>Most GM authorities have a network of officers who act as local 'green champions' within their departments or areas of work. Campaigns such as 'Dress for the Climate' and 'reducing paper waste' are rolled out through these networks.</p>	<p>Behaviour change can be measured directly through cost codes for heating and photocopying and paper orders etc.</p>

Door to Door schemes	Most of the insulation companies target areas for door knocking, these are more effective when linked with the Local Authority mailings where householders are informed in advance. A highly effective Thermal Imaging scheme has been run by Mark Group, where households without insulation are identified and then shown the thermal image of their home. Unfortunately no additional educational material is used to further promote energy reduction behavioural change alongside the measures.	Behaviour change is measured indirectly through insulation installation. (See Plymouth University information below for successful behaviour change programme using these images)
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All of these schemes are resource intensive relying on high levels of time input from individuals. However in terms of measurable outcomes (assumed or actual) they seem to be the most successful. It is accepted that advice from trusted advocates such as family, friends and local community members is most readily acted upon. Following this group other expert advocates are the next most trusted.

7.1.2 Reward, Incentive and Requirement Schemes

These schemes provide a reward or a requirement to encourage householders to partake. They are also resource intensive due to the cost and administration of the rewards. However, managed and monitored effectively they are also highly successful in achieving measurable changing behaviour.

Project	Description	Monitoring and Outputs
Resilient Homes research and pilot scheme	A research project was carried out by a team at Salford university to explore the attractiveness of non cash rewards in inviting Salford householders to purchase energy efficiency and flood prevention measures. The results of this investigation were positive and the report recommends that pilot schemes be run to test the proposition that reward based schemes will motivate many householders to purchase energy saving and flood prevention measures for their homes. A pilot scheme has recently been initiated in Trafford with AfSL.	Behaviour change is either measured indirectly through installation of measures or may be measured qualitatively or quantitatively through questionnaires if based on the original research methodology.
Smarter Meter Project	The Commission for the New Economy is running a pilot scheme to measure energy usage and encourage reduction by giving householders web linked electricity monitors and support in how to use them. This scheme aims to encourage energy savings beyond those intrinsic in initially installing the monitor by allowing participants to compare their usage to others in similar households. Issues of uptake and technical requirements amongst the social tenants target audience have become apparent.	Behaviour change is actively monitored through real changes in individual household electricity usage.

Library Loan Electricity Monitor Schemes	At least five local authorities are running schemes where householders can borrow these real time electricity monitors (not web linked). Top tips on energy saving accompany these monitors. Initial plans to measure household electricity consumption before and after the loan period have not been realistic. Manchester is trialing this approach in Chorlton library.	Behaviour change is measured indirectly from the number of monitors loaned out. There is a possibility to monitor actual figures if readings are taken before and after.
Duckenfield Energy monitor scheme	Residents are being offered free British Gas monitors at energy efficiency and other community events.	As above
Discounted Measures Schemes	Several local authorities are funding additional discounts for insulation measures. These encourage installation of measures, but do not include any specific education on reducing energy usage at point of installation, although information may have been provided by the ESTac when referrals were made.	Behaviour change is measured indirectly through installation of measures.
Local Planning requirements	In some areas whole house retrofitting of insulation has been a requirement for any extension application that requires planning permission. Stockport has a version of this. Education on energy reduction included at this point could be effective in bringing about behaviour change.	Behaviour change would be measured indirectly

7.1.3 Publicity and Education Campaigns

In general it is not possible to follow up individual recipients of these messages to ascertain their resulting actions. The effectiveness of these campaigns is measured indirectly by determining any increase in general awareness and increased uptake of insulation measures. These schemes are much less resource intensive however, the behaviour change effects are less measurable. Behaviour change is therefore measured indirectly in all the following examples.

- Stockport CarbON, CarbOFF campaign: An area wide awareness raising campaign to promote low cost insulation measures.
- Kill the Chill Fuel Poverty Campaign: Promoted across several Local Authorities, linked to winter events, publicity and mailings.
- 10:10 campaigns: Linked to reducing energy usage by 10%. No method for local collation of area wide data is available. Local Authorities use their own estate energy reduction data to measure success.
- Small scale e-mail and media campaigns: These campaigns promote low cost insulation measures and have been carried out in Trafford and Rochdale boroughs.
- EN4M: A media network for environmental groups. This member organisation aims to build capacity of environmental groups, build partnerships and raise awareness to the general public.

7.1.4 Pledge Schemes

A wide range of local and national environmental pledge schemes are active in GM. As with the publicity schemes above it is often not possible to actively track the progress of individual pledges to measure actual success. However, pledge schemes are much less resource intensive scheme

but also less measurable in terms of actual behaviour change results. Behaviour change is therefore measured indirectly, unless active follow up is undertaken.

Schemes include:

- Manchester is my Planet (MIMP)¹⁶
- Trafford is my Planet
- Carbon Reduction (C RED)
- The Energy Saving Trust pledge
- 10:10 pledge
- Love Food Hate Waste

7.1.5 Campaign Groups

National and local initiatives run by local and national groups such as Friends of the Earth, Green Peace, Fair Trade and Manchester Climate Change Fortnightly are also successful in engaging with local communities. However the greatest success in behaviour change terms is often due to the involvement of local advocates as described above.

7.1.6 Eco-Homes

These properties can be effectively used to showcase technologies and allow householders to visualise the effect of different energy efficiency measures. Consequently this can encourage individuals to install these measures in their own home. It is impossible to know the uptake of measures or behaviour change from these projects and therefore behavioural change is measured indirectly if at all. Projects include:

- Manchester Eco Houses
- Bury Eco house
- Trafford Eco show house
- Open Homes weekends - Private householders who open their homes have been a very popular and successful as part of several Transition Town programmes.
- Old Homes Super Homes national exemplar network

7.2 National Projects

The following section details successful national behavioural change projects

7.2.1 *The Psychology of Behaviour Change, University of Plymouth*¹⁷

The study compared aspects of the human mind and climate change in a simple but useful way. It showed that the limitations of the human mind make dealing with climate change difficult as it is characterised by uncertainty, complexity, distance and delay. This is demonstrated in the table below:

Human Mind	Climate Change
Simple, Local	Complex, global
Certain, vivid	Uncertain, abstract
Immediate, linear	Delayed non-linear

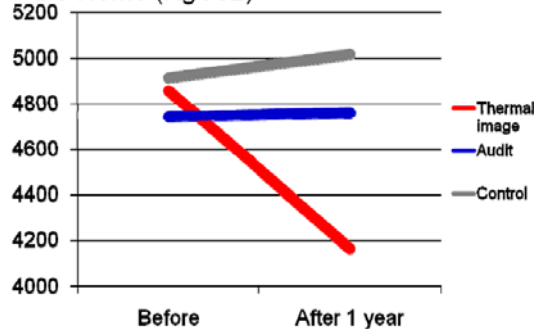
The study recommends the following:

- Vivid and Personal: make climate change dialogue personal and vivid by looking at the question 'What can I do?' using local examples that have meaning to people and give positive examples of what others have done. This will lead to increased concern, understanding of mitigation responses and belief that actions now will make a change.
- Social Norms: An interesting analysis comparing daily energy use showed that it was a much more effective tool if smiley and sad faces were used alongside the graphical data to motivate householders to save energy.

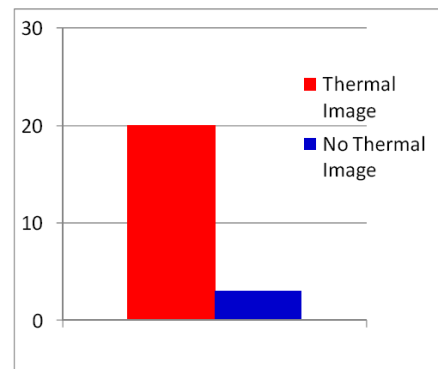
- Positive Futures: The importance of positive messaging to motivate was also highlighted with those who feel powerless reporting higher levels of fear than hope and those who feel in control and motivated reporting higher levels of hope than fear.
- Visualise the Invisible: Two small recent local studies using thermal imaging showed this powerfully as detailed below.

A PhD project used thermal images to prompt house holders to change their energy use behaviour. In study one a small climate action group in Devon were shown thermal images of heat loss from their property. The graph below shows that after one year, householders that were shown the thermal image were continuing to save a significant amount of CO₂ emissions from their property¹⁸.

Study 1: Carbon Footprint from Energy Usage in the Home (KgCo₂)



Study 2: draught proofing (%)



A second study was carried out targeting Homebase customers who had never purchased a green product before. These householders were shown thermal images of their properties and encourage to install draught proofing. The graph below shows that a higher percentage of householders that were shown a thermal image of their property went on to install draught proofing compared to those that were not shown a thermal image.

7.2.2 Bringing about Ethical Behaviour Change, Verdant Consulting¹⁹.

The following list outlines Verdant Consulting top tips for effective marketing.

- The importance of audience understanding – behaviour, attitudes, barriers, constraints and who they listen to
- To identify what customer's value – look at needs, motivation, barriers and media channels and partnerships.
- Be single minded: with limited budgets choose your goals and measures likely to give the biggest impact. In campaigns concentrate on one theme, idea or measure. Harness existing initiatives, creative idea and channels.
- Lasting change requires a whole society or at least enough of any community to normalise behaviour. Use hard evidence to convince people that everyone else is doing it. Harness local pride and competition.
- We buy on human emotion and justify with facts.

Messages from this study which reinforces the Plymouth study are:

- Don't use scare tactics;
- Personalise and localise the message;
- Make it real and relevant; and
- Perception is important.

There are several aspects of these presentations that can positively inform the development of the GM behaviour change campaign to reinforce the energy savings achieved through the ambitious retrofit insulation scheme.

- The human mind is not rational and functions on a very different scale to Climate Change.
- Emotion is important in changing behaviour
- Make the message local, personal and positive
- Use social norms
- Visualise the invisible.
- Positive not negative messages. Definitely not scare tactics
- Understand the audience
- Set realistic targets – concentrate on a single message which will have the biggest impact first.

7.2.3 Watford and Three Rivers Energy Agency 2002-2003²⁰

House condition surveys amongst private rented properties in the area showed low level of energy efficiency (using the SAP rating) indicating that homes in this area are colder than average and that fuel bills are higher than average. Objects of the project included:

- To increase the quality of life of residents by the installation of energy efficient measures and by increasing the uptake of grants and other energy saving measures.
- To target West Indian and Muslim communities who are hard to reach and so do not always benefit from energy efficient measures and the saving in fuel used in their household.

The project focused on face-to-face advice via energy efficient awareness surgeries at community centres, sport areas etc, workshops on energy efficiency, damp and condensation and providing full information on grants available and discount schemes.

Success of the project was calculated based on the number of events attended, presentations given and workshops held. Cost and CO₂ savings were estimated based on the number of Home Energy Checks completed.

7.3 International Projects

The following section details examples of successful international behavioural change programmes.

7.3.1 Energy Expert Programme, Finland²¹

The aim of the programme was to increase energy efficiency at household level by training ordinary people to act as energy experts within the dwelling that they lived (either rental or owner-occupied housing both private and social housing). Over 3,000 energy experts were trained who covered 38,000 tenants. The energy experts were chosen by their peers and residents and had access to data on energy and water consumption. Difficulties that arose from the project were associated with the volunteer nature of the experts. This meant that it was hard to determine the best practice and to standardise results/activity. It was found that the activity was more successful in social housing than in that which was owner occupied. The report also highlights that it was beneficial to provide economic incentives for residents especially social housing residents such as a rebate on water and energy costs. Results showed that in the buildings where there have been active energy experts there has been an average increase of energy conservation for heating of 5%, a 10% decrease in electricity consumption and 20% in water consumption.

7.3.2 Standby Campaign 'Off. Really off?', Germany²²

In 2000 a project was undertaken to address stand-by consumption of household appliances. The campaign was based on a two pronged strategy – mass media and appliance retailers. The mass

media campaign included newspaper and radio coverage as well as a cinema spot. More detailed information was available in a brochure via the internet. The media campaign advised consumers to get in touch with their local retailer to find out more about how to reduce their standby consumption.

The evaluation of the project compared participants behavioural change to a control group before, during and one year after the campaign. After three month 33% of the population were aware of the slogan campaign. After the campaign 57% of those sampled were aware of the stand-by issue raised in the campaign compare to 39% in the control group. Participant's willingness to pay for energy efficiency devices rose from 19% to 24%. The success of the campaign was attributed to the campaign going beyond the niche of eco-marketing by 'selling' energy efficiency as a produce and using a fun message.

7.3.3 Energy Trophy Project, Europe²³

The Energy Trophy project was EU wide competition for energy savings, specifically in office buildings, by changing employee behaviour. The aim of the project was to reduce energy consumption specifically by behavioural change within organisations which does not require any investment into energy saving devices. The first round of ET was launched in 2004/5 with 38 companies participating over six countries. The results showed an average energy saving of 7% and the winning company recording a 30% energy saving. Overall the programme achieved a total reduction of 3,700MWh or 1885 tonnes of CO₂ corresponding to a cost saving of €205,000.

7.3.4 Energy Neighbourhoods, Germany²⁴

The aim of the Energy Neighbourhoods project was to inspire and encourage communities to reduce energy consumption through changes in behaviour. Eight to 12 households form a team and each team competes to win a prize. In order to do this they must achieve energy saving of 8% within six months compared to the previous year. Each team was coached by a Team Master who pulls the team together and offer good incentives. They also assist households in measuring their energy consumption and savings. The teams were also supported by municipality and project partners by informing citizens on energy saving, organising information events. Nearly 6,000 households from nine countries took up the challenge and the teams achieved an average saving of 10% with the winning team (Sweden) achieving a 37% saving through measures such as energy saving lamps, disabling standby and changing their heating habits. The total project cost €1,198,331. Factors for the success of the project were stated to be:

- Strong support from energy masters and partners;
- Group actions and social ideas of the project enabled participants to exchange ideas and access constant support; and
- Constant information and updates to maintain motivation provide energy saving tips and maintain the competition.

7.4 Summary

The above information has demonstrated the following:

- Advocate schemes are most effective in changing behaviour but are very resource intensive. Realistically this could not be run out across the whole of GM unless significant funding is available.
- Reward Schemes can be effective if education is included. Suitable education intervention at the time of installation would be most appropriate. One solution could be for the EST could develop this educational material to be paid for by the utility companies and delivered by the installer. This programme could include an initial electricity meter reading, perhaps incentivised by draught proofing or an Energy Monitor.
- Long-term tracking and follow-up of household energy use behavioural change following the installation of measures is the most effective method of showing sustained behaviour change.

A sample of households could be contacted six months and one year later to establish whether changes to energy usage had continued.

- **Where could the resources come from to progress this agenda?**
- **Which partners need to be included?**

8. Recommendations

From the evidence compiled by the GM LCEA Behaviour Change group it is suggested that the following recommendations should be adopted to achieve higher levels of retrofit investment in domestic properties and to bring about behaviour change which is more energy efficient.

The recommendations made to those responsible for policy strategy and programmes are as follows have been categorised for social housing, private rented housing and owner-occupied properties.

Ref	Recommendation	Social Housing	Private Rented	Owner-Occupied
1	All retrofit projects and programmes should have in place a specific properly resourced behaviour change plan from the outset. This should be a requirement of all programmes involving public funding	✓	✓	✓
2	Smart meters/heat monitors should wherever possible be incorporated into any retrofit plan to ensure the user has up to date information on performance and cost of consumption. An estimate of expected performance and cost should be provided so that the user can do a comparison of performance against what is actually achieved		✓	✓
3	Information, advice and follow-up help should be made available to the user at various stages when energy efficiency measures are planned and developed. There should be post-implementation follow up, including a contact visit supplemented by a help line.	✓	✓	✓
4	A publicity campaign aimed at GM users to raise awareness, knowledge and understanding as to why CO ₂ reduction is important and how specific energy efficiency measures can reduce costs for the individual and maintain or improve comfort levels in the home. Any campaign should be linked to wider initiatives such as the Green Deal and specific actions and contact points for further help or advice. This should be reinforced through local activity on the ground.		✓	✓
5	The results of different methods of engagement with users should be monitored and evaluated so that best practice can be disseminated. This should be a condition of any programme receiving public finance	✓	✓	✓
7	The LCEA should give consideration as to where the responsibility for leading behavioural change activity in GM lies. This should include how the public and private sector including local and central government, utility companies, commercial outlets			

	and stores, private and social landlords, and other stakeholders including EST can best work together in this area.			
8	A guide and tool-kit should be developed and promoted, aiming to assist social and private landlords in developing behaviour change plans linked to physical retrofit programmes.		✓	✓
9	Utilise existing community networks of home visiting organisations e.g. district nurses, meals on wheels, utilised to deliver energy efficiency information or signposting services.	✓	✓	✓
10	To recognise the work undertaken by the behavioural change element of the Greater Manchester ERDF activity and to develop best practice from this.			✓

- **What can each delegate contribute to this agenda?**
- **Who should be the first target audience for behavioural change? Geographical focus/fuel rich/fuel poor?**
- **What range of measures should be concentrated upon and should these include renewables?**

10. Appendices

10.1 Key points for social housing providers

All tenants could benefit from on-going information and advice on how to save energy in the home. This could include top tips, EST advice sheets, and/or landlord branded fact sheets.

Social housing providers should consider integrating training and support programmes for front line staff with established roles, ideally linked to more specialised financial inclusion work.

It is vital that tenants understand how to use household appliances efficiently. A visit and follow-up by an experienced/trained person for each household is necessary to only for new but existing tenants. More intensive support could be provided to those with disabilities, those who spend a lot of time in the home, or who spend disproportionately more on fuel. It is also important to consider that household make up and house type are contributory factors for example, those using prepay meters generally spend more on electricity than billed tenants.

Willingness of residents to engage positively with a programme of retrofit and follow-up work will depend on a number of factors. These include perceived cost of current heating and comfort levels, length and timing of works, anticipated level of disruption, performance and customer relationship with builder and whether recompense is provided for disruption and decoration. If these aspects are viewed positively this will assist the receptiveness of customers when responding to information, advice and/or assistance and consequently in changing behaviour.

Electricity monitors and other tools providing information on fuel consumption are potentially useful for some tenants and should be introduced in a planned way for example coinciding with a retrofit programme with assistance given if necessary

Tenants and residents associations can play a major role in promoting interest and in supporting and assisting tenants where required. Experience has shown that developing local "energy champions" and promoting initiatives in local schools can be very successful

Encouragement should be given to tenants to keep all electricity and gas bills for at least 18months to assist a post retrofit tenants' surveys. Landlords could offer incentives to do this and to encourage participation in the surveys.

Monitoring and evaluation of programmes that have been undertaken is important and should be a condition of any public funding. This should include hard and soft data for example saving made compared to capital cost, satisfaction levels.

10.2 References and Sources

1 HEED, 2010

2 DECC, 2010

3 Decent Homes Standard - is a minimum standard that triggers action to improve social housing. It is a standard to which homes are improved. As constructed, the standard allows all landlords to determine, in consultation with their tenants, what works need to be completed, and in what order, to ensure the standard is met. The Decent Homes Standard has four criteria which are:

- It meets the current statutory minimum standard for housing (i.e. the dwelling should be free of category 1 hazards under the HHSRS)
- It is in a reasonable state of repair

- It has reasonably modern facilities and services
 - It provides a reasonable degree of thermal comfort
- 4 Ajzen and Fishbein, 1980
 - 5 Rose, 2005
 - 6 Institute for Government
 - 7 John et al, 2009
 - 8 Bichard and Kazmeirczak, 2009
 - 9 DECC, 2010
 - 10 DECC, 2010
 - 11 RICS, 2010
 - 12 Ajzen and Fishbein, 1980
 - 13 Bichard and Cooper, 2008
 - 14 Sustainable Development Commission, 2010
 - 15 'Household Energy Efficiency Skills Review'– Energy Efficiency Partnership for Homes. April 2010
 - 16 Manchester is my Planet - By Dec 2009 over 21,000 people had pledged to reduce CO₂ emission by 20% by 2010, equating to a theoretical annual saving of 46,000 CO₂. A survey of 3,000 pledgers in 2008 had approx 350 responses and showed:
 - Over 95% had undertaken one or more of the top ten energy saving tips
 - Over 78% stated the energy saving actions had saved them money
 - 17% had contributed to related consultations / other campaigns
 - Over 70% had encouraged / supported other reduce energy in the home
 - Over 50% had encouraged / supported others take public transport
 - 17 The Psychology of Climate Change, Dr Sabine Pahl, University of Plymouth, 2010
http://carbonactionnetwork.org.uk/conference_2010/downloads/dr_sabine_pahl.pdf
 - 18 Goodhew, Pahl and Auburn, 2010
http://carbonactionnetwork.org.uk/conference_2010/downloads/dr_sabine_pahl.pdf
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 - 20 Energy Advice to Householders, Watford and Three Rivers Energy Agency 2000-2003
<http://www.managenergy.net/resources/601>
 - 21 Energy Expert Programmes, Finland 1996. <http://www.energychange.info/casestudies/167-case-study-10-energy-expert-programme>
 - 22 Sand by Campaign, 'Off, really off', Germany, 2000-2002.
<http://www.energychange.info/casestudies/171-case-study-14-standby-campaign-off-really-off>
 - 23 Energy Trophy, Europe, 2004-2005. <http://www.energychange.info/casestudies/165-case-study-8-energy-trophy-programme>
 - 24 Energy Neighbourhoods, Anke Merziger, Germany.
<http://www.managenergy.net/resources/1257>