Local Projects for Sustainable Energy: Exploring the Nature of Success

By

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Thesis submitted in partial fulfilment of the requirements of Birmingham City University for the degree of Doctor of Philosophy

June 2014

Faculty of Technology, Engineering and the Environment

In Memoriam

Dedicated to

Patrick Layton

The first of all my Teachers

Abstract

Exploring the Nature of Success in Local Projects for Sustainable Energy

This research presents an understanding of the nature of success, and the problematic nature of local projects for sustainable energy. Sustainable energy is a critical issue in the UK to alleviate climate change, energy insecurity and energy poverty. Literature is reviewed from three different disciplines; socio-technical systems, behaviour change, and elements of planning literature including governance, communities and sustainability. The review demonstrates that success for such projects is difficult to achieve because energy is provided through an embedded sociotechnical system which being inert is resistant to change; because energy behaviour is complex and hard to alter, and because local projects are difficult to implement.

Two Birmingham projects were used as longitudinal case studies; one led by the local authority and one by a voluntary community group representing different approaches to sustainable energy. In both projects, energy efficiency and/or microgeneration technologies were installed and were followed over a period of 18-20 months. Monthly board meetings were attended, documents were studied and 62 interviews were carried out with the beneficiaries of the projects and the project organisers, at two points in time. The nature of success in both projects was explored, as meanings and priorities ebbed and flowed over the course of their lifetimes.

In both projects many causative beliefs were found which defined the problems that each project was trying to solve, the solutions to those problems, and hence the nature of success. This needs to be understood at many levels; at the level of the individual, the level of the group delivering the projects, and at the level of society, or the social system. Failure at one level or in one aspect of the problem does not preclude success at another level or in another aspect. Success can include the achievement of behaviour change, system change or the installation of appropriate technologies, and the achievement of the delivery of locally acceptable projects. However success also includes the resolution of particular local issues,

which colour local projects for sustainable energy. Thus, ‘success’ means many things on many levels, as the problem faced by local projects for sustainable energy is multi-faceted, multi-level, complex and holistic, and because these meanings change and become more or less salient during the life of a project. Those projects which can explicitly promote and manage these different successes have more chance of being viewed positively. The current literature does not address these issues, and hence does not fully represent how these projects progress and are portrayed. This is essential if local projects are to be built upon, to create a sustainable energy future.

Acknowledgements

The research and this thesis has been a huge undertaking, and none of it would have been possible without the forty-two interviewees who agreed to give up their time (in most cases twice) to answer my questions and chat to me in detail. A special thanks to my two case study organisations who let me follow them around doggedly for nearly two years, and for all the extra opportunities that they created for me to find out more things. Thank you ever so much.

This thesis is partly for my Mum and my sister Chris. Everything I ever do is to make you guys proud of me; this is just one more attempt. Thanks for all the hugs and little holidays, and for always being there as the stable foundations of life. Chris – thank you for making me feel better about my procrastination!

Thank you to all my friends; Rox, Rich, Sera, Amit, Lorna, Jenny and Thea, who asked me in trepidation how it was going, and then sat back for an hour while I gave a comprehensive account. Thanks for listening to me go on so. It's over now cherubs! You're off the hook. Thanks for giving me a life outside of this research.

I am hugely grateful to Professor David Boyd and Dr Rachel Curzon for actually helping me to do this PhD. I have changed and developed so much during this process and I am a more thoughtful and reflective person as a result of your guidance and encouragement. Thank you for all the conversations that helped me to learn and question, for all the practical help which got this written, and all the professional advice, opportunities and for just generally taking an interest in me as a person. D'you know, I enjoyed the whole thing really. No I did! Thank you so much for everything.

Finally a big thank you to Ed who has lived this process vicariously through me, and has gone on loving me, supporting me, and brushing aside my hysterics with a good dinner. You are quite possibly the best person in the world, ever. I love you. Thanks for all the packed lunches, for excusing me from pretty much all the housework, and for all the hugs. And the wine. Xx

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List of Abbreviations

BCC	Birmingham City Council
BES	Birmingham Energy Savers
CR	Critical Realism
FIT	Feed in Tariff
FHA	Family Housing Association
IPCC	Intergovernmental Panel on Climate Change
MLP	Multi-level perspective
PV	Photovoltaic panels
SNM	Strategic Niche Management
SusMo	Sustainable Moseley
TIS	Technological Innovation Systems
TM	Transition Management

Chapter 1
Introduction

In trying to create an explanatory framework about the complexity of local energy projects, this research surfaced the multiplicity of the underlying nature of success. "Success" in such projects is difficult to achieve because the nature of the problem that they address is very complex. Essentially, energy provision and use is unsustainable. This is a complex problem because provision and use is systemic and therefore difficult to change (especially at the local level) as it requires changes in infrastructure, institutions, regulations, society and individual behaviour. The problem is also complex because it implies difficulties at many different levels; the individual level, group level and the social level, and often all at once. It is difficult for a project to know where to 'aim' its activities. Local projects for sustainable energy face a real life problem; which, like all real life problems is interdisciplinary in nature. The literature exploring different aspects of this problem is not interdisciplinary enough, and can be said to have difficulty in handling the complexity.

Sustainable energy, and projects that attempt to bring this about are increasingly important, because of the threat of climate change, and the problems of economic and energy inequality. Climate change is often considered one of the greatest threats of the 21st century as it has multiple physical and social consequences (Costello *et al.*, 2009, Parry *et al.*, 2009, Bellard *et al.*, 2012, PewResearchCentre, 2013). The Intergovernmental Panel on Climate Change concludes that most of the observed increase in global average temperatures since the mid-20th century is 'very likely' (i.e. greater than 90% chance) to be due to the observed increase in anthropogenic greenhouse gas concentrations, particularly carbon dioxide (IPCC 2007:39). Natural climate forcing would have produced cooling over this period, rather than warming. The effects of climate change are potentially catastrophic; leading to a reduction in the resilience of ecosystems, a reduction in water security, and increasing risks for coastal areas due to sea level rise and coastal erosion – a particular problem when a large proportion of the world's population live in such areas (UN Atlas of the Oceans 2013). In Europe alone, the risk of inland flooding will increase as will risks to health; and crop productivity and water availability are predicted to worsen (IPCC 2007). The emerging view in the run up to the full publication IPCC's fifth assessment report (in 2014) is that the speed and negative effects of

climate change are even worse than previously thought (Sokolov *et al.*, 2009, Le Page, 2012, Stewart and Elliott, 2013).

Sustainable energy projects are also important for the role they play in dealing with economic and energy inequality. This research is concerned with how this occurs in practice in the domestic sector in the UK, where fuel poverty embodies these issues. Energy use in the domestic sector is nearly a third of total UK energy use, and has risen over the past 35 years (Swan *et al.*, 2010, Utley and Shorrock, 2008), and so this is a key area to target in order to reduce energy usage and carbon emissions. The UK has some of the oldest and least efficient housing stock in Europe (Revell and Leather, 2000, Boardman *et al.*, 2005). The inefficiency of this stock, along with low incomes and high energy prices, can lead to fuel poverty and health issues. A household is traditionally said to be in fuel poverty if it needs to spend more than 10% of its income on fuel to maintain an adequate level of warmth (21°C in living areas, 18°C elsewhere) and to meet its other energy needs (Palmer, 2011). The data collection period of this research took place from the beginning of 2011 until the end of 2012; in 2011, approximately 11% of households in the UK were suffering from fuel poverty, according to the Department of Energy and Climate Change, with areas in the West Midlands seeing a much greater percentage (DECC, 2013). Although the Department of Energy and Climate Change has released no figures for fuel poverty *after* 2011, energy prices rose by 7 to 10% (depending on the energy company) in the winter of 2012-2013 (Which?, 2013), meaning that the situation is likely to have worsened. Fuel poverty has been linked to Excess Winter Deaths and poor health generally, and the improvement in energy efficiency of housing stock is vital in improving public health (MarmotReviewTeam, 2011, Wilkinson *et al.*, 2001). At the level of the individual, fuel poverty is a more immediate and hence important problem than climate change.

Fuel poverty is particularly a problem in the city of Birmingham, where the projects considered during this research took place. Birmingham is the UK's second largest city, based in the Midlands of the UK. It grew from a small market town to a major city during the Industrial Revolution, as a result of its trade, innovation and transport links (Larkham, 2003). Its current sprawling footprint incorporates surrounding villages and new housing developments built to clear slums and build homes 'fit for heroes' in the interwar years and after World War Two (Larkham, 2003). One of the consequences of this history is that a

quarter of Birmingham's housing stock was built before the First World War, the rest mostly built before 1975 (WMCCE, 2011), before more stringent regulations were imposed to improve energy efficiency of new buildings. High numbers of people in Birmingham live in fuel poverty; up to 17% is some Lower Super Output Areas (Centre for Sustainable Energy (2011). The West Midlands suffers from a higher rate of Excess Winter Deaths than do the Scandinavian countries, which have longer and colder winters (Sandwell PCT & West Midlands PHO (2009). In these respects Birmingham is similar to many large, formerly industrial cities which have been hit by the demise of manufacturing and recession, and whose populations now suffer some amount of deprivation (Keeble, 1978b, Larkham, 2003).

Local projects for sustainable energy therefore have an urgent task to tackle in the face of the serious problems of climate change and fuel poverty, themselves the result of a complex and inert system.

Legislation and Government Initiatives

It could be argued that legislation and government initiatives are built upon a belief that purposive and directed change is possible. As anthropogenic climate change and fuel poverty are problems created by human society, it should be possible to solve these problems by changing activities and making new decisions. With regard to climate change, this is the premise for increasing international interest in working together to reduce carbon emissions, as signified by the Kyoto Agreement (UNFCCC 1997). This set legally binding targets for signatory countries to reduce greenhouse gas emissions, by 5% of 1990 levels by 2012. Although subsequent Climate Change Conferences are perceived by some to have failed in setting further meaningful targets for carbon emission reduction (Heffernan, 2010) the UK Government has passed into law its own ambitious climate change targets. As the tenth largest carbon dioxide emitter in the world in 2009 (IEA 2011), the UK's 2008 Climate Change Act is significant for global emissions, obliging the reduction of national carbon emissions by 80% of 1990 levels by 2050. Given that climate change is predominantly a problem of unsustainable energy production methods and energy usage (McKay, 2009), much of this is expected to be done through changes to energy supply and demand management.

Both as part of this legal commitment to carbon emission reduction, and to deal with fuel poverty, the UK government has passed several Acts and run various initiatives which provide part of the context of this research. To deal with the unnecessary overuse of energy and potential fuel poverty resulting from the UK's poor housing stock, the Community Energy Saving Programme (CESP) and the Carbon Emission Reduction Target (CERT) were implemented, and were underway at the time of this research. CERT required utility companies to achieve reductions in carbon dioxide emissions from domestic buildings in Great Britain, and local authorities and social landlords had the opportunity to draw grant funding from energy companies to improve the energy performance of their housing stock (EST, 2013a). This was done through the installation of loft and wall insulation, energy efficient light-bulbs and heating system improvements. CESP was a similar programme, specifically targeted at low income areas. Both programmes facilitated improvements to homes where the householders could not afford these themselves, hence their delivery through local authorities and social landlords. The programmes ended in December 2012, to be replaced by the Energy Companies' Obligation, (ECO). ECO works alongside another new initiative – the Green Deal, which came into force at the beginning of 2013. This allows domestic energy consumers to have energy efficiency improvement works carried out on their homes at no upfront cost. These works are then paid for through a charge on their electricity bill, which must be equal to or less than the amount of money saved on energy bills as a result of the work. This is known as the 'golden rule'; certain works cannot be carried out if the savings they make cannot be paid back in this manner. ECO works alongside the Green Deal to provide additional financial support, thereby allowing some of the more expensive measures to meet the golden rule.

The UK Government also introduced the Energy Act of 2008, which amongst other things, made provision for the generation of energy from renewable resources. This allowed the provision of subsidies to small scale generators of low carbon electricity, of up to 5MW in capacity. This is particularly relevant to this research as such microgeneration technologies had the potential to be fitted on to domestic properties. The eligible sources of energy and technologies include photovoltaic (PV) panels, biomass, biofuels, fuel cells, wind, solar thermal, water, geothermal and combined heat and power systems. The payments are made through the Feed-in Tariff (FIT), which came into force in April 2010. The name is somewhat unhelpful; the FIT is primarily a *generation* tariff; paying a subsidy per kilowatt

hour *produced* by the generator. A tariff is indeed paid for electricity which is not used and therefore fed back into the grid, but this is minor in comparison. In 2011, when the projects presented in the research presented here got underway, the FIT for a 4kW PV panel retrofitted onto a building earned 41.3p/kWh generated, and 3p/kWh exported (assumed to be 50% of the amount generated) for 25 years. The FIT rate has since been significantly reduced, but still provides an incentive for microgeneration technology installation.

Community Energy

Additionally to formal legal mechanisms to promote sustainable energy, there has been increasing activity in the 'community energy' sector (some of which takes advantage of some of the aforementioned mechanisms), which provides another key part of the context of the research presented here. There are currently around 5,000 community energy groups working in the UK (DECC 2014a), and this increasing activity has been noticed, and in some cases supported by Government. For example, the Low Carbon Communities Challenge (LCCC) was introduced in 2010; a £10m two year programme awarding an average of £450,000 to 22 test-bed communities to fund capital infrastructure and deliver behaviour change and community engagement activities (DECC 2012c). Two different 'sorts' of community scale delivery were represented in the projects aided; local community-led projects, and projects which were led by other agencies (such as third sector organisations and local authorities) that were targeted at local communities. LCCC funding helped these communities to scale up existing smaller projects; allowed them to develop ways of converting their grant into a sustainable income stream and raise awareness of low carbon energy in the community more widely, while allowing the Government to learn from this approach to energy. This programme was followed by the Local Energy Assessment Fund (LEAF) from November 2011 until 31st March 2012 (DECC 2014b). This was a £9.2m programme which helped 236 community-led organisations to prepare to take action on energy efficiency and renewable energy, and take advantage of opportunities offered by policies such as Green Deal and the Renewable Heat Incentive. This funding allowed these communities to buy in expertise to develop feasibility plans for future projects or undertake the early steps of project delivery.

The experience and evaluation of these community energy projects has led the Government to publish its first Community Energy Strategy (DECC 2014a). In this Strategy community

energy is understood broadly; covering both community-led or local authority/third sector agency-led projects, and delivering four main types of energy activity; energy generation, energy use reduction, energy management (balancing supply and demand) and purchasing energy. The Strategy sets out a number of mechanisms to encourage the growth of this sector, and remove some of the barriers to it. Thus practical activity and research in the context of community energy is increasing. A research example is EVALOC (Evaluating Low Carbon Communities); a three year research project working with six of the communities who initially won funding under the LCCC in order to assess, explain and communicate changes in energy use as a result of these community activities (EVALOC, 2012). In the world of practice, community energy projects and organisations are growing in number, and new ideas are being put forward for decentralising energy production to the community level (for example OVO Energy 2014, Julian and Olliver 2014).

1.1 The Interdisciplinary Nature of the Research Problem

Tackling unsustainable energy is an urgent task. However, like many 'real world' issues it is also a complex interdisciplinary problem. This is a difficulty of research on issues of sustainability in general; although much has been written on it, it does not fit conveniently into any one discipline. The interdisciplinary nature of sustainability gives the study an additional problem. With regard to local projects for sustainable energy, three bodies of literature are particularly helpful in understanding the nature of the difficulty faced (and hence the possible nature of success), and the level of the problem. These are literature on sociotechnical systems, literature on behaviour change, and literature on planning and local projects.

Energy is provided as part of a 'socio-technical regime' (Rip and Kemp, 1998); a critical theoretical insight. In this regime ways of providing energy, regulating it, paying for it and using it are hardwired in a complex and interlocking system, based on unsustainable fossil fuels. Within such a regime, a problem at a high, social level, it is difficult to do a project at the local level to bring about a more sustainable system (such as a small decentralised renewably sourced system) as the current (national) system prevents this. There has been some recognition of this internationally, and of the need therefore to bring about a 'transition' in the energy system (Geels, 2002). The Netherlands is a centre of research and

implementation of this theory (DRIFT, 2013). This knowledge and insight is shared across Europe, for example through the European Institute of Innovation and Technology, which runs the Pioneers Into Practice programme which embraces the theory of socio-technical systems and their transition (EIT, 2013). Subsidies, such as the FIT described above, can be interpreted as one method to effect such a transition.

Energy behaviours are part of the current energy system and play their part in driving that system. They are not compatible with a sustainable energy system based on renewable sources of energy. Firstly, renewable sources simply cannot provide the level of energy to which UK energy users are accustomed. People will need to change their behaviours to greatly reduce their use of energy. Secondly renewable energy may need to be used more creatively, such as carrying out more energy intensive activities at times when more energy is available. Local projects for sustainable energy must address this part of the problem – a problem at the level of an individual's behaviour. However this is difficult to do. There have been many campaigns from government and other organisations encouraging people to change their behaviour, such as 'Act on CO_2', the government programme to help people reduce their fossil fuel use (Directgov, 2011), the 10:10 Campaign, and the work of organisations like the Energy Saving Trust and Friends of the Earth (10:10, 2013, EST, 2013b) Birmingham Friends of the Earth, 2007).

Local projects for sustainable energy also face the difficulty of attempting to deliver change at all at the local level. An organisation might suffer from a lack of resources or time to devote to such a project (Derkzen and Bock, 2007, Bomberg and McEwen, 2012), there may be opposition to the project based on the activity itself (Cass *et al.*, 2010, Devine-Wright, 2009) or who is leading on it and their role as an 'expert' or otherwise (McAreavey, 2006, Derkzen and Bock, 2009). The difficulty of actually planning a project and getting it off the ground in any area of concern, sustainable energy or otherwise, presents another aspect of the problem faced by local projects for sustainable energy, and is often a problem for the group of individuals attempting to run said project. It could be argued that this is increasingly difficult for both local government and community organisations, as budgets are cut and less supportive funding is available (Bhati and Heywood, 2013, LGA, 2012).

The nature of the problem is thus complex, given all of these particular facets, and the mix of social, small group and individual problems that they present. It is therefore difficult to know where to aim the activities of a local project for sustainability, and how best to address this problem. The nature of success in such projects is therefore not well understood; the literature available to help understand such projects is not interdisciplinary enough.

1.2 Defining Key Terms

A further challenge is created by recognising that the problem faced by local sustainable energy projects manifests itself at different levels and viewpoints. This gives a problem of terminology, whereby similar things are referred to under different labels. A purposive activity might be called a 'project' by the people who are actually carrying it out, but might be referred to as an 'intervention' by those working at a more abstract level, such as policy. Some of the key concepts in this research are therefore sometimes referred to by different terms. The precise term used will follow the terminology used in the different disciplines of the literature or by those interviewed in the local project case studies, at whatever level they viewed the world. The key terms are 'sustainable energy project', 'interventions', 'behaviour change' 'energy saving technologies', local authority-led vs 'community-led' and 'success'.

A **sustainable energy project** is any project which installs renewable energy technologies, or energy efficiency measures, or other technology which helps make the use of energy more sustainable. Sustainable energy technologies could therefore be anything from installing PV, to loft insulation, and to smart meters or other awareness raising technologies. Sustainable energy projects can also be projects which include (or even focus solely on) energy behaviour change. This definition is very wide ranging. However a sustainable energy system will require new renewable technologies, reduced energy use, improved building fabric, and a suite of complementary behaviours. Therefore a sustainable energy project, to answer such a complex problem, can be something which tackles any one of these areas, or several at once.

The Oxford English Dictionary defines 'to intervene' as to "take part in something so as to prevent or alter a result or course of events" (2013). An **intervention** is defined for the purpose of this research as any regulation, policy, programme, measure, activity or event which aims to influence behaviour in some way (Wilson and Dowlatabadi, 2007). The legal mechanisms

and subsidies mentioned above are a type of intervention, as are the full projects that provided the case studies for this research. 'Interventions' can include projects, but 'projects' are just one type of intervention.

Behaviour change (in the context of energy behaviour) is often used to describe simple changes in an individual's daily life which reduce their energy use, such as turning off lights in a room when one leaves it, turning off electrical appliances properly after having used them so they are not on 'standby', and putting extra clothing on to warm up, instead of automatically reaching for the heating controls. This is applicable to both the domestic and commercial/non-domestic context. Such changes in behaviour can apply to both energy use for electricity and space heating, and can be daily habits, such as switching off lights or putting on jumpers when it is cold, using a clothes line rather than a tumble dryer, and so on (Barr *et al.*, 2005, Stern, 1992, Black *et al.*, 1985). However a further related change in behaviour is that of 'purchasing activities' (Barr *et al.*, 2005) which are long term alterations to the structure of the home, such as insulation, double glazing or energy efficient or energy saving appliances. Therefore behaviour change also means buying or otherwise choosing to adopt a solar panel or another form of microgeneration technology. This represents a behavioural choice to use energy produced from renewable resources, as opposed to that produced conventionally. This research understands 'behaviour change' broadly, to include all of the examples and explained above. This is justifiable because energy use is an implicit part of life in the UK, (as in other developed nations) (Shove, 2003) so many different types of behavioural decisions and hence changes are relevant.

Energy saving technologies are commonly assumed to be energy efficiency measures such as double glazing, insulation or more energy efficient appliances, or even technologies which help to conserve energy (rather than use it more efficiently), such as motion-sensor lighting. However, following Faiers and Neame (2005) this research also includes microgeneration technologies in this definition of energy saving or energy efficiency technologies. This is because energy used from microgeneration technologies can represent a saving in energy provided by a utility company, and so a saving in money. As energy prices increase, society increasingly conflates energy saving with money saving – both become relevant (SaveMoneySaveEnergy, 2010, EST, 2013b).

With regard to local projects of any kind, these can be organised in a number of ways, and come from different places or levels within society. This is described throughout the research as **local authority-led** projects as opposed to **'community-led'** projects. This appellation follows the conventions used in previous research on community energy explained above (DECC, 2014). The key difference for this research is to do with the participation of local people in the organisation of the project. Local authority-led projects are led by the local authority; this is one of a number of ways of organising projects that are are defined as 'community focused' in the UK Government's work on the Low Carbon Communities Challenge (DECC 2012), and is similar to projects delivered by other professional organisations such as professional but non-profit or charitable organisations, private companies, etc., or some partnership thereof. Projects organised by these agencies have access to professional resources and expertise. Community-led projects are defined as those delivered by local, neighbourhood, and often voluntary community organisations or groups, whose members live in the area where the project takes place. Within the academic literature this definition is not always so clear-cut (Derkzen and Bock, 2007, Leighninger, 2006). For this research, however, these definitions are used as they provide a way to practically understand the key differences between the organisations behind the projects studied.

Finally, a key concept within this research is that of **success**. The purpose of this research is to explore the nature of this concept, therefore no definition can be given at this stage. It is however, a difficult concept; individuals may think they know what success is and that therefore the important question is one of quantitative measurement; how much success was achieved. However, as this research shall show, success can be conceived of in many ways; the question is about the exploring the diversity of the meaning of success.

1.3 Research aims and objectives

The aim of this research is to explore the nature of success in practice in local projects for sustainable energy, to better understand their role in bringing about change in energy systems. This research was undertaken in the context of a number of 'exciting' projects taking place within the city of Birmingham relating to sustainable energy and therefore has a strong practice thread. The aim is achieved through the following objectives:

- Objective 1: Critically review theories of change in society, in individuals and in communities in the context of sustainable energy with regard to the understanding of success.
- Objective 2: Explore the conceptions of problems of different people involved in local projects, and the mechanisms they use to resolve those problems.
- Objective 3: Determine what factors lead to project success.
- Objective 4: Identify key factors which facilitate sustainable energy behaviours.
- Objective 5: Develop an explanatory model of projects that addresses the complexities of the interaction between different conceptions of success and different project outcomes.

The research seeks to deepen understanding of the research issue, but also explore what really happens in practice in local projects for sustainable energy through a longitudinal study. Thus, the outcomes of the research have real world applications for understanding the delivery of success of local projects for sustainable energy, and for building on that understanding to create further change.

1.4 Approach to data collection

The difficulty of investigating a real-world problem that is inherently interdisciplinary is that there are many ways of investigating that problem, and it is therefore a challenge to choose a single approach. Many are valid. Critical realism is the approach used here as it acknowledges the existence of a number of perspectives combined with an emphasis on critical reflection; and aims to not just understand the world but to improve it. Critical realism acknowledges that there are aspects of the world that are knowable, and it is the way these facts are used that is at issue. This methodological position allows us to conceive of change; in understanding one's own role in reproducing social structures, one is in a position to consider alternative structures in favour of 'better' ones (Ackroyd and Fleetwood 2000). This research also follows an approach which is grounded in data; to provide greater understanding and development of the research area of the success of local projects for sustainable energy. The methodology will be explained in full in chapter three. In brief, case studies were used as they give the kind of rich and context-bound insight into a phenomenon that is necessary when studying real-life problems in the social world. The case studies were longitudinal, taking place over a period of 18 to 20 months so that each project, the nature of

the problem it tackled and therefore the nature of its success could be better understood. Two case studies were selected, both based in Birmingham, according to robust criteria. One organised by a community group and one by a local authority, to see if there were any further differences in the success of the project as a result of the different types of organisations that were running them. These different types are labelled as local authority-led and 'community-led' throughout the thesis, but there is no value-judgement implied in this.

Within each case study, interviews were carried out with two groups of people. These were the project organisers; who planned and ran the project, and the project beneficiaries; who were the recipients of any technologies or measures and whose response to the project were explored. Across both case studies, sixty-two semi-structured interviews were carried out, across two time points; at the beginning of the intervention and a year later. Throughout the period of research, board or project meetings for both cases studies were attended once a month. Reports, meeting minutes and other documents also provided important ancillary information.

The data collection process was felt to be the most appropriate mechanism to fully explore how local projects for sustainable energy actually deal with the complex problem they are faced with, and hence explore the nature of success in such projects, filling an important gap within the literature.

1.5 Thesis structure

This thesis is subdivided into seven chapters. Chapter one introduces the context of the research and the issues to be addressed. Chapter two discusses the interdisciplinary nature of the research problem, and reviews the three bodies of literature which are most relevant to it. The first is the material on sociotechnical systems and transition. The second explores theories of behaviour change. The final body draws on the democratic planning literature, including participation in projects for change. These three areas are drawn together because they are all necessary to explore more fully the nature of the problem faced by local projects for sustainable energy, and therefore the possible nature of success for such projects. Chapter three sets out the methodology used; discussing, justifying and setting out the data collection process within the context of wider methodological position. It also addresses the researcher

herself, examining her motivation to carry out this research and how she engaged in reflexive practice to address the problem of herself in the study. Chapter four explores the first case study, describing the story of the project which is its subject, and discussing the problems faced at different levels within the project. Chapter five does the same for the second case study. Chapter six synthesises the findings of the two case study chapters and presents the explanatory framework generated from the research findings. The final chapter discusses the research outcomes, including the key findings and their implications, recommendations and future research. Following this, there is a complete list of references and Appendices.

Chapter 2
Literature Review

This research is interdisciplinary and uses theory from three bodies of literature to better understand the nature of the problem faced by local sustainable energy projects. By better understanding the problem, the nature of success can be better understood. The difficulty here is that a vast amount of literature from different disciplines could be brought to bear on this issue; and yet within a thesis of this scope a decision has to be made. Furthermore within Grounded Theory, reviewing literature, collecting data, analysis and theory generation can occur simultaneously. As such, some of the literature chosen was done so to help understand research findings. Therefore the three bodies of literature from which elements were chosen are; literature on sociotechnical systems, literature on behaviour change, and literature from the discipline of planning.

Elements of the psychological and socio-psychological behaviour change literature were chosen as they inform many government behaviour change initiatives (including those which are part of community energy projects), and so this was necessary to understand. This literature was also necessary in understanding why such initiatives did *not* always work (Owens and Driffil, 2008). The concept of sociotechnical systems was another reason why such interventions at the micro-level were not working, and so this literature was also necessary. Finally, the elements of planning literature used discuss projects for change in society, of which local projects for sustainable energy are an example; hence the use of this literature.

Therefore these three bodies of literature are used to explain the specific difficulties faced by a local project trying to bring about sustainable energy, an endeavour requiring change at many levels. Change is required at the level of the wider society and the national energy system. Change is also required at the level of the locality where the project is planned and organised, (which may also include local manifestations of wider social problems), and at the level of the individual, where immediate change may be experienced. These bodies of literature also highlight the difficulties faced by projects for sustainable energy at these three levels. An unsustainable energy system is a problem for society and yet trying to organise a local project to tackle that system in a neighbourhood becomes a problem for the small

number of individuals involved in delivering that project. An unequal energy system is a problem for society, but the fuel poverty which is a result of it is a problem experienced by an individual, or an individual household. The problem faced by local projects for sustainable energy is therefore best understood by using elements from these different literatures, where they were most explanatory. Taken alone, each of these bodies of literature is insufficient in explaining the problem faced by local projects for sustainable energy, but together they are all 'pieces that make up the jigsaw' which explains this reality.

The difficulty of a written thesis, like any written document, is that it forces linearity where there is not always one in reality. Presenting theory on sociotechnical systems before theories of behaviour change runs the risk of forcing the latter to be interpreted in the light of the former. In truth, difficulties in changing behaviour coexist with the difficulties of changing the energy system; each is both a cause and an outcome of the other. They are two ways of looking at the same problem which exist in parallel (Shove, 2011). The organisation of local projects is both affected by these difficulties, and in turn affects them. Therefore the reader is asked to bear in mind that although these topics must be presented in some order, the order does not imply that each topic is a subset of the previous one. All three topics together explain the different nature of the problem faced by local sustainable energy projects, and therefore throw some light on the nature of success.

The order chosen is: firstly the literature on interdisciplinarity will be discussed to identify the problematic nature of real world problems. Following that, the first of the three major bodies of literature to be reviewed will be that of sociotechnical systems; to give a high level perspective on the problem. The second section will look at behaviour change, to show the problem of individual behaviour within such a system. The final body of literature will be from the planning discipline, looking at how energy projects play out in this intermediate level of the problem.

Finally, as noted above, some of this literature looks at the same problem in different ways, through different lenses or paradigms. Each paradigm comes with its own terminology. 'Energy users' in the sociotechnical systems literature become 'individuals' in behaviour change literature. In the planning literature, terms such as 'community representatives' or 'beneficiaries' or 'project deliverers' are used. Projects are 'projects' in the planning

literature, but 'interventions' in the behaviour change literature, and sometimes the sociotechnical systems literature. Some of this terminology is different again to that used by the participants in the present research. As confusing as this is, it reflects deeper assumptions about the nature of the problem as viewed by each body of literature. As such, this literature review will follow the conventions of terminology of each body of literature while discussing that literature, in order to demonstrate those assumptions.

2.1 Interdisciplinarity

"Communities Have Problems. Universities Have Departments" (OECD, 1982)

Interdisciplinarity is increasingly called for as essential to solving real world problems in the context of globalisation and climate change (for example Bhaskar *et al.*, 2010, Reid *et al.*, 2010); to succeed where single disciplines fail. This section will report on the necessity of interdisciplinarity in general, before giving a fuller understanding of the term, followed by the especial need for it in a world facing the effects of climate change.

Disciplinarity involves semi-stable and partially integrated thought domains consisting of problems, theories and methods of investigation (Aram, 2004, cited in Chettiparamb, 2007), and has long been a way of structuring academic practice in universities and goverment (Bursztyn and Drummond, 2013). There are good reasons for this. Focusing on a problem from a particular perspective allows academics to understand this one perspective as they are not confusing the picture with multiple perspectives (Sartori, 1969). This allows the discovery of the building blocks of knowledge. Disciplines are also important for fostering rigour in scientific enquiry through their specific methods, and to provide a 'marketable' discipline (Chettiparamb, 2007). However there are serious disadvantages to Disciplinarity which necessitate the call for interdisciplinarity. Disciplines, by framing problems in certain ways, only regard certain information as relevant. Important insights can be lost as they fall between the 'cracks' or interstitial gaps between disciplines (Nissani, 1997, Campbell, 1969). Disciplinary scholars also become less aware of the rules and assumptions of their discipline, and can no longer critique those assumptions in the way that new scholars might (Chettiparamb, 2007, Greaves and Grant, 2010).

A major criticism of disciplinary approaches is that they look to the problems of the disciplines, rather than the problems of society (Nissani, 1997, OECD, 1982). Scholars may fall into the trap of defending the assumptions of their theory instead of engaging in objective analytical inquiry in order to find out what is actually happening out 'there' (Rosamond, 2006). Instead, as Nissani describes – interdisciplinary 'hunters for truth' (1997 page 208) follow their quarry past human-made 'no trespassing' signs. A researcher on sustainability might study earth systems science, atmospheric chemistry, industrial practices involved in agriculture and energy production, cultural practices and consumption, individual behaviour, politics and economics, in order to get a full understanding of humanity's unsustainable relationship with the planet. When simple disciplinarity is used in conjunction with real world problems, it can at times be positively dangerous, as problems are viewed as discrete issues instead of nodes within an interconnected system. Viewing heating provision in households as a separate issue to fossil fuel consumption more generally and its environmental effects is symptomatic of the disjointed thinking which could be said to have led society into the predicament of anthropogenic climate change.

Interdisciplinary research can be described as bringing together distinctive components of two or more disciplines in the search of new knowledge or understanding (Nissani, 1997). It has also been described as an 'ecology of idea' that does not demand unity or override differences (Hayles, 1990). Brewer (1999) argues that interdisciplinarity must begin with a problem-focused viewpoint, and that integration, synthesis, contextualisation, scale relevance, validation of disciplinary worldviews, theories and methods and longer time horizons are part of it. Interdisciplinarity has been exulted by Nissani (1997) for (amongst other things) leading to more creative thought, for the important contributions it can make to disciplines themselves, for the detection of errors by people with knowledge of two or more fields, for the study of topics which often fall in the interstices between the traditional disciplines, for its ability to better approach real world problems, for the flexibility of research it entails. As interdisciplinarity develops within academia, there have sprung up a number of taxonomies and definitions of concepts within it, although there is not always agreement on those terms (for example Tress, 2006, versus Klein, 2010). Leaving that wider debate aside, the understanding of interdisciplinarity used in this research is using the concepts and insights of three disciplines to contribute to the understanding of real-world problems.

Interdisciplinarity is increasing in sustainability scholarship (Lam *et al.*, 2012), including the provision and use of energy. The issues posed by unsustainability are urgent, and yet according to Bhaskar *et al.* (2010) many researchers working on the issue still do not have a framework for coherently integrating the findings of distinct sciences, and integrating those findings with political discourse and action. Reid *et al.* (2010) in their setting out of grand challenges for research in global sustainability, point out that economic and social science data are often gathered and reported at scales that are incompatible for analysing interlinkages between social and natural systems, and that the paucity of empirical data on changes in social-environmental systems undermines the ability of decision makers to establish appropriate response to emerging threats and address the needs of vulnerable groups. How we are to live upon this planet sustainably, and what we must change to reach that goal, is one of the most 'wicked' of 'wicked' problems (Lazarus, 2009, Ison, 2008), requiring insights from widely varying disciplines. Whitmarsh *et al.* (2011) point to the increasing value of interdisciplinarity in sustainability research, and to the number of studies which have brought sociology, psychology and other approaches together, such as Nye *et al.* (2010). Shove (2011) stresses that nowhere is interdisciplinary thinking more important than at policy level, where many questions for research are framed. Current problem framing on energy behaviour, for example, shuts out insights from a number of disciplines, and forces questions to be answered in terms of individual behaviour and personal responsibility (Shove, 2010). Drawing on Kuhn, Shove argues that "*contrasting paradigms are valuable because they generate different definitions of the problem*", not because they provide "*a more colourful palette of responses to matters of urgent concern*" (Shove, 2011:264).

In summary, interdisciplinary research is important to understand the nature of real-world problems, notwithstanding criticisms that such an approach can be considered superficial and lacking in detail (especially by the Research Assessment Exercise, and some high impact journals; Lau and Pasquini, 2004, Rafols et al., 2011). For research into sustainability issues, which are necessarily holistic and interdisciplinary, this research approach is increasingly important. Again, the problem exists at many different levels – social, individual and group. Often, given the origins of any one discipline, it will only focus on one level of the problem. In this research, insights from the literature of three different disciplines have been used to better understand the nature of the problem at all levels, faced by local projects for sustainable

energy. If the nature of the problem can be better understood, then the nature of success will be clearer.

2.2 Sociotechnical Systems and Theories of Transition

One important reason why success in local sustainable energy projects is difficult to achieve is because the *un*sustainability of energy is systemic. The UK, like much of the developed world, is locked into a particular way of providing energy, in which technology, institutions, relevant education, businesses, regulations and social expectations of energy are interconnected in a stable web. Sociotechnical systems theory addresses this as a key problem. This section will review the literature on sociotechnical systems, including insights from the related fields of Actor Network Theory and Practice theory.

This section will then go on to explore the meaning of success *implicit* within this body of theory, and discuss some of the limitations of that understanding.

The Sociotechnical Regime

A sociotechnical regime is the interconnected system of technology, institutions, regulations, user practices, symbolic meaning and so on that provides a 'societal function', like energy, housing or transport. The theory sees technology as not separate from society, but embedded within it, each influencing and being influenced by the other. Much of the academic work developing the concept of sociotechnical systems was done in the 1980s and 1990s, and the key seminal insights of this period will be discussed first, before drawing in later insights.

Rip and Kemp (1998) explore the concept of technology from the systemic viewpoint of sociotechnical systems, and conceive of it as 'configurations that work', comprised of artefacts as well as procedures and people. Ways of doing business, ways of financing, the sorts of technologies that are financed and manufactured, the laws that regulate businesses and technologies, and the way infrastructure is used in society, are all components of a wider system that are interdependent. Since these components are interdependent, they become stabilised and shape further action. Nelson and Winter (1982) coined the term 'technological regimes' to describe the coordinated activities of engineers and firms which come about through shared cognitive routines. These routines or rules guide how this community of firms

and engineers views problems and attempts to solve them. Shove (1998) gives an example of this; an architect working in a public sector organisation on a housing project will follow certain rules and conventions such as standard cost guidelines, or the production of houses that tenants can afford to heat. However an architect working in a private sector organisation will follow a different set of rules and conventions, reflecting the rationale of the organisation; to produce marketable houses at a profit.

Rip and Kemp have built on Nelson and Winter's work and give the following comprehensive definition of technological regimes (1998:338):

> *"A technological regime is a rule-set or grammar embedded in a complex of engineering practices, production process technologies, product characteristics, skills and procedures, ways of handling relevant artifacts and persons, ways of defining problems – all of them embedded in institutions and infrastructures"*

This understanding of a regime has since been widened from a technical regime concerning the development of knowledge, to include more demand side societal groups (Geels, 2004). Users, policy makers, societal groups, suppliers, scientists and capital banks are also involved in this system (Geels, 2002); they too influence, and are influenced by it. This concept of a socio-technical system can be demonstrated by looking at the system of energy provision in the UK. Electricity is mainly provided through the burning of fossil fuels at large centralised power stations, carried to the end user via an alternating current in electricity pylons. Electricity is mostly provided by the 'Big Six' energy companies. Engineers and other skilled personnel make up these companies. Knowledge is provided by their own R&D departments, as well as universities and private and public labs, fed by university graduates and the education system as a whole. The National Grid is managed by a number of District Network Operators. Finance is provided by banks, usually to companies that represent a low risk investment (Unruh, 2000), in this case the Big Six. Materials and components are supplied by other companies within the supply chain. The energy market is regulated by the Office for Gas and Electricity Markets (Ofgem). Electricity users are both commercial and domestic customers with expectations and well defined practices to do with energy. Energy provision is a 'seamless web' (Hughes, 1986), whereby artifacts, entrepreneurs, networks, banks, regulations, users join together in a large technological system.

A key insight of this theory is that the conventions of everyday life are the result of collective, contingent and emergent processes of sociotechnical co-evolution (Shove, 2005). People today are surrounded by technology, and this shapes perceptions, behaviour and activities (Geels, 2004). An example is that of modern transportation. Roads and cars allow people to travel longer distances. Cars take on important symbolic meanings concerning freedom of mobility (Wilhite and Lutzenhiser, 1999), and more and more people buy them. Cars facilitate urban sprawl, allowing people to get to work even if they live quite far away. Urban sprawl then necessitates the further use of cars. Another example is the use of the internet and social media platforms. The creation of social media sites now allows people to keep up to date with their friends and families, comment on breaking news stories and mass organise. Blackberry Messenger was said to have played a key role in organising the English Riots in 2011 (Halliday, 2011). All these ways of acting socially are now carried out through social media. In both examples, technologies are integrated into users' practices, organisations and routines; this is an active process involving learning and adjustments (Geels, 2002). Technology is not simply 'adopted' by users; instead the two co-evolve with each other.

Stability, or inertia

This co-evolution between technology and society's expectations of life leads to stability. This is another key insight given by the theory of sociotechnical systems; that mature systems become locked-in along stable trajectories (Geels, 2002, Lovell, 2005, Shove, 2003). The interdependencies and interrelationships of the components reinforce the status quo. Choices and decisions are influenced by past investments and established practices (Lovell, 2005). After a new invention, technological variants flood the market, but eventually a design becomes dominant, and captures the majority of the market share. Once this dominant design has become established, further innovative work focuses on improving that design (Nelson, 1995), and building knowledge about it; rejection of the dominant design would render such knowledge obsolete. For example Lovell (2005) notes that despite evidence of a rise in the demand for low energy housing in the UK, little has yet been built. The technical expertise, government regulation and production practices are such that houses are built in a conventional manner. Since houses are built this way and are a durable project, it is difficult for house buyers to articulate their demand for low energy housing by making alternative purchasing decisions. The housing regime is therefore inert and unchanging. In Germany,

however, thermal renovation of existing houses to make them more energy efficient is strongly supported by the federal government, with generous subsidies, a strict building code and a strong renovation structure. As such Germany is a world leader in domestic energy efficiency and low carbon homes (Galvin, 2010, Murphy *et al.*, 2012).

Such 'lock-in' or stability has severe implications for unsustainable energy use and climate change. There are a number of energy efficiency and renewable energy technologies (such as solar energy, or combined heat and power systems) which would lower domestic and commercial building running costs and thus release far fewer emissions into the environment but they are not adopted because of lock-in to more inefficient and energy hungry systems (Unruh, 2000). Instead the system follows a trajectory consuming ever more resources. Shove (2003) demonstrates this with her study of comfort. People have made themselves comfortable in a number of different ways in the past, but increasingly 'comfort conditions' are provided in a much narrower band. Buildings providing air conditioning or heating habituate the users to that temperature so that temperatures outside of this band are experienced as uncomfortable. Once air conditioning becomes widely available as a technology, houses and offices are built *for* it, omitting features that aid natural ventilation such as verandas, particular layouts and overhanging eaves. Air conditioning is now *necessary* for the occupants of air-conditioned buildings to be comfortable. Air conditioning has become 'hard-wired' into the fabric of the building. Shove describes this as a "ratchet-like path dependency" (2003:399), where it is impossible to go backwards as these systems are path-dependent in one direction. Furthermore, as air conditioning is so resource intensive, lock-in to this definition of comfort commits society to the emission of greenhouse gasses.

Power is also a key factor in the stability of the regime. Vested interests in the current regime would not be interested in its displacement by alternatives, even if they are more sustainable (Smith *et al.*, 2005). Lukes (2005) points out that power can prevent certain actors from even realising they are disadvantaged to begin with, so they believe their interests are tied to that of the regime. People believe they need cheap energy so they can heat and light their homes affordably, rather than they need more energy efficient housing so that they do not need as much energy to power their homes affordably. This power structure and inertia in the system is a critical problem faced by local projects for sustainable energy, which rarely have the power to challenge or change this national, higher level system.

Rules

To go further into detail to explain why such trajectories are so hard to break out of, it is useful to return to the concept of rules. Geels (2004) is interested in how human actors relate to sociotechnical systems, while acknowledging that humans are not entirely free to act as they wish. He therefore uses the concept of rules to explain this interaction, and describes this as the coordination and structuration of activities. He argues that this coordination is done in three different ways; cognitively, normatively and regulatively. Regulative rules are explicit formal rules, incentives and sanctions such as government regulations. Normative rules refer to values, norms, role expectations, rights and responsibilities. Cognitive rules are about the nature of reality, knowledge paradigms and problem agendas. These rules or routines sometimes constrain actors – embedding them within wider structures which configure their preferences, aims and strategies. Cognitive rules can make engineers and designers look in some directions for solutions, but not others. Normative rules give rise to expectations of 'proper' behaviour; such as which questions are improper to raise. Regulative, formal rules can stabilise systems through legally binding contracts. Interdependencies between all three sets of rules mean changing one set alone is difficult. Guy and Shove (2000) gives an example of technical practices or routines configuring behaviour in the commercial building sector. Here, design companies produce marketable office developments at a profit, and hence design them to very high specifications, often beyond the needs of the future tenants. A designer working in such a context would then be compelled to make choices about their design which reflect those norms and problem agendas, rather than low running costs. The same designer working (for example) in France, where businesses tend to own their office buildings, might design the building more to the specific requirements of the individual client, which may include running costs. Following these rules and picking conventional solutions is seen as the more responsible course of action. Choosing innovative solutions which come with uncertainties (simply because they are novel) is more risky (Biggart and Lutzenhiser, 2007a).

However as mentioned already, rules *enable* as well as constrain. Rules make action possible by providing co-ordination and stability, and within these rules there is room for interpretation

and strategic manoeuvring (Geels, 2004). Rules and regimes constitute a 'game' which is played out by actors; in firms, public authorities, users, scientists, suppliers etc. Different groups act to achieve their own aims, and their interactions with other groups are a game in that they react to each other. Such actions can both maintain or change aspects of sociotechnical systems. For example, after various changes in energy policy in the 1970s in Holland as a result of the oil crises, the introduction of the Energy Law in 1989 ushered in stability and the separation of energy production and distribution, in order to enhance dynamism and efficiency. Energy distribution companies strategically set up joint ventures with industrial companies which were producing energy, to construct large scale Combined Heat and Power plants. Under these new rules of the Dutch energy 'game', decentralised energy generation expanded rapidly in the 1990s (Verbong and Geels, 2007). Under these new rules, the game had changed, and allowed new opportunities.

Rules demonstrate again the constraints faced by local projects for sustainable energy – they make it difficult to come up with new innovations, much less 'sell' those innovations to regime actors. However the above shows that the situation is more complex; changes in regulations, such as the Dutch 1989 Energy Law or the UK's 2010 introduction of Feed in Tariffs, provide new and stable (at least where political will is consistent) opportunities which can be capitalised upon by local projects for sustainable energy.

The 'Energy User'

Within this stable and inert system a particular attitude towards energy is created amongst energy users. Devine-Wright (2007) builds on Moscovici's (1984) social representations theory to understand 'common sense' ways of representing energy, and those who use it. The most dominant way of representing energy is as a commodity, which in turn frames energy users as 'customers'. The current sociotechnical regime of energy provision (as previously stated) is a centralised system of generation and supply. This centralised system coexists with a commonly held 'deficit' view of energy users who are separated from and minimally engaged in energy systems. Devine-Wright (2007) points to a range of social research which suggests that energy consumption is largely taken for granted, that there are low levels of awareness about energy prices, little understanding about how energy technologies actually work, and an 'out of sight, out of mind' view of centralised power stations. This centralised

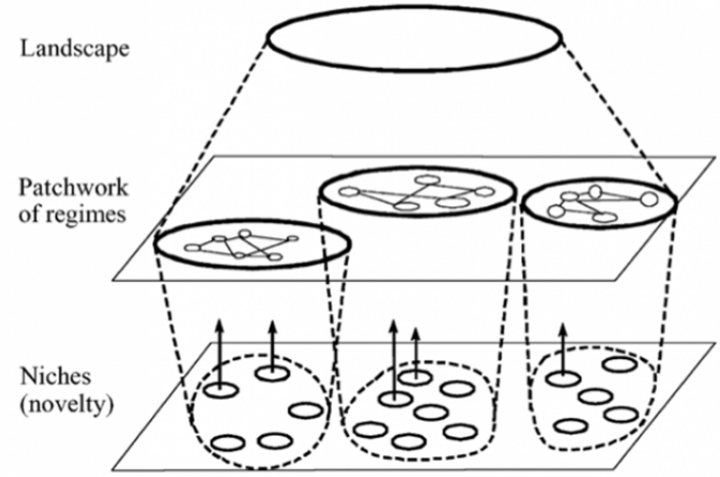
system is embedded within and has helped produced a social representation of 'energy consumers' that is characterised by deficits in interest, knowledge, rationality and environmental and social responsibility. This in turn leads to policies which further create this situation, as large power stations continue to be built away from population centres, and individuals are mainly excluded from debates on energy provision in favour of an expert-led streamlined approach to that provision.

In contrast, there is evidence to show that energy installations that are community-owned, requiring active engagement on the part of individuals, are more acceptable to local communities and can lead to greater awareness of sustainability issues and energy use (Warren and McFadyen, 2010, Rogers *et al.*, 2012, McLaren Loring, 2007). In the UK, such community owned renewable energy installations are rare given the incumbent regime; they are more common in Germany and Denmark (McLaren Loring 2007). However, the challenge of changing 'energy users' into 'energy citizens' (Devine-Wright 2007) in this way is a great one for local projects for sustainable energy.

The Multi-Level Perspective

A final key insight that comes from the theory of sociotechnical systems is the 'Multi-Level Perspective' (MLP) (Rip and Kemp, 1998, Geels, 2002). While the discussion until now has been about sociotechnical regimes in their stable state, the MLP helps to understand how sociotechnical systems change from one regime to another. It is helpful because it shows different levels in the interrelationships between technology and society, and allows for the accommodation of the human agency of innovators while also doing justice to the way in which context shapes and is shaped by new technologies (Berkhout *et al.*, 2003). These levels are not ontological descriptions of reality, but analytical concepts which help to understand both the stability of the sociotechnical regime and dynamics of change (Geels, 2002). This is represented diagrammatically on the next page.

Figure 2.1 – The Multi-Level Perspective (taken from Geels 2002, page 1261)



The MLP describes three levels – a micro, meso and a macro level. The sociotechnical regime sits at the meso level, and works as described above; incremental innovation to improve the dominant design of technology (Nelson, 1995) occurs within this level, dynamic games are played out within and between firms incumbent in the regime according to their rules and routines, user preferences are for the technology (and ways of using it) of the regime, and regulations suit the peculiarities of the regime. At the macro level is the sociotechnical landscape (Rip and Kemp, 1998). This is a different kind of structure to the regime; it is a stabilised backdrop which exerts influence, which it is very difficult to change in any way (Geels and Schot, 2007, Geels, 2004). Technology, or the material culture of societies is part of this landscape (for example, the road network), as are shared cultural beliefs, symbols and values. The term 'landscape' is used because of the connotation of relative 'hardness' – sociotechnical landscapes provide even stronger structuration of activities than regimes. At the micro level there are technological 'niches', which some argue are the site of radical innovations with the potential to change the regime completely (Rip and Kemp, 1998, Smith, 2007b, Hommels et al., 2007, Kemp et al., 1998, van der Laak et al., 2007). They are protected spaces which shield new technologies from the mainstream market selection of the regime. Here heterogeneous actors can learn about the technologies and experiment with them (Geels, 2004). Historical case studies have given examples of such

niches going on to replace the incumbent regime; for example the replacement of sailing ships with steam ships (Geels, 2002). This can happen when changes at the landscape level – such as mass migration from Ireland to America and the rise of luxury cruises – create tensions in the current regime; such as increasing discontent in the irregularity of passenger sailing ships given these changes (Geels, 2002). However, there are a number of ways in which regimes change which do not necessarily involve niches, but simple regime transformation (Geels and Schot, 2007). Theories of regime change and transition will be discussed in section 3.2.3. In the mean-time, the MLP demonstrates a way of understanding how sociotechnical systems change, which could potentially be used by local projects for sustainable energy.

2.2.1 Agency of objects

It is useful at this point to change perspective from the high level and abstract interconnected socio-technical regime and focus on the technology alone; the role that non-human objects play in society. A recurring theme in the above section is the ability of technology to affect both behaviour, and people's perceptions of normal behaviour and expectation. Shove's (2003) example of comfort gives a particularly powerful example. It is therefore helpful to further explore this specific idea from the socio-technical systems literature; that objects can affect behaviour. Here a key idea from actor network theory is used; that of the actor. In actor network theory, an 'actor' is a semiotic definition; an actant, something that acts or to which activity is granted by others (Latour, 1997). Contrary to the supposition that society concerns people, and therefore actants or agents must therefore be human, an actant can be anything provided it is the source of action – it can be human or nonhuman. Law (1992:2) gives the following description of actor networks;

> *". . .the social is nothing other than patterned networks of heterogeneous materials . . .these networks are composed not only of people, but also of machines, animals, texts, money, architectures . . ."*

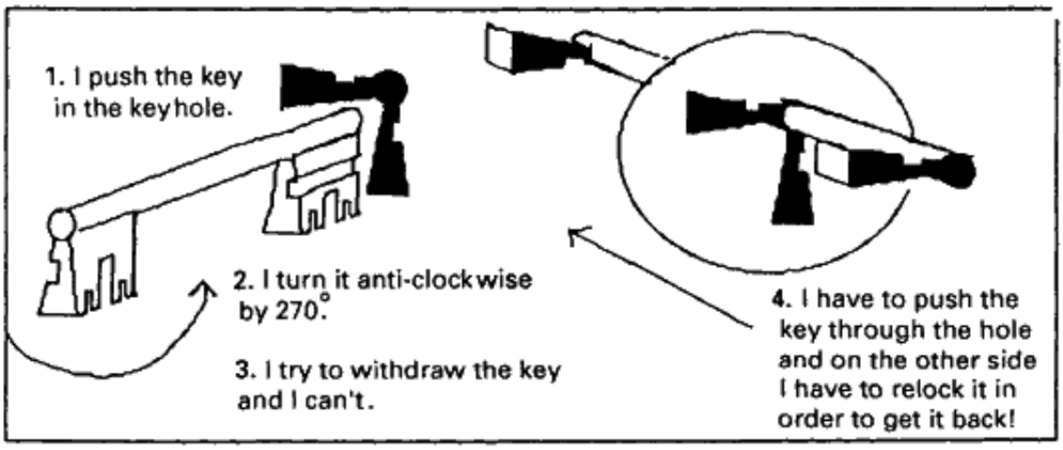
All of these actants can influence behaviour. Latour (1992b) gives the example of a speed bump – it is impossible (or certainly inadvisable) not to slow down when one approaches a speed bump; not doing so would break the suspension of the car. It is impossible as a human member of society to drive at speed down a road which has speed bumps, even if the driver would prefer to. Their behaviour has been prescribed by a nonhuman object. Latour also

gives the example of the Berlinner key. Designed as a result of tenants forgetting to lock their doors behind them, the key looks like this:

Figure 2.2 – The Berliner Key

In order to open the door, the key must be inserted into the lock and turned. However once turned, and the door unlocked, it is impossible to remove the key from the lock. To do so one must push it through the keyhole and turn the key again – effectively locking the door at the same time. It is now impossible to retrieve the key on entering the door without first locking it. Please see the following page for a diagram demonstrating how this key works.

Figure 2.3 – Using the Berliner Key (taken from Latour 1992, page 252)



Once again, behaviour has been prescribed.

Scripting Behaviour

Akrich (1992) introduced the notion of the 'script' of an artefact to capture how technological objects enable or constrain human relationships, as well as relationships between people and objects. It is literally like a film script, which defines a framework of action. Scripts can be

more closed, i.e. more prescriptive, such as the Berlinner key above, or more open, i.e. less prescriptive, perhaps just suggesting a way of behaving. The object alone is not enough; the person must have the knowledge of how to use it. Given this, it is less helpful to think of society being made of things which are human and things which are not. Instead it is helpful to think of programmes of action (Latour, 1992b), sections of which are endowed to humans, and sections of which are endowed to nonhumans.

These scripts or programmes of action can lead to moral behaviour – these objects can make people behave morally (Latour, 1992b, Verbeek, 2006). This idea of moralised technology has been suggested for environmental policy (Jelsma, 1999), perhaps technology can make people behave in a more environmentally friendly way. There is some empirical evidence that this might be the case. Dobbyn and Thomas (2005) in their study on the relationship between energy behaviour and microgeneration technologies note that householders in social housing who had had acquired microgeneration technologies passively (i.e. been given them by their landlord) experienced a striking increase in awareness and understanding about energy issues. Before the installation of these technologies, these social housing tenants had been no more aware of energy conservation issues, climate dioxide emissions and climate change than the mainstream, in other words, not very aware. However after the installation some of them then became very much aware of energy and environmental issues, and changed their behaviour to make best use of the free energy their microgeneration technologies provided. This was especially the case for those who had moved into social landlord built ecohomes, who said they felt "it was better to work with the house than work against the house" (2005:34) Despite a small sample size, Dobbyn and Thomas conclude that microgeneration technologies "seems to provide a tangible hook to engage householders emotionally with the issue of energy use" (2005:7), for their research participants at least. More recent research similarly argues for the importance of microgeneration technologies in increasing energy awareness and literacy and empowering people to engage in energy debates as producers as well as consumers (Bergman and Eyre, 2011).

Keirstead (2007) builds upon these findings in his study on the 'double dividend' effect of PV; the idea that PV panels can reduce carbon emissions both through producing energy renewably, *and* through the reduction in energy demand they inspire. Through a closed format questionnaire from a sample of about 90 households followed by 63 interviews,

Keirstead found an estimated 6% reduction in overall electricity use, and an increase in the use of energy efficient lighting, as well as examples of respondents changing their energy use to suit peak generation. These two studies are examples of more open scripts than the Berliner key – these microgeneration technologies influence, but do not strongly prescribe behaviour. Potentially, these objects would provide opportunities for local projects for sustainable energy; ways of concretely changing the unsustainable energy system.

However, objects cannot so effect behaviour unless they are meaningful to their users. Some of Dobbyn and Thomas's research participants had microgeneration technologies retrofitted onto their homes, and were given little or no information about them. These individuals did not understand their technologies and hence disregarded them completely. If an object is not part of a meaningful practice, reproduced by others like oneself, then it will not be used (Shove and Pantzar, 2005).

2.2.2 Practice theory

Practices are therefore implicit in sociotechnical systems theory, and so it is helpful to address them in their own right. It is not the sociotechnical system alone that drives energy behaviour, but also social practices more broadly which implicate energy. Practice has been conceptualised in various ways by Bourdieu (1992), Giddens (1984) and de Certeau (1984), but they all emphasise routines, shared habits, technique and competence. Practice theories look at actions (such as, for example, tea drinking) as the unit of enquiry (Chatterton, 2011). Reckwitz (2002) has gone on to define practice as

> *". . a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood"* (page 250)

Practices can be conceived of as coordinated entities; a nexus of doings and sayings which are spatially dispersed and temporally unfolding (Schatzki, 1996). 'Nexus' means that they are linked, through shared understandings, explicit rules and 'teleoaffective' structures which include ends, projects, tasks, purposes, beliefs, emotions and moods. Examples include cooking practices, recreational practices, industrial practices, etc. However practice is also conceived of as a performance (Schatzki, 1996). For a practice to be said to exist, it must be

carried out by people, it must be performed (Shove and Pantzar, 2005). Research practices within a utility company are one such example; there are specific ways of framing problems, specific people are involved and carry out the research in a pre-defined manner.

For Schatzki, the attraction of theories of practice is that they are neither individualist nor holist (Warde, 2005). Instead they are pluralist and flexible, varying across different localities (Schatzki, 1996). His position is that both social order and individuality result from practices. There are therefore similarities between practices and Geels' (2004) rules. This concept of rules (already very alike to Bourdieu and Giddens's understandings of practice as routines, shared habits, techniques and competence) enables actors to act through the convergence of actors, predictability, trust and reliability. Actors use rules strategically, as well as sometimes being constrained by them (Geels and Schot, 2007). In the same way, 'practices are brought into being by social actors and continually recreated by them via the very means whereby they expresses themselves as actors' (Giddens, 1984:2). Practices, like rules, both constrain and enable behaviour. As already explained (Lovell, 2005), house builders follow certain practices in the building homes for commercial sale, giving rise to particular types of houses and not others. Such practices make it difficult for individuals to 'think outside the box' and attempt to build different sorts of houses, such as low carbon homes. This is a practice which can be changed; in Europe different sorts of houses are built often with high efficiency standards, given the different practices in those countries, and the different way the 'world is understood'.

Drawing on Latour's (1992b) contribution of the role of objects in sociology, it is important to realise the implication of objects within practices. Schatzki sees practices as consisting of 'embodied, materially mediated arrays and shared meanings' (2001:3), which presumes the existence of objects, among other things (Shove and Pantzar, 2005). Reckwitz points out that 'carrying out a practice very often means using particular things in a certain way. It might sound trivial to stress that in order to play football we need a ball and goals as indispensible "resources"' (Reckwitz, 2002:253), but in fact it is a key point. It is important to acknowledge the material nature of practice. Today, communication practices often involve the internet as much communication is through social networking sites, text messages, emails and Twitter. These new communication practices would be impossible without the physical

accoutrements of the internet; fibre optic cables, modems, tablets, laptops and smartphones. These practices imply heavy energy use (Shove, 2005).

Shove gives many examples of practices which implicate objects; especially objects which use large amounts of fossil fuel derived energy. Her example of the practice of laundry is particularly illuminating. In 16th century France, changing the shirt took the place of washing as undergarments sopped up the outpourings of the body. Hence laundry was a preferred alternative to bathing (Shove, 2003). Shove suggests that today laundry is in fact about clothing care; decontaminating clothes that have been in contact with the body. Washing clothes is much easier today, when many are made of cotton or synthetic fabrics, than it was when they were made of linen, therefore it is easier to choose to 'freshen up' clothes – it is no longer such an undertaking. In 18th century Germany, constant laundering was not necessary among the affluent since they had many clothes. Nowadays however, people have lots of clothes, many of which may hardly ever be worn (Albaum, 1997), so laundry is not about literally running out of clothes. Instead the practice of laundry is about making clothes socially acceptable to go out in; fresh, scented and 'ready' to wear. That practice implicates modern washing machines, since they make the process of washing clothes simple enough for such a practice to develop. American households currently do 392 loads of washing a year (Biermeyer, 2001), nearly three times as many as the 1950s (ConsumersUnion, 1950). Of course, most performers of this practice are unaware of the history of laundry, they are merely following the practices of the day that they have learned. Nevertheless, the implications for energy use are huge.

Practice theory is important to the understanding of sociotechnical systems, as it gives another way of understanding the rules and routines that engineers, firms and all regime incumbents follow, act within, and reproduce. Practice theory also adds to sociotechnical systems theory. Often, since large scale technological systems often command so much attention, there is often little reference to technology 'users' in their own right; to their ways of living and the role of technology within that (Shove and Walker, 2007). Exploring the practices of energy users, (or of mobile phone users, or of computer gamers, or of householders living through winter, thereby implying energy use) is one way of filling that gap. Shove has contributed much to this debate (Shove, 2003, Shove, 2005, Shove *et al.*, 1998). Consumption is generally driven by wider cultural trends towards consumerism, insatiable wants transformed

into ‘needs’ (Jackson and Marks, 1999), shifting conventions of ‘normality’ (Shove, 2003), and the use of consumption to define the self (Røpke, 1999). Shove (2003, 2012) gives the example of ‘convenience’ devices which are introduced to help cope with problems of scheduling increasingly fragmented moments of activity, in a ‘24/7’, fast paced world. These have implications for energy use if these devices use a lot of energy. An example is the recent proliferation of smart phones, with the ability they give to check where and when to meet friends (and hence *necessitate* telephoning or texting to check exact locations since as a result of having phones, no strict plans have been made) as well as their sophisticated calendar software. As well as being used more often anyway, smartphones need more regular charging than older mobile phones (Cellular-News, 2009).

In summary, sociotechnical systems, with embedded technological agents, long term practices, vested interests and complementary regulations, are inert and ‘locked-in’. They present an enormous problem for local projects for sustainable energy. Given this particular understanding of the problem, this thesis now turns to the conceptions of success that flow from this.

2.2.3 Exploring Success: Energy System “Transition”

‘Transition theory’ is a body of literature within the wider sociotechnical systems discipline which makes use of an understanding of sociotechnical systems and the MLP in order to devise techniques to change an unsustainable or otherwise undesirable system to a better one. Three major techniques will be discussed here; strategic niche management, transition management and technological innovation systems. These techniques, as well as the wider idea of energy system transition, imply certain assumptions about success. These assumptions will be addressed.

The idea of transitions is discussed by Geels as a *technological* transition; a change from one sociotechnical configuration to another (Geels, 2002). As previously explained, this is hard to do as the elements of the configuration are aligned with each other. It is difficult for new and radically different technologies to break through as regulations, infrastructure, user practices, and maintenance networks are aligned to the existing technology. However history demonstrates that such alignments can be undone; regime change can take a generation or

more to occur, but it can happen (Geels, 2002, Geels and Schot, 2007). A number of approaches informed by the MLP have been used which *actively* attempt to change unsustainable regimes to sustainable ones (for examples, see DRIFT, 2013). These approaches are used by relevant actors who are in full cognisance of their provenance, of their foundations in the MLP and the theory of socio-technical systems.

Strategic Niche Management (SNM) (Kemp *et al.*, 1998, Witkamp *et al.*, 2011) is one approach. It starts from the MLP's premise that new technologies arise in niches; protected spaces where the technology does not have to compete with mainstream technologies, which can give new technologies a chance to develop and grow. For example, the military has often provided a niche for new technologies; radio, aircraft and computers were developed with military money (Kemp et al., 1998). Niches are important for demonstrating the viability of the technology, to help build a supportive social network behind a technology, and allowing interactive learning processes and institutional adaptations. Kemp *et al.* (1998) propose SNM as a deliberate method for setting up niches, and they define it as:

> *"the creation, development and controlled phase-out of protected spaces for the development and use of promising technologies by means of experimentation, with the aim of 1) learning about the desirability of the new technology, and 2) enhancing the further development and the rate of the application of the new technology"* (p186)

It aims to articulate the changes necessary for the economic success of the technology, to learn more about the technical, environmental and economic aspects of different technologies, to stimulate the further development of these technologies, and to build a network of firms, researchers and public authorities behind the product. It does this through a five step process. First, a range of possible technologies is selected. Secondly, an appropriate experiment is selected (for example, testing electric vehicles in city-based fleet owners such as taxi companies). The experiment is then set up, striking a balance between protection and selection pressure. The fourth step is to scale up the experiment, and finally the protection afforded by the niche is broken down again, leaving the innovation to compete for market share from a stronger position than it otherwise would have had.

The relative protection of niches is important when intervening to bring about change. For example, PV in Norway has been successful because of its ability to exploit certain niche markets, such as among owners of cottages and holiday homes. However Norwegian wave power, an innovative technology developed with the aim of immediately joining the system of domestic energy provision, could not successfully compete with the incumbent energy regime, where energy was provided by low cost and large-scale hydropower (Christiansen and Buen, 2002). More recently, innovative niches have been discussed in terms of social innovations, (such as community initiatives or social enterprises), rather than technological innovations (Witkamp *et al.*, 2011, Seyfang and Haxeltine, 2012). However, like traditional technological innovations, these still face difficulties in translating from the protective niche to the regime. Seyfang and Haxeltine's (2012) article discusses Transition Town movements (Hopkins, 2008) which aim to strengthen their town's local economy, reduce the cost of living and build resilience for a future with less cheap energy and a changing climate. Seyfang and Haxeltine (2012) show the difficulty that they have in moving beyond attracting a core group of activists and scaling up their activities, let alone translating their values to the regime. This concept of 'translation' from niche to regime is in any case, poorly understood. Smith (2007b) describes three kinds of translations. The first translates sustainability problems; whereby the problems of the regime inform the guiding principles creating the niche. The second type is translations that adapt lessons; reinterpreting elements of sociotechnical practice in the niche and inserting them into regime settings. The third type is translations that alter contexts, by bringing the regime closer to the situation that pertains in the niche. Only the last type of translation is radical enough to cause the regime to transition.

Transition management is another method for regime reconfiguration. Geels (2006) points to regime transformation as another way in which technological regimes have changed in the past that was not derived from a new technology. In his example of the hygienic transition from cesspools to sewer systems, he points to the importance of pressure for change from outsider groups, and the gradual adjustments in cognitions, norms and formal rules enacted by regime insiders. In this example, old knowledge about bricks, pipes, pumps and water flows remained relevant, (was not rendered obsolete by new knowledge in technologies) and was combined to build sewer systems, once those norms, cognitions and rules within and without the regime had change sufficiently. Kemp *et al* (2006) suggest Transition Management (TM) as a tool to transform society in this manner, through a gradual reflexive process of variation

and selection. TM calls for continuous and iterative deliberation and assessment in a well organised discourse, to cope with the problem of dissent. It calls for cooperation and network management to formulate joint visions and common goals to help actors coordinate their actions. It calls for the determination of short-term steps through forward reasoning, to identify useful steps to facilitate further change and 'backcasting', to identify strategic experiments and set goals. A portfolio of different options is required to avoid locking in to one particular solution which may not be the best in the long term. TM also must find a way to survive short term political changes, since sociotechnical systems can take one generation or more to change. This approach has had some success, especially in the Netherlands (Loorbach and Rotmans, 2010), although the application of some of the tools of transition management is rarely perfect, and have been used as one-off exercises rather than as part of a full process of transition management (McDowall, 2012).

Another method described in the Transition Theory literature is the Technological Innovation System (TIS) (Hekkert *et al.*, 2007, Musiolik *et al.*, 2012). This approach is used to understand how desirable innovations diffuse, and hence how to remove barriers to that diffusion. Like all the approaches described in this section which are derived from the understanding of the sociotechnical system, the approach recognises that innovation is a collective activity, taking place within the context of a wider innovation system. TIS declares that there are seven functions that are important for well performing innovation systems; entrepreneurial activities, knowledge development, knowledge diffusion through networks, the guidance of the search, market formation, resource mobilisation and the creation of legitimacy. By mapping and analysing all the functions of a particular technological field or system, one can identify weaker functions, and barriers and opportunities (Jacobsson and Johnson, 2000) which can be dealt with or taken advantage of with relevant policy (Hekkert *et al.*, 2007). In this manner, the diffusion of a particular technology or product can be more successfully facilitated. Interventions drawing on this research find that formal innovation networks can be deliberately created in order to be supportive to new technological field; Musiolik and Markard (2011) found that such a network played a crucial role in creating and shaping supportive institutional structures in the field of stationary fuel cells in Germany.

Success

Two implicit understandings of success in sociotechnical systems literature are relevant for this research. The first is that success is, quite straightforwardly, the achievement of a transition in the sociotechnical system to a more desirable system, particularly at the national scale. This is particularly the case for the UK, where national boundaries correspond (roughly) to the boundaries of the infrastructure of the energy system. The second is that success is the success of an innovation, particularly technology.

Success as the Accomplishment of a Transition

"It is recognized that transitions are fundamental changes of socio-technical regimes to more sustainable configurations of complex adaptive systems" (Faber and Alkemade, 2011:21). In order to understand the first implicit understandings of success; implicit because it is so obvious, it is necessary to read between the lines of the above quotation, which is exemplary of the literature (for example, Smith *et al.*, 2005, Geels, 2010, Markard *et al.*, 2012). Transition theory gives suggestions for how to manage the transition to a more sustainable sociotechnical regime. The purpose of such approaches is to bring about such a transition. Therefore, success is the realisation of such a transition. Of course there is debate about what a 'sustainable' system will look like, and warnings from many scholars against making assumptions here (Shove and Walker, 2007, Berkhout *et al.*, 2003). However, the achievement of a transition to something 'better' (however so defined) is implicitly considered to be a success. This is success at a high, social level.

The fact that this transition is assumed to take place at the national level is realised as problematic within the literature. Smith *et al.* (2010) point out that in focusing on 'societal functions' such as energy, food, transport and housing, the role of place and spatial scales is not explicitly addressed. Hekkert *et al.* (2007) themselves criticise their Transition Management Approach (TIS) for not paying enough attention to the micro-level. There is some literature emphasising the role that smaller spatial scales have played/can play in the development of sustainable energy futures (Essletzbichler, 2010, Smith, 2007a, Keirstead and Schulz, 2010, Kern, 2010). Smaller spatial scales such as cities and neighbourhoods may

desire to use what smaller powers they have to transform their mobility, housing, food and energy systems to more sustainable forms, but they have many extra difficulties that the MLP literature does not anticipate. These places confront processes which are outside their jurisdiction, (such as energy infrastructure owned by multi-national corporations), and do not have the same powers to influence change; for example the liberalised energy market can only be changed or curbed by national legislation (Essletzbichler, 2010). However, the difficulties that these authors point to again belie the assumption that a full, national scale transition is what counts as success. Local projects 'fail' to bring about transition because they are hampered by difficulties at the national scale.

Smith (2007a):6278 argues that the regional initiatives of his study were "*struggling to . . . unlock* [renewable] resources on a large scale" (*my emphasis*). Keirstead and Schulz (2010):4878 discuss how cities can "*contribute to broader energy policy goals" (my emphasis).* Smith *et al.* (2010) point out that the role of villages, cities and regions in trying to transform 'societal functions'. All of these authors seem to imply that the role of local initiatives for transition is to contribute to a full transition at the level of society – at the national level, beyond those local places. Success is a transition of the unsustainable system to a more sustainable one, and of course the system is national (if not international, in some cases). Other understandings of success are not considered.

Success as 'Technological' Transition

A number of writers have drawn attention to the over-emphasis on *technological* innovations in the MLP for sociotechnical transitions, and criticise this (Berkhout *et al.*, 2003, Nye *et al.*, 2010, Shove and Walker, 2010). Geels's (2006) paper on the transition from cesspools to sewers is the one exception to this technology focus; he describes a transition which did not involve any new technology. However, with regard to the transition approaches which spring from an understanding of the MLP; SNM, TIS and TM; as much as the social aspect of the sociotechnical regime is emphasised, the focus is on ways of facilitating the diffusion of technological niches. Transition management is apparently different, and yet still requires technologies as part of a portfolio of experiments (Kemp *et al.*, 2006). There are some initial movements away from the assumption that innovation is always a technological innovation, to understandings of innovation including community-based initiatives and social enterprises

(Seyfang and Haxeltine, 2012, Seyfang and Longhurst, in press, Witkamp *et al.*, 2011). However, the commitment to technological innovation and transition remains strong (for example, Arentsen *et al.*, 2013).

Despite the contribution of Shove and others (Shove, 2003, Shove, 2005, Shove *et al.*, 1998, Røpke, 1999), the social world implicated in sociotechnical transitions is in fact the social world of institutions, regulators, firms and entrepreneurs – the people that participate in the creation and embedding of new technologies, thereby facilitating their diffusion. It is these people that transition management approaches discuss and attempt to intervene with. Who those technologies diffuse *to*, and the way in which they use those technologies in their daily lives is rarely, if ever, explored (Shove and Walker, 2007). Such social groups are termed simply as 'technology users', relegated to the residual category of the socio-technical landscape, (itself criticised as a sort of 'garbage can' as highlighted by Geels, 2011). The previous section on 'energy users' (page 17) is drawn from Devine-Wright, an author whose work on the psychology of place does not draw on the literature of sociotechnical systems at all. The perspective of the energy user is rarely considered by the scholars contributing to this discipline.

This presents a difficulty for transition managers drawing on an otherwise very helpful body of literature. Technological niches which do not also bring about systemic change will only lead to adaptable technologies and practices being 'bolted on' to the current regime, as in Smith's (2007b) second translation type. Yet, as Shove and Walker (2007) argue, a wider change in the way people live their everyday lives with energy is required. As Devine-Wright (2007) argues, a centralised system of energy provision representing energy as a commodity, *however sustainably that energy is produced* will not lead to greater awareness of energy and an increase in 'energy citizenship'. Shifting to more sustainable patterns of energy demand is as much about a shift to more sustainable lifestyles as it is about the implementation and adoption of lower carbon technologies (Nye *et al.*, 2010). Some changes in the sociotechnical systems will not necessarily change the way individual 'energy users' behave with energy (Collins, 2012). However, others might. For example decentralised systems incorporating community-level and domestic microgeneration technologies close to the site of use requires energy 'users' to become energy producers. As Nye *et al.* (2010) argue, this might actually

give rise to interesting interactions with those producers' levels of demand. These different, and arguably deeper understandings of 'success' are not fully explored in the literature.

2.2.4 Conclusion

The insights of literature on sociotechnical systems and the MLP are helpful in thinking about the systemic nature of unsustainable energy, an important facet of the problem faced by local projects for sustainable energy. This literature views the problem as one of how to bring about a transition to a new sociotechnical system, particularly with new, less environmentally harmful technologies. Success is therefore viewed as the accomplishment of this transition, and the embedding of 'better' technologies and other innovations. This is success at a higher, more abstract level, success at the level of the social and technical system. This perspective leaves unanswered the question of success at the individual level, or even the level of a group of individuals.

Importantly, transition approaches in the UK are not as well established as in parts of Europe. The language of sociotechnical systems and their transitions is certainly strong in British academic research, but much of the policy activity promoting the development of transition management has taken place in the Netherlands (Berkhout *et al.*, 2003, DRIFT, 2013), not the UK. As will be shown, the language of transition management is not used in UK local authorities, voluntary or community organisations carrying out projects for sustainable energy. Thus the MLP as a way of understanding sociotechnical systems, is *not* a foundation for the understanding of change in local projects for sustainable energy in the UK context. This is even if such projects can be, and often are interpreted in the light of this discipline.

However, using the language or lens of a sociotechnical transition from an unsustainable energy regime to a sustainable regime, it is evident that many steps need to be taken along the way; many smaller or lower level 'successes' need to be achieved for overall success. The next section will look at individual behaviour change. This is assumed in a sociotechnical transition, but not explicitely addressed as it deals with the individual and not society. It is also another facet of the problem faced by local projects for sustainable energy; that the individual behaves in a complex and unpredictable way.

2.3 Theories of Individual Behaviour Change

It is universally acknowldeged that energy behaviour is difficult to change (Saltmarsh, 2012) presenting a problem for local sustainable energy projects. Energy behaviour needs to change if society is to source and use its energy sustainably. Evidence suggests that renewable energy sources cannot provide the same quality and quantity of energy as fossil fuels, and they can be more intermittent (McKay, 2009). Therefore, it is most likely the case that people need to become accustomed to using less energy and possibly in different ways than is currently the case (McKay, 2009). This problem is at the level of the individual; individuals' households are inefficient, individuals make choices about energy efficiency measures, and individuals use energy in certain (sometimes wasteful) ways in their daily lives.

This section will look at four broad bodies of literature which have been used to account for energy behaviour. The first covers 'rational decision making' approaches, which rest on the premise that an evaluation of the rewards and costs of a behaviour determines whether that behaviour is performed. This section will cover rational decision making, learning, attitudes, and models such as the Theory of Planned Behaviour (Ajzen, 1991). The second body of literature covers norm based approaches, which look at internal rewards associated with adhering to personal values and also the importance of social norms and crowd behaviour. This section will cover models such as the New Ecological Paradigm (Dunlap *et al.*, 2000), and the Value-Belief-Norm theory of behaviour (Stern *et al.*, 1999) as these bodies of literature are most dominant. A third approach looks at the role of unconscious behaviours, such as habit. The fourth approach will look at the role of demographics in pro-environmental behaviours.

There are echoes here with section 2.2.1 on practice theory, and sociological approaches to behaviour more generally. Individuals can be said to behave in the way they do with energy because routinised ways of using objects (which use electricity), of treating subjects and of understanding the world, to paraphrase Reckwitz's (2002) definition of practice. These routine behaviours could be described as 'habits'; and they could be performed because of the influence of social norms in an individual's understanding of the world (and the place of energy using objects within that). This is indicative of the complex and multi-faceted nature

of both the determinants of behaviour and research into behaviour in general. There is disagreement in the literature as to whether or not these different understandings of behaviour, coming as they do from different disciplines with different paradigms can be combined to build and overall understanding of behaviour (for example Whitmarsh *et al.* 2011, Shove, 2011). This thesis does not attempt to resolve this disagreement, but points to it as further evidence of the complex and overlapping nature of research in this area.

Given the nature of behaviour change research and theory reviewed here, i.e. experimental inquiry, this section of the literature review lends itself more sensibly to discussing success *within* discussions of the different theories. These theories can be operationalized and tested to see if they do explain behaviour – if a theory-based intervention is successful in causing behaviour to change then the theory is considered to have support. If a theory-based intervention is unsuccessful and causes no change, then the theory is unsupported. Success and behaviour change theories are inherently linked, because of the nature of behaviour change research reviewed here. Therefore, interventions to change behaviour based on the different bodies of literature described above, and their success, will be discussed *within* the review of those literatures, unlike in the sociotechnical systems review. Some key threads of the discussions on success will, however, be drawn out separately at the end of this section, to remind the reader of key points.

All of the abovementioned understandings of behaviour are useful in certain contexts, but none of them alone explains energy behaviour (the difficulties of each will be explained). This is because energy behaviour is not singular and "behaviour change" has a number of meanings relevant to this thesis. Energy behaviour change refers to conservation behaviours (turning off unnecessary lights or turning down the heating, Abrahamse et al., 2005), purchase behaviours (such as buying more energy efficient appliances or even microgeneration technologies, see Barr et al., 2005), or choosing to participate in a sustainable energy or behaviour change project, or adopting sustainable energy technologies (Dobbyn and Thomas, 2005). Each of these provides a limited view of energy behaviour change. All of these views or perspectives of behaviour change are relevant in this research.

Behaviour change is well-researched in a broad field of 'pro-environmental' behaviours; that is intentional behaviour with a reduced environmental impact relative to comparable

behaviours (Wilson and Dowlatabadi, 2007), of which sustainable energy behaviour is one type. As such, some examples from a broader spectrum of pro-environmental behaviours than energy behaviour will be discussed here. The language and vocabulary in this section will be different from the previous section, as the behaviour change literature focuses on a different level of the problem faced by local projects for sustainable energy.

2.3.1 Rationality Based Approaches to Understanding Behaviour

Microeconomic theories of consumer choice (and other contexts of behavioural decision making) are based on the assumption that individuals seek to maximise utility given budget constraints, have known and fixed preferences, and will always prefer a decision outcome with higher utility, based on those preferences (Wilson and Dowlatabadi, 2007, Chatterton, 2011). Utility theory argues that individual preferences provide the criteria for a rational choice (Tversky and Kahneman, 1981), and consumers are assumed to behave as rational actors in that have preferences that are ordered, known, invariant and consistent. Utility based decisions are guided by an individual's evaluation of outcomes and so are essentially instrumental and self-interested (Jackson, 2005). This body of theory commonly manifests itself in the literature on proenvironmental behaviours (and the decision making process to perform them) as the rational choice model. This model currently dominates thinking and practice in this area and accordingly is based on three underlying assumptions; that individual self-interest is the appropriate framework for understanding human behaviour, that rational behaviour is the result of processes of cognitive deliberation, and that preferences are taken as given without further elaboration as to their origins or antecedents (Jackson, 2005). There is certainly much evidence that financial concerns do play a role in motivating deliberate, energy conservation behaviour (for example, Ek and Söderholm, 2010, Whitmarsh, 2009). Kollmuss and Agyeman (2002) have highlighted the gap between awareness and concern for environmental problems, and environmental behaviours, indicating that environmental concern is perhaps less of a predictor of energy conservation behaviour than financial concerns. Economic concerns can discourage certain types of energy saving behaviour as well as encouraging others; Caird *et al.* (2008) found that some people in their study, who wanted to install renewable energy technologies, could not because of their cost. Lower income households respond to rising costs of energy by simply reducing their energy use, it is only higher income households which can invest in energy efficiency measures (Poortinga *et*

al., 2003). Since low income households spend a higher proportion of their household budget on energy costs and have marginal use of energy for needs which are not basic (Anker-Nilssen, 2003), such energy conservation could lead to unhealthily low temperatures, possibly leading to poor health, as explained in Chapter One.

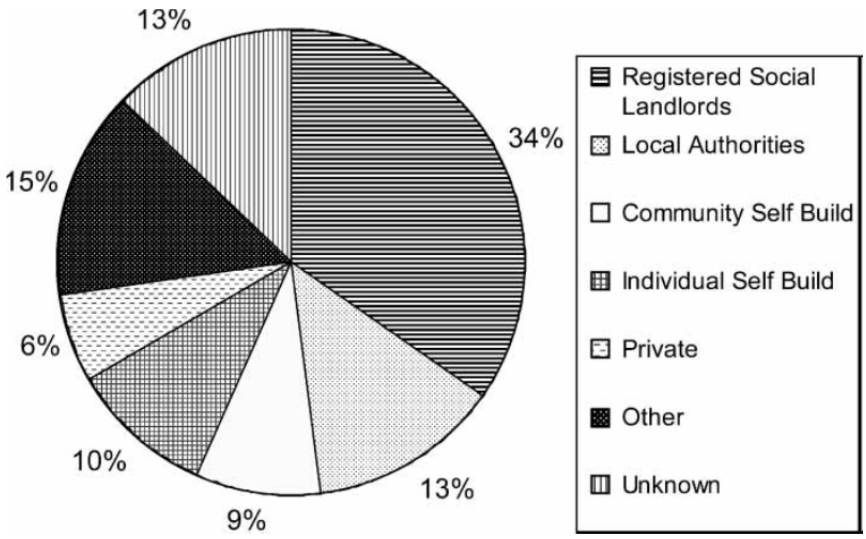
Interventions that are informed by this model are used extensively by the UK government (Chatterton, 2011), and indeed some European governments (Sunikka-Blank and Galvin, 2012) and involve two main activities; providing information so individuals can make more 'rational' decisions, and providing incentives and disincentives, in order to change individuals' behaviour. In the first example, interventions give information to ensure that consumers make informed decisions according to their preferences. It is assumed that educating people about environmental and energy issues will increase their concern about these problems, leading automatically to the performance of more proenvironmental behaviours. In such interventions, the 'information deficit' model of public understanding and action is at work (Burgess *et al.*, 1998). 'Act on CO_2', the UK Government programme to help people reduce their fossil-fuel use by explaining how to do so, is one such example (Directgov, 2011). The Government commitment to smart meters is another such example; aiming to give better information to people about how they use energy in their homes (POST, 2012).

The second main type of intervention informed by this model shows the 'true cost' of environmentally damaging behaviours by making those costs visible to the individual (Moloney *et al.*, 2010) through taxes (Owens and Driffill, 2008), or incentivising pro-environmental behaviours (Stern *et al.*, 1985), so that acting pro-environmentally does indeed maximise utility for the individual. Previous initiatives to offer interest-free loans, tax rebates or grants for energy efficiency measures (Stern *et al.*, 1985) are examples of this, as is the UK feed in tariff for retrofitted electricity microgeneration technologies (DECC, 2012b). Indeed the introduction of the FIT in 2010, led to a huge increase in the adoption of PV panels nationally in the UK, from one household per 10,000 households having a PV panel in June 2010, to 29 households per 10,000 households having a PV panel in September 2011 (DECC, 2011b). It can be argued therefore, that this intervention was successful.

Learning

Learning within the rational-choice model of behaviour assumes the rationality of people; giving people the information they need to make better choices. If individuals have the opportunity to get feedback on their decisions, both the choices they made and the choices they *did not*, they can learn (Thaler and Sunstein, 2008). Lovell (2005) emphasises the importance of feedback on choices not taken in the house-building sector. House builders do not feel that their customers want low-energy homes and so do not build them (most low energy housing has been constructed in in the social housing and self-build sectors, see figure 3.4); they are 'locked-in' to the expectations of the current house building sociotechnical system. However in order to discover whether they would like to live in such a house, potential buyers need to experience living in it to gain knowledge about it. Since houses are durable and expensive people move infrequently, and there is not much choice beyond the conventional on the market, therefore home-owners have no opportunity to learn about different housing types and make different choices.

Figure 2.4 – Initiators of Low Energy Housing Developments by Housing Sector. (Taken from Lovell 2005, page 818)



Learning is important in the use of energy, since energy is largely invisible and implicated in the overt concerns for heating and lighting. There is also a time lag between its use and paying for it, especially if the energy user is billed monthly or even quarterly. Meadows (1997) advocates the addition of new information flows in such situations, giving information

where none was received before. She gives the example of two identical houses, one of which had its electricity meter in the cellar where it could not be seen by the building occupants, and one of which had its electricity meter in the front hall, where it could be seen. Electricity consumption was 30% lower in the house where the meter was in the front hall, and visible.

Much research has been carried out based on this premise. Darby (2006) reviews types of feedback for energy, looking at direct feedback from a meter or display monitor and indirect feedback from bills, and sometimes disaggregated billing by end use. Informative billing initiatives in Norway showed how customers appreciated improved accuracy and extra information, including historic and comparative feedback, and that they appreciated a guide to which end-uses consumed most energy. They thus began to read their bills more frequently and with more understanding, learning where they used most energy and if this was comparable with their neighbours, and began to alter their behaviour (Wilhite, 1997, Wilhite *et al.*, 1999). Such research has led to the EU Energy End-Use and Energy Services Directive (2005), which requires that member states shall ensure that in so far as it is possible and reasonable, customers are to be provided with competitively priced individual meters that accurately reflect actual energy consumption and that provide information on actual time of use. The Energy Demand Reduction Project (Raw and Ross, 2011) emphasised the benefit of smart meters and real time displays in helping householders take control of their energy use. This project was working from a theoretical framework based on giving housholders the means, motive and opportunity to change behaviour. This project pointed to the importance of coupling this feedback (which must itself be relevant and timely) with advice. Darby (2006) points out that due to the synergies between feedback and other information it is not always easy to separate out these effects. Nevertheless, the UK Government is committed to rolling out smart meters as standard by 2020 (GOV.UK, 2013), and point to evidence that shows they lead to durable reductions in household energy use (VaasaETT, 2011). This evidence shows that such interventions can be successful.

Attitudes and the Theory of Planned Behaviour

Attitudes are important within rational choice models as they represent the individual preferences upon which choices are based. Gordon Allport defined attitudes as “a mental and

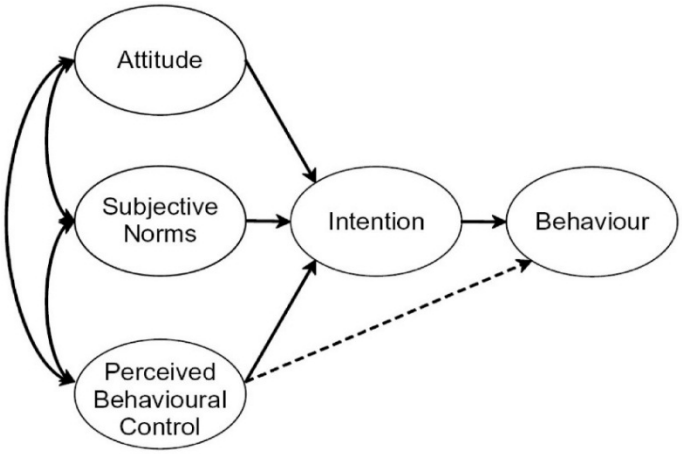
neural state of readiness organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Allport, 1935: 810). The implication here is clear; attitudes should affect behaviour. This was assumed in the majority of studies in the first few decades of the 20th century regarding attitudes (Kraus, 1995). Ajzen and Fishbein (1980) developed the Theory of Reasoned Action upon this premise, postulating that attitudes, together with subjective norms (the perceptions of the approval or disapproval of important others of the behaviour) are the antecedents of the intention to perform a behaviour, which in turn precedes the behaviour itself. However, as the century progressed, a more complex understanding of attitudes began to emerge, based on the problem that there appeared to be a gap between attitudes and behaviours, contrary to expectation (Kraus, 1995, Costanzo *et al.*, 1986). That gap is still discussed today (Gadenne et al., 2011, Claudy et al., 2013).

Many researchers began to explain this gap by looking at the methodology of attitude-behaviour research, which they criticised. Many of the classic studies measured behaviour *before* measuring attitude, and yet it is possible that the behaviour *was* consistent with attitude, and that attitude had simply changed before being measured by the researcher (Kraus, 1995). The methodology was also criticised in that general attitudes were used to predict specific behaviours (Myers, 1987, Ajzen and Fishbein, 1977). By refining the concept of attitude to make it more restrictive – so that other influences are minimised, the attitude is specific to the action, and our attitudes are particularly salient at the time of behaviour – attitudes are found to explain some of the variance in behaviour (Kaiser *et al.*, 1999, Kraus, 1995, Fishbein and Ajzen, 2010).

Explanations for the attitude-behaviour gap also focused on variables that moderate the relationship, such as the strength of the attitude, personality variables such as self-monitoring (Kraus, 1995), and situational variables, perceived or otherwise (Owens and Driffill, 2008, Ajzen, 1991). To take this last point, Bandura (1982) pointed out how an individual's motivations and behaviour are affected by their self-perceptions of efficacy, in elaborating his concept of self-efficacy. Perceived self-efficacy "is concerned with judgements of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982: 122); people's behaviour is strongly influenced by their confidence in their ability to perform it. Ajzen took this idea, and terming it 'perceived behavioural control', placed it

within a framework of the relationship among beliefs, attitudes, intentions and behaviour, which he termed the Theory of Planned Behaviour (Ajzen, 1991). According to this theory, behaviour is mediated by the intention to perform the behaviour. The intention itself is mediated by three things; the beliefs about the behaviour which influence attitudes toward the behaviour; normative beliefs or whether the individual thinks important others would approve or disapprove of the behaviour, and control beliefs, which are the basis for perceptions of behavioural control. One's perception of their control over/ability to perform given behaviours can mediate both the intention to perform a given behaviour, and the performance of that behaviour itself. The diagram on the next page represents this, and is taken from Ajzen's classic paper.

Figure 2.5 – The Theory of Planned Behaviour. Taken from Ajzen, 1991, page 182



There is much support for this theory (for example Kaiser et al., 1999, Oreg and Katz-Gerro, 2006, Mills and Schleich, 2012, von Borgstede et al., 2013). Nosek *et al.* (2010) found that research into the theory of planned behaviour had the highest scientific impact score among US and Canadian social psychologists. In essence therefore, Ajzen's Theory of Planned

Behaviour argues that attitudes do predict behaviour when combined with subjective norms and perceived behavioural control.

Further explorations into the complexity of the attitude-behaviour relationship also lend support to the argument that individuals behave in the manner they do because of their attitudes. The subtlety here lies in the specific attitude towards the target behaviour or object. For example Tucker and Speir's (2003) study on home composting found that it was perceptions of vermin, or conversely, perceptions of convenience, that predicted behaviour, rather than perceptions of composting itself. Those who had negative attitudes towards composting because of their perceptions of vermin and fly problems and aesthetics rarely formed the intention to compost, and hence never performed the behaviour. However positive attitudes towards composting, brought about by the perception that it was convenient and easy, reinforced their behaviour and it became habitual. This concept of specific attitudes towards the target behaviour or object has support from literature from the discipline of health (Ogden *et al.*, 2007).

Behaviour change interventions informed by an understanding of the role of attitudes in influencing behaviour seek simply to improve people's attitudes towards proenvironmental behaviours, and to remove barriers to the performance of those behaviours. Negative attitudes do appear to be a hindrance to proenvironmental behaviours; a UK study found a chasm in attitudes between those who had adopted solar panels and those who had not (Faiers and Neame, 2005). As to behavioural control, the above study on composting (Tucker and Speirs, 2003) demonstrates that those who begin composting perceive that it is possible, and to do so is within their behavioural control, and so they continue. Interventions therefore provide people with more information about the positive benefits of certain behaviours, and challenge assumptions that such behaviours are difficult, in much the same way as already described. Other interventions could enhance individuals' perceptions of empowerment, leadership and self-efficacy through access to skills, resources and training (Heiskanen *et al.*, 2010).

Difficulties with Rationality Based Approaches

The primacy of interventions based on rational choice models (including attitudes and opportunities to learn) of behaviour, has been criticised by a number of authors (Kahneman, 2011, Thaler and Sunstein, 2008, Owens, 2000, Owens and Driffill, 2008, Costanzo *et al.*, 1986). In terms of financial incentives, over twenty years ago Stern *et al.* (1985) showed that participation in incentive programmes for energy efficiency varied tenfold between programmes offering identical financial incentives, and that there was surprisingly weak evidence for the idea that larger incentives increase participation. Clearly the decision making process is far more complicated. People do not always act in an economically rational manner; individuals who install solar thermal water heating systems often do so for non-economic reasons, given that the payback period may be longer than the expected system life (Caird *et al.*, 2008). People are not always coldly rational, they may be acting in accordance with values, or other motivators (Khadjavi and Lange, 2013). A recent study in Norway showed that economic return on subsidised investments in renewable heating power did not at all explain the investment satisfaction of the household (Bjørnstad, 2012). In any case, these sorts of interventions are very difficult for local projects for sustainable energy to do, as they fall outside the jurisdiction of a local group.

In terms of the information-deficit model, a variety of studies have established that providing people with more information about environmental issues often have little or no impact on behaviour (McKenzie-Mohr, 2000). As far back as 1986, research showed that information programmes to encourage (for example) energy conservation were not even properly understood by the general public (Costanzo *et al.*, 1986). Recent studies on smart meters demonstrate that the information they give is ignored after a period of time, and that household dynamics, weather and the size of the dwelling (and hence how much energy it requires to keep warm) are important (Hargreaves *et al.*, 2013, Kavousian *et al.*, 2013). Owens (Owens and Driffill, 2008, Owens, 2000) argues that there is no better demonstration of the flaws of this model than the persistent refusal of the public to have their 'irrational' perceptions of environmental problems (and hence environmentally damaging behaviours) corrected by providing them with more information. Rational-choice models do not take account of the problem that 'facts' are sometimes contested, and fails to take account of the social and institutional contexts in which behaviours take place (Owens and Driffill, 2008).

Furthermore, other authors have argued that people in fact do not even *think* rationally (Kahneman, 2011, Thaler and Sunstein, 2008). Due to limited cognitive processing capacity, individuals use rules of thumb or heuristics which can lead to systematic biases, or even simply follow the status quo (Tversky and Kahneman, 1974, Beattie, 2010, Slovic *et al.*, 1974, Samuelson and Zeckhauser, 1988). An example is the 'recognition heuristic', which leads to a person favouring familiar elements of a decision, so perhaps choosing the alternative that was chosen last time. To a facilities manager in a company, choosing the same model or brand of air conditioning system as chosen in the past (which may not be the most efficient available) might be considered the most responsible course of action (Biggart and Lutzenhiser, 2007b). Individual preferences have been found not to be fixed, as assumed in rational choice models – framing a choice as one between loss or one between gains leads to different choices being made (Wilson and Dowlatabadi, 2007, Kahneman *et al.*, 1991, Zeelenberg *et al.*, 2000). Nor are preferences fixed across time; people tend to trade off future costs for present gains, making decisions short sighted (Camerer and Loewenstein, 2004). For example people might decide not to pay the initial (high) upfront cost of solid wall insulation, thereby discounting the future benefits of savings in their energy bills.

Finally, the attitude-behaviour gap is a persistent problem, although improvements in the theory of how attitudes contribute to behaviour have been made. The Theory of Planned Behaviour itself is limited by its implicit assumptions of deliberative and instrumental decision making (Wilson and Dowlatabadi, 2007). As such it also does not always predict behaviour; one UK study which independently measured behaviour of intention, found that the intention to recycle failed to predict actual recycling behaviour (Davies *et al.*, 2002). Whitmarsh and O'Neill (2010) found that self-identity (as an energy citizen) is a significant determinant of behaviour over and above variables of the Theory of Planned Behaviour. Berger (1997) has pointed out that positive attitudes towards the protection of the environment (manifesting as environmental concern) are mediated by the ability to do something about it. In her study, education, income, size of area and apartment dwelling predicted recycling usage, but those same variables also predicted access to recycling services. When access to recycling was included as a predictor of recycling usage, the influence of education, income, size of area, and apartment dwelling was significantly reduced. Clearly positive attitudes towards the protection of the environment and other

demographic factors can only influence behaviour where the context of the individual allows them the capability to do so (McKenzie-Mohr, 2000, Owens and Driffill, 2008).

2.3.2 Norm Based Approaches to Understanding Behaviour

A major criticism of the expectancy value approaches is their emphasis on the individual themselves as the sole influence on individual behaviour (Heiskanen *et al.*, 2010); they fail to recognise the socially grounded nature of human behaviour. Norm-based approaches reintroduce this social nature. However the literature on norms also looks at internalised norms which become drivers of behaviour for the intrinsic rewards they give the individual. These ideas are expanded upon in the literature on values. Social norms, personal norms and values will be discussed in the below section. Norms are another facet of the behavioural problem faced by local projects for sustainable energy, and are potential sites for interventions.

Social Norms

Social norms are said to be responsible for regulating social behaviour since they prescribe and proscribe certain behaviours (Hechter and Opp, 2001), through the threat of sanctions or the promise of rewards (Schwartz and Howard, 1982). Social norms include descriptive norms, which are typical behaviours, or 'what other people do', and injunctive norms, which are moral imperatives; how others expect individuals to behave. Norms are explained in terms of their "oughtness", people feel that they ought to follow certain norms; they are accepted without justification. Many behaviours, including risk behaviour and environmental behaviours, respond to, or are compliant with social norms. In a study on seat belt use, Boehm *et al.* (1992) found that whether or not people wore a seat belt was predicted more by social pressure than knowledge of the risks of not wearing one. Evidence suggests that people like to conform. In the 1950s, Asch (1956) conducted a series of experiments asking people to decide the answers to a simple test. When working on their own, participants almost never erred. But when working in groups where everyone else gave an incorrect answer, participants erred more than one-third of the time, defying the evidence of their own eyes in order to conform to the group. Beyond social pressure, Cialdini (2003) showed the power of mere descriptive norms, demonstrating that individuals were more likely to drop litter in an

already littered environment; where they could see that the descriptive norm was to drop litter. More recent work (Göckeritz *et al.*, 2010), has shown that injunctive norms strengthen descriptive norms, and that these types of norms in energy conservation are strongly correlated with energy conservation behaviour. Powerful social norms may lead to more pro-environmental behaviours only if those social norms are pro-environmental.

Of course, in order for social norms to emerge, there must be social interaction so that individuals can become exposed to the expectations of others. Coleman (1988) describes this as 'social capital'. Communities of individuals with higher levels of social capital are likely to have more powerful social norms, which may lead to more proenvironmental behaviours. Miller and Buys (2008) looked at a drought-prone Australian community, and found that those residents who scored higher on the 'neighbourhood connections' element of a social capital scale were more likley to wash their car in an environmentally-friendly manner. A social norm regarding car-washing that happened to be proenvironmental, had emerged.

Interventions which seek to manipulate behaviour using social norms have been shown to be effective (Schultz *et al.*, 2007, Cialdini, 2003, Nomura *et al.*, 2011, Thaler and Sunstein, 2008). For example the Petrified Forest National Park in Arizona suffers from the estimated theft of more than a ton of wood per month by visitors. Cialdini (2003) led a classic study whereby pieces of petrified wood were scattered along a trail, tempting visitors to take some with them. At intervals, the language of the signs along the trail was deliberately varied. Some signs stated 'Many past visitors have removed the petrified wood from the park, changing the natural state of the Petrified Forest' (signifying a descriptive norm – many people do this). Other signs said 'Please don't remove the petrified wood from the park, in order to preserve the natural state of the Petrified Forest' (signifying an injunctive norm, and giving no information about how others behave). The descriptive norm message resulted in significantly more theft than the injunctive norm message. A successful intervention would therefore *just* provide the injunctive norm message.

Schultz *et al.* (2007) also demonstrated the use of social norms in behaviour change interventions in California, US. They argue that individuals often overestimate the prevalence of many undesirable behaviours, and so adjust their behaviours to mirror their perceptions of others' behaviour. In their study, they provided households with normative messages about

how much energy other households in their neighbourhood were using. Those households using more energy than the neighbourhood average reduced their energy consumption to bring it in line with the norm. However, those households who were already using less energy than the neighbourhood average *increased* their energy consumption. This is the 'boomerang effect'; the descriptive norm acts as a magnet for behaviour for individuals both above and below the average. However providing a message with an injunctive norm about energy use (a smiley face if an individual was and remained below average, a frowning face if the individual increased their energy consumption), eliminated this boomerang effect. The experiment has been replicated in the UK, with broadly similar results (Nomura *et al.*, 2011). Finally, a study in a Dutch firm showed that public praise for reduced energy use was more effective in changing behaviour than private, monetary rewards, because of the evocation of descriptive and injunctive norms (Handgraaf *et al.*, 2013). These interventions were successful, as they changed behaviour.

Another social influence on behaviour is that of social dilemmas, best described in Hardin's tragedy of the commons (Hardin, 1968). Certain natural resources (such as the atmosphere) are public goods, for which property rights are not defined, and which can be freely used by anyone. There is therefore no mechanism to limit overuse and depletion of the resource. Even if individuals perceive the problem of overuse, their own individual actions to limit use are ineffective if others continue to use the resource without limits. Therefore unless individuals can assure themselves that others are also making an effort to act proenvironmentally, their own efforts may appear pointless. Social conventions (or practices) are another social influence. Research on the evolution of consumption patterns has shown that individual choice has a limited role in many environmentally relevant behaviours (Heiskanen *et al.*, 2010). Shove (2003) has examined the development of washing and bathing, showing how commonly shared conventions of cleanliness and freshness have increased the frequency of both activities over the past five decades. Consumption patterns are shaped by shared conventions that evolve historically, creating common understandings of decency and appropriate behaviour. Like all conventions, they are learned through social interaction (Shove, 2003, Shove, 2012).

Interventions based on an understanding of this might seek to circumvent the social dilemma by making it obvious to individuals that others are also acting proenvironmentally. A

common example of this is kerbside recycling facilities; seeing others put out their recycling bags or boxes creates a descriptive social norm. Heiskanen *et al.* (2010) also cite the 'Manchester Is My Planet campaign', which encouraged a wide spectrum of local residents to make a personal pledge to cut their carbon emissions. The progress of the programme was communicated to pledgees to demonstrate that their efforts were being matched by politicians and partner organisations. The number of pledgees stood (at the time of publishing) at 20,500, providing strong reassurance to those participating that they were not alone in their efforts. Interventions might also seek to challenge commonly held conventions. Again, Heiskanen *et al.* (2010) gives the example of Carbonarium, a not-for-profit association in Hungary aiming to decrease its members' carbon dioxide emissions. The members keep track of their emissions, compare them with one another, implement mitigation measures, and pay membership fees based on their calculated emissions. This small group provides a personally supportive environment for questioning current lifestyles, and challenging taken-for-granted beliefs and expectations of modern life. Insofar as it helps to change behaviour in this way, these local projects are successful.

Internal Norms and Values

Social norms can sometimes be internalised to become personal norms (Schwartz, 1970, Thogersen, 2006), whereby people are motivated to act in accordance with norms because of self-adminsitered reinforcements such as feelings of guilt or pride. Thøgersen (2006) goes further and splits personal norms into introjected norms and integrated norms in his norm taxonomy. He argues that sometimes personal norms are only superficially internalised, in which case their motivational underpinning is anticipated guilt and pride (for example Onwezen *et al.*, 2013). These are introjected norms. However Thøgersen argues that at other times personal norms have become more deeply internalised and are partly or wholly integrated into the individual's self-concept and need no enforcement from guilt or ego enhancements; these are integrated norms. It is not the anticipation of the positive or negative affect that motivates behaviour in this latter case, although such feelings will arise if the norm is violated. Behaviour that is compliant with norms simply follows naturally from the internally-held conviction that to behave this way is the sensible thing to do, and is perhaps even the preferred alternative.

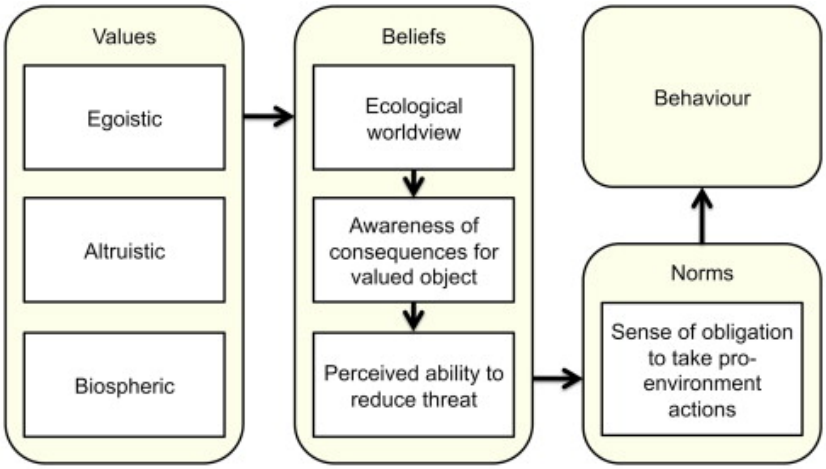
In this way, these internal or individually held norms can be said to be similar to values. Both are important as causes of behaviour, and therefore fit within a critical realist approach (Klein, 2004); norms and values are generative mechanisms that bring about given events and as such can be used to help explain reality. Values are important for behaviour because they act as general guiding principles in life, and are therefore likely guideposts for action in unfamiliar conditions. They are general and stable (Stern *et al.*, 1995), and therefore provide a basis for the formation of attitudes and thereby behaviour. Schwartz (1992), in an international research programme on values, has found ten types of values to be present and related to each other in consistent ways across countries, which have been collapsed into four broader classifications, again consistent across countries, which Stern *et al.* (1993) refer to as value orientations. These are the 'openness to change' orientation, which includes value types such as self-direction and stimulation, the 'self enhancement' orientation, which includes power and achievement, the 'conservation' orientation, or traditionalism, including values types such as conformity and security, and the 'self-transcendence' orientation, which includes value types such as universalism and benevolence. There is some debate as to which value orientation is most prevalent in the West; building on Maslow's hierarchy of human needs (Maslow, 1987), Pellegrini Masini (2007) has argued that those acting in a proenvironmental manner in order to be congruent with their attitudes might be satisfying self-actualization needs. Inglehart and Baker (2001) have argued that 'postmaterialistic' societies take order and economic access for granted (i.e. basic human needs) and valued freedom, interpersonal trust and toleration of outgroups. However others argue that consumerism, 'affluenza', and materialistic and acquisitive values are the hallmark of today's Western modernity (Bauman, 2000, Harmon, 2006).

Stern *et al.* (1993) built on Schwartz's values research with their own work on values (as outlined above), with their egoistic value orientation corresponding to self-enhancement, and their social value orientation corresponding to self-transcendence. Stern and colleagues (Stern *et al.*, 1995) then went on to explore how these value orientations could account for variation in attitudes about the environment, and hence behaviour. They found that self-transcendent values do have explanatory power for individuals' beliefs about environmental conditions and their willingness to take action in response to them. Conversely, more hedonic values are negatively related to environmentally relevant attitudes (Steg *et al.*, 2012). Values have both direct effects on behavioural intentions and indirect effects flowing through beliefs.

There is evidence to support the idea that people select information to attend to which fits with their values, and ignore information which does not (Corner *et al.*, 2012).

Stern and colleagues have gone to develop the Value-Belief-Norm theory of support for environmental movements (Stern *et al.*, 1999, Stern, 2000). Here, individuals who accept the basic values of a movement, believe that valued objects are threatened (awareness of consequences), and believe that their actions can help restore or protect those valued objects (ascription of responsibility) feel an obligation, or a personal norm, to act in a way that supports this movement, which creates a predisposition to act proenvironmentally in some way. The particular type of support provided was in this study separated into citizenship actions (such as writing letters), support for proenvironmental policies, and changes within the individual's own private sphere. The support given, or the type of proenvironmental behaviour engaged in, depends upon the individual's capabilities and constraints.

Figure 2.6 – Value Belief Norm Theory. Taken from Kenter et al. (2011), page 517



In the 1999 study (Stern *et al.*, 1999) the Value Belief Norm theory was the best available theoretical account of all three types of environmental behaviour given above. Values have been argued to add explanatory power to other theories of behaviour. Oreg and Katz-Gerro (2006) combine the Theory of Planned Behaviour with the Value-Belief-Norm theory in their international study of environmental values and behaviours, and found support for their argument that environmental beliefs and attitudes are preceded by personal values.

A related concept to values is that of fundamental worldviews or paradigms. There appears to be a paradigmatic shift in the way many individuals view the physical environment, and this new world view is referred to as the New Environmental Paradigm (NEP) (Dunlap and Van Liere, 1978, Dunlap *et al.*, 2000). This particular worldview holds that humans have the ability to upset the balance of nature, that there exist limits to the growth of human societies, and questions the right of humanity to rule over nature. This worldview is measured by the NEP Scale, which measures individuals' beliefs and attitudes about the world (Barrett *et al.*, 2002), which explains their behaviour. Environmentalists who behave more proenvironmentally than the general public score higher on the NEP Scale (Widegren, 1998), and studies have found significant relationships between the NEP Scale and various types of behavioural intentions as well as both self-reported and observed behaviours (Schultz and Oskamp, 1996, Schultz and Zelezny, 1998, Harraway *et al.*, 2012).

Interventions to change behaviour which are informed by an understanding of values seek to change those values, in the hope that behaviour change will follow. This could be a productive way forward; interventions to increase environmentally friendly behaviour often fail because they overlook the role of values and the opportunity to show the link between behaviour and value fulfilment (Smallbone, 2005, Avineri and Goodwin, 2010, Dietz, 2013). The above-mentioned FIT scheme could be said to be successful since it appeals to value-orientations of self-enhancement, or egotism, given the lucrative subsidy it offered during the period of this research (2011-12). However, the difficulty with behaviour change interventions to change *environmental* behaviour is that environmental problems are what Crompton calls 'bigger than self' problems (Crompton, 2010, Crompton, 2013). Crompton argues that individuals who attach greater importance to self-enhancement and conservative values tend to be less concerned about global conflict and the abuse of human rights, less likely to buy fair-trade products, less concerned about environmental damage, and less likely to behave in environmentally friendly ways. The opposite effects are associated with individuals that attach greater importance to self-transcendence values. Therefore, cultivating self-transcendent values is more helpful for interventions hoping to encourage individuals to behave more proenvironmentally. However, values are dynamic, and activating particular values will tend to promote behaviour associated with these and other compatible values, and to suppress behaviour associated with opposing values (Maio *et al.*, 2009). This strengthens the promoted values, making them more easily activated in other situations. For example,

studies that primed people's awareness of money leads them to be less helpful, (Vohs *et al.*, 2006, Burgoyne and Lea, 2006); self-enhancement values are opposed to self-transcendent values of the importance of community feeling.

This suggests that it might be counter-productive to intervene to change behaviour concerning the environment (a bigger-than-self problem) by using strategies that serve to activate 'unhelpful' values, since it will suppress 'helpful' (with regard to the environment) values. Encouraging individuals to install PV panels to maximise their investment by way of the FIT, or increase their social status may indeed be a way of motivating individuals to perform that particular behaviour, but might make them less likely to perform other proenvironmental behaviours that don't lead to self-enhancement, such as using a small energy efficient car (Crompton, 2010, CommonCause, 2013). Separating environmental behaviours one by one and attempting to motivate those behaviours according to unhelpful value systems will not lead to the necessary systemic change. The slogan 'save energy, save money' may only ever achieve 'low hanging fruit' changes (Slocum, 2004), according to this understanding of the influence of values on behaviour.

Since values change, (albeit slowly) living through certain interventions can change people's values. To give an environmentally positive example, living through the 'intervention' of the UK land use planning policy is likely to have had a cognitive impact on UK residents, increasing the public expectation that commercial development or new infrastructure should be properly subject to rigorous planning procedures, just as individuals' own applications for house extensions will come under scrutiny. This in turn may serve to strengthen the public expectation that individual choice or commercial interests should at times be subjugated to wider public interest. The public acceptance of green belt policy is such that few now challenge its key principles. This cannot be said for North America, where recently passed greenbelt legislation was strongly opposed (Crompton, 2010). Interventions following an understanding of values therefore craft messages to encourage self-transcendent values, and be brave enough to implement policies to promote self-transcendent value systems, which over the long term will lead to more proenvironmental behaviours. Early evidence suggests that this approach to interventions can work (Phillips and Hazell, 2012, du Plessis, 2013), and this is an activity that local projects for energy sustainability could potentially engage in.

Criticisms of Norm based approaches

Some of the criticism of these approaches lies with the difficulties inherent in the types of interventions they call for. Some mechanistic interventions can be used (such as demonstrating descriptive norms), but these do not always go far enough to internalise those norms (Bratt, 1999, Thøgersen and Crompton, 2009). It is in fact very challenging to actually plan and implement interventions to internalise certain norms, especially with regard to challenging the conventions that spring from them – a massive and daunting task. As explained above, this might require intervention at a higher level; within the sociotechnical regime.

Conversely a theory of behaviour based on social norms and other sociopsychological influences is criticised for being too collectivist, leaving no room for individual agency (Hechter and Opp, 2001). Norms are said to emerge if they are instrumental, but this assumes that all individuals will agree about *what* is instrumental.

With regard to interventions expressly aimed at changing values, this is still a fairly new idea, and so not as empirically supported as some of the other interventions explored here. It remains to be seen if it is possible to do, and how practicable it would be. It also requires political will to go against current values in order to implement policies that will change them (Crompton, 2010). Values have a basic and deep influence on behaviour, but situational factors can constrain their translation into actual behaviour.

2.3.3 The Role of the Unconscious in Understanding Behaviour

A further strand of literature used to explain behaviour, and particularly energy behaviour, focuses on the role of unconscious behaviour. The unconscious is another potential causal mechanism of behaviour, in the language of critical realism. Nye *et al.* (2010), for example, argue that everyday energy-use patterns (as distinct from deliberate energy-conservation behaviour) are driven largely by habits and conventional routines. This section will discuss habits as another dimension of the behavioural problem faced by local projects for sustainable energy, and potential ways in which such projects can address them.

Habits are a context dependent form of acquired automaticity (Maréchal, 2010), things that people do without thinking. For behaviour to become a habit, it must be performed frequently, and have 'automacity'; i.e. a lack of awareness, of conscious intent, and be difficult to control (Chatterton, 2011). They are mainly unconscious, although there is some room for deliberation when they are first acquired; for example the skill of driving is first learned, and then becomes habitual. They are also context or situation dependent; when the same decisions are made in a given situation, an association between the mental representation of that situation and the representation of the respective behavioural choice will emerge (Bargh, 1990). Being unconscious, habits can circumvent rational decision making through proper deliberation (Aarts *et al.*, 1998). For example, Aarts *et al.* (1997) found that habits reduced the elaborateness of information used when making judgments about how which travel mode to use. They found that in comparison to individuals with weak habits, individuals with strong habits used fewer attributes about the circumstances under which the trip had to be made. They also found that individuals with strong habits were more selective in using the information about the choices they were given than individuals with weak habits.

Habits can therefore be a major barrier to proenvironmental behaviour; past behaviours have been shown to influence the intention to perform proenvironmental behaviours (Whitmarsh and O'Neill, 2010) blocking the potential to perform such behaviours (Kollmuss and Agyeman, 2002), and strong habits can explain the low effectiveness of rational incentives such as subsidies (Maréchal, 2009). Bamberg and Schmidt (2003) have shown that energy-use behaviours can and often do move quickly from considered deliberations over perceived personal costs and benefits to the more habitual sphere. In this way, energy use habits are much like the energy use practices described in the above section; energy use is implicated in routinized ways of achieving comfort, cleanliness and convenience (Shove, 2003). The only real difference between the two could be said to be the language which stems from two different bodies of literature; psychology (habits) and sociology (practices).

Interventions that make use of an understanding of habits can make use of a change in context. As previously stated habits are context dependent. Since context stability is a necessary condition for a habit to develop (Danner *et al.*, 2008, Ouelette and Wood, 1998), changing the circumstances tied to the formation of a habit might make that habit more open to change (Maréchal, 2010, Marechal and Lazaric, 2010, Hendel, 2012). For example

programmes trying to encourage people to use public transport could target individuals who are about to change their job, and will thus have to make a novel journey to work. Recent work on disruption of ordinary travel behaviours as a result of extreme weather events has gone some way to demonstrate the potential of this approach (Williams *et al.*, 2012). Where the participants' behaviour changed, the intervention can be said to have been successful.

Criticisms of Unconscious-Based Approaches

The criticisms of this approach can be found mainly in the previous two sections – behaviour is not just habitual. Some types of energy behaviour are; such as perhaps turning off lights, but other types of energy behaviour may be more deliberative (Barr et al., 2005), or influenced by social norms (Nomura et al., 2011). In the above section, injunctive norms were shown to have the potential to override potentially habitual energy behaviours in the workplace (Handgraaf *et al.*, 2013). Interventions to disrupt habits may sometimes be successful, but where behaviour is not habitual, they will not be.

2.3.4 The Demographics of the Proenvironmental Individual

There is a well-developed strand of literature exploring if proenvironmental behaviours tend to be found in a particular demographic (Jones and Dunlap, 1992, Van Liere and Dunlap, 1980, Buttel, 1975, Buttel and Flinn, 1974, Barr *et al.*, 2005). Jones and Dunlap (1992) in their study using the US National Opinion Research Centre's General Social Surveys argued that the demographics of environmentally concerned individuals had not changed in the preceding twenty years. They found that age was the best predictor of environmental concern (with younger adults being more concerned than older adults); that liberal politics, a higher level of education and residence in urban areas as a child were the next best predictors of environmental concern, followed by current residence in urban areas, affiliation to the Democrat party, and employment in industries other than resource extractive ones. Race, age, family income and occupational prestige emerged as poor predictors of environmental concern.

However, other research does not entirely support these findings, and has found that proenvironmental concern is sometimes predicted by *different* demographics. Dietz *et al.*

(1998) attempted to explain demographic influences as indirectly operating through psychological variables, and again using the General Social Survey of data found that younger age did *not* consistently predict proenvironmental concern. They found that education was positively related to proenvironmental behaviour, as Jones and Dunlap had found (1992), but negatively related to a belief in the fragility of nature. Women had stronger proenvironmental beliefs than men, but holding these beliefs constant were less willing to sacrifice, and more willing to engage in proenvironmental consumer behaviour than men. More recently, Davies *et al.*'s (2002) study of recycling behaviour in the Cotswolds in the UK, higher levels of education again predicted recycling behaviour, but so did being married. Barr *et al.* (2005) in a study based in Devon in the UK found that *older* people acted more proenvironmentally.

Evidence has also been found which contradicts Jones and Dunlap's (1992) finding that income does not predict environmental concern. In fact, energy behaviour, which can have a material benefit for the householder, is a specific form of environmental behaviour might be found in different demographics for different reasons. Costanzo *et al.* (1986) found that the 'positional variables' of disposable income and home ownership allow individuals to install energy saving devices, thereby potentially acting on their environmental concern. Pellegrini Masini (2007) argues that lower income households do not have the financial wherewithal to perform some types of proenvironmental behaviour, and so may not be able to act on environmental concern by insulate their homes. However higher income families are more likely to invest in energy efficiency thanks to their financial means, but less willing to reduce consumption by reducing their higher levels of comfort. Gatersleben *et al.* (2002) argue that energy use is related to household income and size; "as soon as people have the financial ability to perform the behaviour [use more energy], they are tempted to do so" (page 354). Berger (1997) also provides evidence for higher income predicting the proenvironmental behaviour of recycling, as well as demographic variables such as education, size of dwelling and size of residential area. However Berger's argument is more subtle, she argues that providing environmental services such as kerbside recycling, composting etc, is a socio-political act of a local government, and such services are more likely to be provided to areas where they are easier to run, such as single family dwellings with road access (where higher-income families are more likely to live), rather than high rise flats (where lower-income families are more likely to live).

Given the contradictions in the literature, it is difficult to decide which segment of society to target with behaviour change interventions, and how to target them. Socioeconomic status, age, gender and so on do influence behaviour or act as causal mechanisms of it, but how and in which direction is unclear. The demographic of proenvironmental behaviours is a complicated and contradictory issue. This is partly explained by the different variety of forms of 'pro-environmentalism' covered by this literature (environmental concern, willingness to sacrifice, recycling behaviours, energy behaviours etc), although it appears that the picture is nevertheless complex just for energy behaviours (Gatersleben *et al.*, 2002, Pellegrini Masini, 2007). Demographics clearly are not the only determinants of proenvironmental behaviours, or sustainable energy behaviours; attitudes, values, norms and habits also have a role to play, as explained above. Pellegrini Masini (2007) demonstrates that demographics may well mediate factors like environmental concern; they are perhaps merely a way of representing the different barriers that different individuals face. This is especially the case with those with lower household incomes.

2.3.5 Exploring Success – Behaviour Change

The nature of the problem according to the behaviour change literature is unsustainable behaviour. The implicit understanding of success is therefore, quite obviously, the achievement of a change in behaviour. If interventions which subsidise renewable energy technologies lead to the uptake of renewable energy technologies (a purchase-related behavioural choice), then it is successful. If an intervention focuses on providing information to improve people's knowledge and change their attitudes and behaviour, and this leads to a change in behaviour, it was successful. If energy use is reduced in a neighbourhood as a result of a social-norm based intervention, then the intervention was successful. If an intervention manages to disrupt an energy-wasteful habit, it was successful. Behaviour change is the litmus test of any intervention, changing values is not sufficient if behaviour change does not follow. The attitude-behaviour gap is specifically described as a problem (Kollmuss and Agyeman, 2002); changing attitudes is not sufficient. Therefore according to the behaviour change literature, if a local project for sustainable energy succeeds in changing energy behaviour in some way, then that project can be said to be successful. Other understandings of success within a local project for sustainable energy are not considered.

There is an important caveat here – implicit in the literature is the assumption that success hinges on behaviour changing in *the right direction.* The research presented above on the rebound effect (Schultz *et al.*, 2007) and the importance of properly crafting normative messages (Cialdini, 2003) implied that behaviour change *away* from proenvironmental behaviours was a failure. Behaviour change to more pro-environmental behaviours, to more sustainable energy behaviours therefore, is how success is defined. This is to be expected; this is the concern of this body of research and its literature. Other, and perhaps more long-term understandings of success fall outside of its boundaries.

2.3.6 Conclusion

All the behaviour change theories reviewed above come from different scholarly perspectives, and all are necessary for fully understanding the complexity of human behaviour in the complex area of energy behaviour. Some theories are more relevant on some occasions than others, but in truth, elements of all of them are always more or less at play. Given the complexity of energy behaviour, it can be seen that behaviour change presents a formidable challenge to local projects for sustainable energy, especially with the limited suite of interventions that it is possible to make at the local level. This literature sees the problem faced by local sustainable energy projects as one of individual behaviour (howsoever that is determined) and hence success according to this literature is the achievement of behaviour change in the direction of more sustainable energy behaviours. This understanding of success is at the individual, immediate and household level.

It is important to note that proenvironmental behaviours, of which sustainable energy behaviour is one, are different from other types of behaviours. Unless one is in straightened financial circumstances and will therefore feel the benefit of lower energy bills, there is little personal benefit to be had from changing energy behaviour. One might change an unhealthy diet for all sorts of reasons; environmental as well as health, but one will get a health benefit in the short term. For those *not* in financial difficulties, there is little personal benefit to energy conservation beyond the appeasement of environmental values *if* indeed such values are held.

The next section of this literature review will look at the intermediate level of the problem, between the level of society and system, and the level of the individual. This is the level of the project for change; for sustainable energy itself. This is the final facet of the wider problem faced by sustainable energy projects. Given the difficulty faced at the social and at the individual level, how do groups of individuals actually go about running sustainable energy projects to try and achieve change?

2.4 The Difficulties of Local Projects: Who is Best to Intervene?

The success of local projects for sustainable energy is difficult to achieve because local projects for change *in general* are difficult. If a local project is to tackle issues of sustainable energy in a national embedded system based on unsustainability, where individual behaviour complements that system and is complex and difficult to change, then the project needs popular support in order to be effective. The planning literature gives many examples of projects for change from the past sixty years as the UK rebuilt itself after the World Wars, and tried to provide decent homes for its people (Stewart, 2005). Increasingly, the planning literature demonstrates projects for change that are concerned with sustainability and sustainable energy. These examples demonstrate difficulties with participation and representation, normative assumptions about the direction of change and knowledge claims, trust and effectiveness. All of these difficulties are faced by local projects for sustainable energy, in different ways in different localities.

This section of the literature review also links to the previous two by looking at the issue of *who* should conduct projects to 'unlock' the energy system, and *who* should intervene in people's behaviour. Will one type of project be more successful than another because of who carries it out? Will some be more participative, accepted, trustworthy and hence accepted because of who carries it out? This research is particularly concerned with the relative appropriateness and efficacy of public authorities as opposed to voluntary 'grass roots' groups in conducting such projects, rather than juxtaposing public authorities with market-led or corporation-led change[1] (Hisschemöller *et al.*, 2006). This is because the businesses within

[1] Although SusMo's project *involved* a corporation; British Gas (see Chapter three), within Moseley it was *led* by SusMo, a voluntary community group.

the energy system are thought to have vested interests in it, and be resistant to change. This thesis will use the language of local authority-led (local authority-led) and 'community-led' (voluntary group-led) projects for sustainable energy.

Although the planning literature is rooted more in the sociological disciplines than the behaviour change literature, the timeframes studied are often shorter, as a project or plan is implemented and evaluated over five years or so. This makes it possible for much of the literature exploring local projects to say something about the nature of success. Therefore, there is some discussion about this embedded within each section, with again, a final summary on the nature of success.

This section will therefore first discuss the issue of participation in planning, decision making and sustainability. Knowledge, and the validity of different forms of it will then be discussed. This will be followed by a discussion of representation, then a discussion of trust, before finally looking at the effectiveness of local authority-led as opposed to community-led local projects. A section re-iterating the nature of success in local projects as understood by the planning discipline will complete this part of the review.

2.4.1 Participation in Planning, Decision making, and Sustainability

Participation is a key difficulty faced by any local project for change, let alone for sustainable energy. Planning theory has a long history of exploring the question of public participation in decision making, which has become an increasingly important trend over the past fifty years (Brownill and Parker, 2010b). Participation has become especially important as the process of government is replaced by that of govern*ance*; whereby the responsibility for tackling social and economic issues is held by a number of institutions, both within and without formal government, all involved in collective action (Stoker, 1998).

In the past twenty years, planning has come to be viewed as an element of policy making or decision making (Lane, 2005). Furthermore, sustainability, climate change mitigation and renewable energy have all become critical areas of decision making in recent times; areas which involve individuals in localities, and sometimes implicate the planning process itself. It is therefore relevant to look to the planning literature, providing early examples of decision

making as it does, in order to explore the role of participation in decision making in general, and in issues of sustainability and renewable energy in particular. Rydin (1999) points out that Agenda 21, the manifesto for sustainable development adopted at the Rio Summit in 1992, requires local authorities to play a role in bringing about change in their areas, not least in their capacity as the local planning authority. She argues that participation is especially important in this area of decision making because of the necessity of individual behaviour change for a sustainable society.

After the Second World War, comprehensive planning for every part of Britain came into being for the first time, with rapid development and redevelopment providing a steep learning curve for planners. Despite this intensely challenging period, liaison with communities affected by planning decisions and development programmes was a consistent thread (Rydin, 1999). However, the paradigm of planning at that time was a rational comprehensive one that prioritised the role of the planner and the application of the scientific method and of logic (Lane, 2005). As such it was highly normative; assuming a consensus about the ends to be achieved (Webber, 1983, Taylor, 1998). The involvement of the public during this period was simply as recipients of information, with limited opportunity to people to critique or suggest amendments to plans. Rydin (1999) gives the example of the exhibition of 'A Plan for Hornsey' organised by Hornsey Borough Council in 1945. The plans were exhibited over eleven days in the main shopping centre with an accompanying booklet, which stated that these were the Borough Council's plans for an ideal borough, and asking if these plans matched residents' ideals. However the booklet made it clear that the plans were based on 'sound and practical principles', drawn from the planners' expertise, thereby possibly suggesting that the community's own ideas were superfluous, thereby closing down debate before it began. This local authority-led process worked from the assumption that planners knew what they were doing, and could be left to 'get on' with it. This was a general trend throughout Britain at the time, and became even more technocentric and expert-led after 1947 (Larkham and Lilley, 2012).

Over the next thirty years, resistance to the scale and quality of development grew, and some individual projects led to serious conflict and protests, leading as they often did to insensitive and uninviting redevelopment (Rydin, 1999, Lewis, 2012). The Skeffington Report called for greater involvement of the public in shaping their own areas (Rydin, 1999), in response to this

insufficient involvement with the public, as it came to be seen. By the 1970s, it was increasingly accepted that planning was in fact a political activity; its assumption of an undisputed public good no longer held. In a political system of democracy, people must participate in political decisions. Citizens instead held a plurality of interests along a range of dimensions in a post-modernist world (Healey and Gilroy, 1990). The capacity and desirability of bureaucrats, technocrats and politicians to act 'for' citizens, based on assumptions about a public good was increasingly challenged as people sought to be involved in the debate about ends as well as means. Today, "people no longer trust experts to define their interests for them" (Healey and Gilroy, 1990:21); citizens continue to demand accountability *and* active involvement in the framing and implementation of public policy (Conrad *et al.*, 2011, Groves *et al.*, 2013).

Planning and decision making began to change as a result of these trends, beginning to operate under more pluralist paradigms of societal transformation (Lane, 2005), where the planner facilitates and mediates between competing stakeholder interests, and where decisions are negotiated. Planning theory increasingly calls for 'communicative action' (Healey, 1992, Hoch, 2007, Healey, 2012), both to be more effective in actually doing things, *and* to realise an ideal of democratic and participatory planning. In the UK, there is widespread political rhetoric of citizenship, and emphasis on the merits of engagement, with aspirations for planning and governance to be collaborative and hence for public involvement to legitimise decisions (Brownill and Parker, 2010b, Bailey, 2010). In practice, the situation is naturally more complicated and not always ideal both in the UK and elsewhere, with citizens not always able to participate in debates about planning (Mayo and Taylor, 2001, Beebeejaun and Vanderhoven, 2010), with undue prominence sometimes given to business interests (Rydin, 1999, Reade, 1987, Taylor, 1998), and much decision making being dominated by professional networks (Tenbensel, 2005, Derkzen and Bock, 2007). In theory however, planning and decision making is a much more participative process, and in practice the conversation between citizens and decision makers is far less unidirectional than it once was.

Participation is particularly important in matters of sustainability, as many environmental problems have their roots in localities (Portney, 2005) and as action is therefore required at this level, especially under Agenda 21 (Rydin, 1999). There have been pushes from the UK government to encourage renewable energy at the community level with general funding

programmes (Walker *et al.*, 2007) and the Feed in Tariff (DECC, 2012b). Portney and Berry (2010) report that U.S. cities with an advanced sustainability agenda appear to be more participative places. Community groups and non-profit organisations focusing their attentions on climate change and issues of sustainability with 'community-led' projects are numerous in the UK and around the world (Heiskanen *et al.*, 2010, Holden, 2008, Ince, 2013, Middlemiss and Parrish, 2010, Collins and Boyd, 2011). Sustainable energy projects are an area of sustainability decision making where participation and community involvement are particularly critical. A participative planning process can lead to public acceptance of potentially controversial renewable energy technology installations (McLaren Loring, 2007), whereas a non-participative process (for the same type of installation) can lead to frustration and intense conflict and opposition (Wolsink, 2007b). Participation in decision making, and projects which come from the grassroots and as such are supposed to be inherently more participative, are therefore potentially important for sustainable energy projects. The rest of this section will explore in more detail why this might be so.

2.4.2 The Validity of Different Forms of Knowledge

Planning and decision making processes formerly assumed that experts in planning and government 'knew best'. As previously stated, their knowledge was based on a rational scientific model. However a host of literature now brings this assumption, and the pre-eminence of this model of knowledge, into question. This literature calls for increased participation from citizens; citizens who bring different types of knowledge and goals with them. There is evidence that participation can enhance the quality of decisions; the more people feed their knowledge into a decision making process, the better that decision will be (Reed, 2008). This is the arena in which local projects for sustainable energy must now work.

One of the reasons that participation is called for is its contribution to changing values. As previously stated, it is no longer possible to bring about a single 'end' with policy and decision making. Such an end, the 'public good', is value-laden, and hence highly contested. Different groups within society, even different individuals, have divergent values and therefore potentially conflicting expectations of what a public good should look like. As van Driesche and Lane (2002:137) argue, "The world has become too complex and our leaders too fallible for anything approaching a universal good to even exist, let alone be reliably

located". Some authors have therefore argued that planners and policy makers should not themselves be decision makers, but instead mediators searching for routes between divergent interests, brokering information and trying to exploit spaces for inclusive participation (Healey and Gilroy, 1990, Webber, 1983, Connelly, 2010).

Beyond the question of values, is the idea that types of knowledge other than local authority-led, rational-scientific, can sometimes have more to offer in local decision making. Fraser *et al.* (2006) give a relevant example from the Kalahari rangelands in Botswana, where community members worked with researchers to develop a series of indicators to identify environmental degradation. The communities living on the Kalahari had a much greater spatial and temporal awareness of the typical environmental variability of their rangelands than did experts, whose own indicators over-simplified degradation. Other research supports this, suggesting that participation and more community-led decision making enables interventions to be better adapted to local socio-cultural and environmental conditions and better meet local needs and priorities, making such decisions more durable as they are adopted more widely (Reed, 2008). Added to this, the validity of experiential knowledge rather than professional or expert knowledge, is increasingly emphasised. Derkzen and Bock (2007) give the example of a rural partnership in the Netherlands where community representatives criticised the dominance of professional knowledge, knowledge that of which they disapproved. Instead they employed their own asset; a different type of knowledge rooted in local experience. This type of knowledge was considered more relevant to the question of future local plans, as local people would be the ones dealing with the consequences of those plans. This is an example of phronesis – knowledge which tells us how best to act (Flyvbjerg, 2001). Local knowledge is also more useful in shaping local action, as local people can be more aware of the nuances of local problems than can technocrats or non-local decision makers (Phillimore *et al.*, 2010). *Metis*, or personal, experiential knowledge for practical results is required as well as technical knowledge in local decisions, as technical knowledge cannot account for the nuanced complexity of the locality that *metis* can bring (Van Driesche and Lane, 2002)

Linked to this argument is the fact that local authority-led assumptions about the basis for local opposition to certain decisions are often wrong. Research based in the UK and Holland on wind farm opposition demonstrates this. Often local authority-led decision makers assume

that any opposition to wind farms in based on a knowledge gap; a misunderstanding of the threat of climate change or a lack of knowledge about the effects of wind turbines on local wildlife, or their potential for noise pollution. Barry *et al.* (2008) for example, argues there is an assumption of epistemic superiority in some government documents and statements regarding wind farm location. However, a lack of knowledge is often *not* the case for opposition. Instead it is frustration at a local authority-led and often meaningless consultation process or a distrust of outside and commercial interests (Wolsink, 2007b, Devine-Wright, 2009). Opposition to wind farms in the UK has become so strong that there is talk of communities having the right to have more say over, or even veto such developments (Carrington, 2013). Sometimes opposition grows from place attachment and identity and aesthetic concerns in what are sometimes some of the most beautiful landscapes in Europe (Barry *et al.*, 2008).

As an aside, it is useful to consider this point about renewable energy installations and localities. Wind farms might be considered a problem in some areas, but an appropriately sited wind turbine within an industrial landscape might not be. PV panels have perhaps proved less contentious (Zhai and Williams, 2012), although this would not be the case in a conservation area. Anaerobic digestion plants might not disturb the view of a place, but if improperly designed may smell, and therefore might not be best suited to urban areas. There will always be specific difficulties or opportunities to be confronted by projects for sustainable energy within their localities, irrespective of what those difficulties are (Devine-Wright, 2011). To bring this point back to knowledge, it is important that competing views about potential local sustainable energy installations that claim to be based on knowledge, are indeed valid knowledge claims, and not other sorts of claims, like emotional, historical, ethical and value-based (Rydin, 2007, Asadolahniajami and Walsh, 2013).

However, it is not necessarily always the case that community-led and inclusive decision making leads to better quality decisions and that citizens have a greater insight to contribute. Beierle and Konisky (2000) highlight some cases of participatory environmental decision making where participants had a high degree of freedom and autonomy, but became mired in confusion and had little understanding of their role or the goals of the project. Purcell and Brown (2005) give an example of local practices actually being environmentally damaging; the bee-keeping methods of a local co-op in the Brazilian Amazon relied on deforested

environments, (the species of bee used preferred plants growing in deforested areas) and had the co-operative been successful at honey production they could have contributed to environmental degradation. Furthermore, a lack of participation in a consultation does not always imply a failure, but instead that perhaps most people are happy with proposals and have nothing to add. It is usually those who are dissatisfied who have the most to say (Fiorina, 1999). Some people do not wish to be actively involved and find public participation a burden (Rydin, 1999). With regard to greater insight or better knowledge, it has often been demonstrated that ordinary people do not always understand the issues under debate, especially the issue of climate change (Lorenzoni *et al.*, 2007, Sterman, 2011, Reynolds *et al.*, 2010). Furthermore, people can ignore or downplay certain information if it conflicts with their values and worldviews (Kahan *et al.*, 2010, Lorenzoni *et al.*, 2007, Corner *et al.*, 2012). Local or experiential knowledge is not always helpful, and at times it is possible that this knowledge is not even forthcoming.

The literature states that the validity of knowledge is part of the nature of the problem faced by local projects for sustainable energy. It raises questions about who runs such a project. Would a community group, with local neighbourhood knowledge and experience, be better able to embark upon such a project, and be more accepted? Or would a project for sustainable energy run by a local authority be better placed, still being linked to the locality as they are, and having access to formal as well as experiential knowledge? These questions lead on to the next issue; that of representation.

2.4.3 Representation

Key to the issue of who 'knows best' is the question of *which* citizens are participating in a decision making process. If a decision making process is participative, or a local project is organised by local people in a community-led manner, will those participating individuals be representative of the wider local community? Participation in decision making can be representative, and can be very effective as a result. Fraser *et al.* (2006) give the example of a participative decision making process regarding the management of Coast Temperate Rain Forest in British Columbia, Canada. A wide variety of interests were present, from government, industry and local communities, including First Nation communities who had traditionally been disenfranchised. Given its high level of representation over a long period,

agreement was reached over what had been a seriously conflicted issue. Van Driesche and Lane (2002) give another example of a representative process in their study of the processes determining the future use of a former military property. The makeup of the reuse committee that they describe mirrored the diversity of views and interests of both the local community and those at state and national level. The representativeness of the committee's membership was instrumental to the acceptance at state level of the plan it eventually wrote, and that representativeness was a key reason for the drive at state and national level to implement that plan. In contrast, local projects which are not representative can be perceived extremely negatively and can face too much opposition to go ahead (Cotton and Devine-Wright, 2012, Groves *et al.*, 2013, McLaren Loring, 2007).

However, not all participative processes are can be said to be so representative. Communities are heterogeneous and have competing values and ways of understanding an issue. Those individuals with the most capacity tend to dominate participative processes and decide what the legitimate problems and issues are (Shucksmith, 2000, Shucksmith, 2012, O'Reilly, 2012). Beierle and Konisky (2000) point to a number of cases where committees of citizen participants were unrepresentative in terms of socioeconomic criteria, were often missing important interests, and often excluded the most contentious interest groups. Often the wider public was unaware of these processes. Individuals can get into powerful positions within consultative processes or in local community organisations, and can begin to shut out other residents; those that have worked hard in the early stages of such organisations sometimes do not feel comfortable letting in their neighbours (Leighninger, 2006). Some community-led projects can become 'pet' projects of one or two local residents (McAreavey, 2006). Often the interests of a small group can be put above those of a wider population. Cowell *et al.* (2011) demonstrate this in their study of community benefits (essentially money) given by energy companies to communities directly affected by wind farm developments. This study showed how Powys County Council's proposal to institutionalise the provision of community benefits and use them to set up a Sustainable Communities Investment Fund which they would administer across the county, was met with resentment. Communities local to potential wind farms were unwilling to recognise any wider collective interest in these discussions, wishing that any community benefits were given directly to the communities that were directly affected. Purcell (2006) also criticises the pre-eminence of local concerns in urban developments which have the potential to benefit a much wider community. Rydin (1999)

also questions the prevailing ideal of decentralisation, asking how to proceed if a local community does not recognise the need to preserve a local space of biodiversity value, or if it chooses to exclude people on the basis of prejudice. In a roundtable of practitioners involved in public participation at a variety of levels Brownill and Parker (2010a) found that most practitioners in fact felt that consensus in such issues was an unlikely and undesirable aim, that perhaps 'informed dissent' would be better. There is some suggestion that meaningful representation at scales larger than the neighbourhood might not even be possible (Pickering and Minnery, 2012).

A further difficulty with representation in community-led projects is specific to local community groups or organisations running projects within their area. Since these groups arise often spontaneously in their local area, they often do not question how representative they are *of* their local area. Leighninger (2006) points out how some directors or leaders of such organisations do not answer to local residents as they see no distinction between their organisation and the neighbourhood itself. Yet these groups are not elected, and thus cannot be held to account for their actions. Leigninger (page 167) cites William Traynor, a director of a community organisation in Massachusetts: "As long as a community-building organisation sees itself as the community, it cannot work effectively to improve its representation of the community".

In order for a local project for sustainable energy to win support, it must be seen as representing the wishes of local people. However this can be achieved in a variety of ways; either by a grass-roots community group or by local authority project which has the support of an elected Councillor. Representation is a complex issue for local projects to deal with. Representation of people's wishes is not *automatic* for grass-roots groups; sometimes quite the opposite. Sometimes people do not want to participate in decision making about sustainable energy; in which case people acting on their behalf might not be a problem.

2.4.4 Trust

Despite the above described difficulties with representation, there is a strong push for participation in order to combat the public's lack of trust in government or other central authority (Sloam, 2007, Worthy, 2010). Rydin (1999) supports this view, pointing to

planning and decision making processes across Britain that have been so acrimonious and full of conflict that the public now have an ingrained and profound lack of trust of planners and government decision makers. This lack of trust is a very real problem with good cause. Devine-Wright (2011) gives an interesting example of this with a tidal energy installation in Northern Ireland. The project was generally well received by local communities for its distinctiveness and ability to tackle climate change. Despite the positive potential of the project, local people were mistrustful of the consultation process that happened as they had found previous such processes to be hollow and their views ignored. Cuppen and Winnubst (2008) also give an example of this from Holland; local people were against government proposals to relocate a dyke and presented an alternative during a consultation process. However the government was focused on the policy outcome and how to get there with a minimum loss of face towards other government agencies; the legitimation of the process was of little concern. This meant that the consultation process was actually a source of frustration for those involved. Cuppen and Winnubst also suggest that citizens who were not involved in this process stayed away because they were mistrustful of government agencies because of previous negative experiences with them.

As previously suggested trust also appears to be a key issue in UK wind farm developments. The language of wind farm opposition groups is often almost combative. Local groups are presented in opposition documents and literature as 'Davids' against 'Goliaths'; identified as renewable energy corporations, the state and some environmental movements (Barry *et al.*, 2008). In such a conflictive relationship, local people are mistrustful of renewable energy companies and their motives, companies who never mention profit motives in their mission statements, instead focusing on 'saving the planet' (Barry *et al.*, 2008, Wolsink, 2007a, Ellis *et al.*, 2007). People can also be mistrustful of government's relationship with such companies, leading to an "undemocratic overthrow of public opinion" (Barry *et al.*, 2008:74).

Trust is important as it can contribute to project success. Walker *et al.* (2010) show that trust between local people and the groups that take projects forward is part of the set of conditions which can help projects work. Co-ownership of renewable energy installations within a community (therefore more trustworthy) has been shown to increase their acceptance (Musall and Kuik, 2011, McLaren Loring, 2007, Warren and McFadyen, 2010); especially in

Denmark where 80% of wind capacity is owned by local individuals and co-operatives, and where wind power has been supported since the 1970s (McLaren Loring, 2007).

These are issues faced by local projects for sustainable energy. A group carrying out a local project could be seen as trustworthy because they are a voluntary community group, or for some other reason (for example, doctors are considered particularly trustworthy, see IpsosMori, 2013). If a project is not perceived as trustworthy, people will not become involved in it, it will not be a success.

2.4.5 Effectiveness and the Achievement of Project Delivery

Notwithstanding the above issues of knowledge validity, representation and trust, it is now prudent to explore how effective differently organised (i.e. community-led vs local authority-led) projects are in actually achieving delivery and hence change. Firstly, project organisers (often of projects of any kind) face incredible difficulties in just completing their projects, what with limited resources and capacity, local jurisdictions in often national systems, and complex systems in which to intervene. The problems for sustainable energy projects are particularly difficult given the embedded energy sociotechnical system and somewhat inflexibility of energy behaviour. Simply delivering a project is difficult. Secondly, the issues that sustainable energy projects seek to address are vast and urgent. Due to the increasing cost of energy, the West Midlands currently suffers the highest rate of fuel poverty in the UK with one fifth of residents considered fuel poor (Palmer, 2011). Climate change is an issue of increasing importance and urgency (see for example Earth System Research Laboratory 2013), and energy security is an important UK concern (DECC, 2012a). This evidence suggests that the issues that local projects for sustainable energy are seeking to solve are severe, and effective action must be taken quickly.

Firstly, there is much evidence to support the fact that local projects are simply difficult to deliver, period. Bomberg and McEwen (2012) draw attention of the formidable barriers faced by community energy organisations in Scotland; of being excluded from key energy policy-making networks and of not always being able to exploit state funding and assistance. This is particularly a difficulty for voluntary groups. Smith (2007a) point to exclusion from key energy policy-making even at more formal and well-resourced levels. Local projects for

sustainable energy are also particularly difficult because they touch on value-laden issues which are extremely difficult to resolve (Warren and Birnie, 2009). Local projects in this area are also extremely difficult to deliver for all the reasons laid out in section 3.2 – they attempt to do something which is contrary to the existing energy regime, which 'locks' them out.

The question is therefore raised as to how effective local projects are. Some studies have shown that community-led projects or participative processes can be effective at driving change forwards as they deal with conflict (sometimes born from mistrust, as previously stated) which would otherwise cause progress to grind to a halt (Beierle and Konisky, 2000). Again, Fraser *et al.*'s (2006) study shows how environmental management of the Coastal Temperate Rain Forest was actually stopped when the conflict surrounding it became so acrimonious that groups blocked roads from logging trucks. McLaren Loring's (2007) study demonstrates that European wind farm developments with a high degree of participation were more likely to come to fruition, thereby increasing renewable energy generation capacity. Not involving local people can lead to increased opposition and ultimately stop or slow down the delivery of projects (Cuppen and Winnubst, 2008, Barry *et al.*, 2008, Wolsink, 2007b).

Further to this, more participative projects can be more effective because of their potential to change people's values. If, as Portney (2005) argues, contemporary society is suffering from a variety of problems which stem from "rampant individualism" (page 585), participatory projects and processes may give people the necessary opportunities to interact with each other and re-create shared values and understandings. This may lead to the acceptance of the idea that what is good for the community is not necessarily the sum of what is good for individuals. In turn this may lead to the acceptance of projects which although resulting in some small personal inconvenience, will benefit the community as a whole. In other words, through participation and meeting different groups of people, society's values can be transformed from individualist values towards those more compatible with sustainability, through the process of social learning (Reed *et al.*, 2010, Holden, 2008, Schwilch *et al.*, 2012).

However, given the severity of the risk of climate change and the need for timely action, local authority-led projects can be more effective than community-led projects. Walker *et al* (2007) have looked at community renewable energy as a recent theme of government policy.

Their research found 509 projects supported by community labelled government programs as of December 2004. However they argued that if the primary evaluative lens was to be direct contributions to carbon reduction, then, given the scale and urgency of the reductions that are needed, "public funds may be judged to be poorly spent" (page 72). Devine-Wright (2011) points out that one of the factors of the commercial tidal wave energy generator built in Strangford Lough, Northern Ireland (a local authority-led intervention, that was reported as having an unsatisfactory consultation procedure) that local people appreciated, was the large contribution the installation made to tackling climate change. Projects attempting to bring about change often require a lot of resources; too many for community-led (sometimes voluntary) organisations or projects to provide (Youmans, 1990, Marullo and Edwards, 2000). Derkzen and Bock (2007) also point out that some organisations are at a disadvantage if they do not have access to professional resources – that professional organisations can be more effective in decision making and delivery projects for change. Further to this, the previous discussions of representation also potentially affect a localised, participative process or community-led organisation ability to be affective, as other individuals might see a project as excluding them and their potentially helpful insights.

A number of authors demonstrate a strong role for public authorities in delivering local projects for sustainable energy. Smith *et al.* (2005) point out that governments have a role in guiding transitions of socio-technical regimes. Foxon *et al.* (2008) explore this further looking at possible transition pathways including large supply-side solutions and demand management, in an effort to understand which ought to be favoured by policy makers. Westholm and Beland Lindahl (2012) argue that it is only because of Norway's strong welfare model that the country is relatively advanced in terms of its energy transition, and feel that the EU's 20:20 targets (20% of EU energy to be sourced from renewable sources by 2020) will be uneven across Europe, reflecting different welfare models with different institutional pre-requisites for energy transition. Hisschemöller *et al.* (2006) identify governments as key players in governing the transition to sustainable technologies. Furthermore the components of the system that need to be changed are often outside of the jurisdiction of all but the highest levels of government (Keirstead and Schulz, 2010). And yet there is a role for communities to govern that transition in their localities, sometimes with government support (Walker *et al.*, 2007), or in partnerships with other agencies (Shucksmith, 2000), or even alone (Mackenzie, 2006b, Mackenzie, 2006a, Bomberg and McEwen, 2012).

It seems that among built environment professionals there is still much confusion as to which is the most appropriate pathway to climate change adaptation; central government, local authorities or individuals and community groups (Smith *et al.*, 2013).

2.4.6 Exploring Success – Delivery and Effectiveness

The implicit understanding of success in the literature presented above is essentially the delivery of effective and acceptable projects. For a project to be successful, it must actually be delivered. This can be achieved in a number of ways. High levels of participation in a project may make the decisions taken within it more acceptable to the community, allowing the project to progress and be implemented. High levels of participation and appropriate representation may also reduce conflict, allowing projects to move forwards, as can be seen in community-ownership examples of renewable energy (Warren and McFadyen, 2010), and in environmental land management (Fraser *et al.*, 2006). Trustworthy project deliverers can also make a project more acceptable, and hence be able to move the project forward to completion (Musall and Kuik, 2011). The project team itself must be strong enough to withstand these difficulties of delivery (Lewis, 2012).

However success is also defined by what a project actually delivers. Clearly many of the expert-led projects of the early post-war planning period were not acceptable, and it has been argued that many were failures (Taylor, 1998). The discussion on the validity of different knowledge types shows that if the appropriate knowledge is not incorporated into a project, the outcome will not be acceptable to the people who will have to live with it. Success here is implementation of 'good quality' decisions. In the realm of sustainable energy, success is also defined as 'making a difference' in the energy regime, whether that is determined by carbon emissions saved, energy capacity installed, or homes provided with sustainable energy, or sustainable energy technologies. This understanding of success lends itself more to numeric targets and conceptions of success as 'of scale'.

It is important to note that the literature is ambivalent about whether these understandings of success are likely to come about as a result of local authority-led or community-led projects. Perhaps more participative, community-led projects can make potentially contentious projects more acceptable, and deliver outcomes which are more fitted to their locality. However there

is evidence to suggest that this is not always the case. Perhaps more local authority-led, local-authority-led or facilitated projects can do larger projects (in terms of scale or the resource required) with more impact for energy and environmental sustainability. However there is evidence to suggest that without proper participation with local people, they will meet too much opposition to be completed (Asadolahniajami and Walsh, 2013).

2.4.7 Conclusion

The success of local projects for sustainable energy is difficult to achieve, often because local projects themselves are difficult to achieve. The planning literature considered here explores the issues of participation, competing knowledge types, representation, trust, effectiveness, and therefore the conflicts that arise from inadequacies in these areas. These are all aspects of the problem that local projects for sustainable energy must face, in addition to an unhelpful and inflexible energy sociotechnical system and undesirable energy behaviours. These problems must be dealt with by the group of individuals delivering these projects. Their decisions as a group about how to deliver their projects, to what aims, and including which groups will come up against these issues.

Success, according to this conception of the problem therefore, is the achievement of delivering the project. This can be done by taking account of the many issues here described. Success is also the delivery of an *acceptable* project, which has been effective in some way.

The literature reviewed here leaves unresolved the question of who is best to deliver local projects for sustainable energy. Both local authority-led and community-led projects can be successful in the way described here, but there have also been many instances of their failures.

2.5 Summary: Conceptions of Problems and Conceptions of Success.

The literature discussed in this chapter gives a wide understanding of the nature of the problem faced by local projects for sustainable energy, at a number of different levels. The problem, as many real-world problems are, is first and foremost an interdisciplinary one, forcing the use of a number of different disciplines to fully understand it.

Local projects for sustainable energy must confront problems at the social or system level. The energy system is unsustainable and incredibly difficult to change; comprised as it is of interdependent technical and social components, and a number of powerful vested interests. Local projects confront this national system within their locality, and hence find it difficult to challenge. Local projects for sustainable energy also confront the individual level problem of energy behaviour, itself part of the energy system, and extremely complex and multifaceted as it is. Energy behaviour is at times rational, at times the result of social norms, at times the result of deep seated values, at times dependent on rational decision making, and at other times entirely unconscious. To address such behaviours within a sustainable energy project is a daunting task. Local projects for sustainable energy must also confront problems at the level of the group of people who are trying to deliver them. They must confront difficult questions of participation, representation and knowledge, whilst knowing that poor judgement here could undermine the project and slow or even halt its delivery.

As such, the nature of success as understood by these bodies of literature is essentially the resolution of these problems. In the sociotechnical systems literature, success is the achievement of a transition of the energy regime to one which is more sustainable, often with a strong focus on the implementation of new technologies. In the behaviour change literature, success is the achievement of behaviour change to more sustainable energy behaviours. In the planning literature here considered, success is the achievement, or delivery of a local project which is acceptable to local people.

These understandings of success are all helpful. However the literature exists in silos. By considering the nature of the problem faced by local projects for sustainable energy through these three disciplines, a fuller understanding of the nature of success can be gained. There is also an advantage in bringing these bodies of literature together to fully understand the different *levels* of the problem which exist at once. However, there may be other conceptions of success which are *not* covered by these bodies of literature. The research presented here will seek to explore some of this, to see how success is understood in practice, in local sustainable energy projects. Chapter Three discusses the methods (and their justification) that were used to do this, and presents the case studies that formed the basis for this research.

Chapter 3
Methodology; Data Collection; Analysis and the Researcher

This chapter reports on the process of data collection and theory building adopted during this research. The following sections detail the research aim, the theoretical framework of the epistemological philosophy from which the research is operating, the process of data collection (longitudinal case studies) and justifications for the particular techniques used, a reflexive piece explaining the researcher's background and motivations, and finally the process of analysis and theory building.

The research question is important as it defines to a large extent the research methods which are used to answer it. The research question is also important as it sets the boundaries on the area of study, narrowing the problem to a workable size (Strauss and Corbin, 1998). However, in order to build theory; one of the key aims of this research (see below); it is necessary to frame a research question in a manner that will provide the flexibility and freedom to explore a phenomenon in depth. The research question at the start of the PhD research before data collection was originally to explore how interventions could facilitate behaviour change in energy use in domestic settings, and why those interventions had the outcomes they did.

However, this early definition of the research question was only tentative; a position was adopted that was as close as possible to the ideal of having no theory under consideration and no hypotheses to test (Eisenhardt, 1989). However grounded theory (the method of theory building used here and explained further on page 12) is not an excuse to ignore the literature (Suddaby, 2006). Therefore the researcher entered the field with some initial constructs from previous literature with which to form some initial questions. The progress and direction of the research was then influenced by the data collected. Concepts which turned out to be unfruitful, or were subsumed by more important concepts within the data, were given up in favour of more appropriate, explanatory ones. As such, the research question changed, giving the following aim (as stated in Chapter One);

"Explore the nature of success in practice in local projects for sustainable energy to better facilitate their role in bringing about change in energy systems"

The methodology described here explores a 'real-world', and hence to the researcher, an interdisciplinary problem. Within each of the disciplines described in the literature review, different methods are used. Sociotechnical systems literature makes strong use of historical case studies (Geels, 2010, Shove, 2003) in order to really gain an in-depth understanding of phenomena at the social level. Case studies and interviews are used in research on sociotechnical systems and within deomocratic planning, in order to understand the why and how of change, in this case in relation to energy (for example Bomberg and McEwen, 2012, Devine-Wright, 2011, Smith, 2007b). These methods are much better at understanding people's perceptions of and motivations for their actions than the quantitative methods commonly used in the behaviour change literature. This introduces the individual level, in a way that the researcher believes that the sociotechnical systems literature does not do well; lacking as it does an awareness of individuals within social systems. However there are very few examples from the literature of longitudinal contemporary case studies, which present an exploration of the ebb and flow of themes over time as experienced by the actors.

The approach of this study surfaced the problem of language which constrains our ability to recognise and explain phenomena. Language is not good at dealing with 'complexity' and 'difference'; so much is meant by these terms, but there are only these words available to use. This limits any study and makes communication of the problem difficult (Finnegan, 2002).

3.1 Theoretical Framework

This section will introduce the epistemological approach that was adopted for this research, followed by the methodology used.

Critical Realism

The methodological position that best matches this approach is Critical Realism (CR) as articulated by Bhaskar (1978). This is a realist epistemology which assumes that there is an external reality and that that reality is brought about by social generative mechanisms and hence that an understanding of those generative mechanisms makes change possible in the

world (Ackroyd and Fleetwood 2000). It also acknowledges that the researcher has their position within the world and hence requires them to be critically reflexive.

CR assumes that reality exists externally to scholarly understanding of it and humanity's knowledge about the world corresponds to that reality. However this knowledge can never be certain and will always be fallible. There is a distinction between the intransitive domain of science – the reality 'out there' and the transitive domain – the human process of generating knowledge about that reality (Mingers, 2008). Nevertheless, the world 'out there' will not tolerate all understandings of it equally; the role of science is to attempt to discover if the things observed in the process of research are indicative of 'real' mechanisms (Kirk and Miller, 1986, Bhaskar, 1978, Bhaskar *et al.*, 2010, Wynn and Williams, 2012). CR uses causal language; phenomena are explained by reference to causal powers (Sayer, 2000). CR therefore allows the discussion of mechanisms, and with an understanding of them, the possibility of change in the world (Ackroyd and Fleetwood 2000).

Generating knowledge about the *social* world is particularly difficult as the researcher is also a social agent and therefore cannot stand outside of the situation under study. The social sciences study self-reflecting humans (Flyvbjerg, 2001), who understand that they are participating in research. The fact of their being 'researched' and the researcher herself become part of the context under inquiry. CR allows the researcher to deal with their personal position in the research, and to be robust by reflecting on that position and critiquing it. This will be explored further in section 2.3. Following this, it is clear that knowledge, especially that of the social world, is to some extent socially constructed, but that some knowledge corresponds more closely with reality (contested and multi-voiced as it is) than others. This research is informed by this view (particularly in its use of case studies, explained in section 2.2), which aim to build an in-depth understanding of a phenomena, with multiple methods and hence multiple perspectives). In order to find these perspectives which more powerfully explain reality, CR allows the use of many different disciplines, and with them, different epistemologies each tied to their own purpose and context. The argument presented throughout this thesis hence draws on different disciplines, to build a fuller understanding of practice. However it is itself merely *a* perspective of the phenomena under study; there could be, and will be many others.

The position and approach of CR is also critical as it assumes that the world can be changed for the better. According to Ackroyd and Fleetwood (2000:23) "by revealing how, despite our failure to acknowledge it, our own acts are implicated in the reproduction of social structures and relations that stand in the way of emancipation, we are … in a position to consider alternative structures and relations that might overturn this state of affairs, and promote genuine human flourishing". As such, according to CR, it is possible to use research to improve practice.

Grounded Theory

Critical realism refocuses attention on ontology, but does not expand on how best to execute research into that ontology. Grounded theory has been proposed as a potential approach to doing this (Yeung, 1997). In 'The Discovery of Grounded Theory' (1967) Glaser and Strauss argued against the then prevalent practice of testing 'great man' theories in small ways; pointing to the embarrassing gap between theory and research. They called for a new generation of theory from data systematically obtained from social research, rather than using the researcher's own logic and common sense in conjunction with non-rigorous qualitative data. The Grounded Theory Method (GTM) has since then become an important and well-used research methodology (Bryant and Charmaz, 2007). The GTM also complements a CR approach (Yeung, 1997). As mentioned above, one of the advantages of CR is its ability to deal with the position of the researcher by taking a reflexive and critical approach. GTM also requires that the theories generated 'fit' the data as closely as possible, requiring the researcher to be critical and reflective about their emergent theories (Strauss and Corbin, 1998). GTM, like CR, also understands that the knowledge we generate about the world is embedded in history and socially constructed; and that there are multiple perspectives (Strauss and Corbin, 1994). As such, it is also a useful approach for exploring the research problem which is based in the 'interdisciplinary' real world, where there might be many perspectives on nature of phenomena (such as success).

As a research methodology, grounded theory is a demanding undertaking, and not all of its techniques and elements are applicable to every piece of research. In this research, some elements of grounded theory were viewed as particularly useful and were therefore adopted for the present research. The first element adopted the concept of 'data slices'; multiple types

of data in a multifaceted investigation, comparing multiple groups. Such advice lends support to the use of case studies (explained below), which allow this sort of data collection. Secondly, some elements of the process of theoretical sampling for the purpose of theory generation were also appropriate. In such a process, the simultaneous collection and analysis of data influences decisions about what data to collect next as ideas emerge from the data, and gaps surface that need filling (Glaser and Strauss, 1967). Thus, questions were added to the interview protocol (see Appendix B for interview questions for both rounds), and interviews were sought with additional individuals whose importance became clear during the data collection process as appropriate (Eisenhardt, 1989). This allows the emergent theory to stay close to the data and to 'fit' that data. Theoretical sampling was also helpful in the selection of case studies; advising that the researcher pick those cases that were helpful for theory development, rather than researching a vast number of case studies purely to replicate the discovery of the same relationship in multiple groups. Such 'rediscovery' is uninteresting, since it requires no modification to the theory (Glaser and Strauss, 1967).

The journey of the research process is outlined below. Where grounded theory has informed the approach is identified.

3.2 Qualitative Research

Having understood the theoretical position and methodology, this section now turns to the tools used to execute the research; specifically qualitative methods. Ultimately, qualitative methods (including case studies) answer 'how' and 'why' questions (Yin, 2003), which were the sorts of questions asked by this research. Following a critical realist stance a qualitative research approach is appropriate for generating insight and knowledge into the social world. This approach highlights the role of context and helps to give a complex understanding of reality which corresponds to the rich and nuanced nature of social reality. Many different theoretical positions have used case studies and emphasised their benefits; for example Lincoln and Guba (1985) used case studies to report findings as part of this approach since they allow the generation of the necessary rich and complex knowledge that can approach the contradictions of real life. As a result of this, qualitative methods were chosen for this research, predominantly interviews and observations within each of the case studies chosen.

An important advantage of qualitative research is its ability to understand the *context* of a social phenomenon. Human skills are context dependent and cannot be reduced to rules which are followed in every situation (Flyvbjerg, 2001). However a 'theory' must be context independent to ensure predictability (Glaser and Strauss, 1967). This has led some authors to discount social sciences' ability to produce theories similar in nature to the natural sciences, and argue that generalizability and prediction in the strictest sense is therefore impossible or undesirable (Flyvbjerg, 2006, Schram, 2012). However, where proof is impossible, learning is not. Such learning gives insight and further exemplars which provide the basis of expert-level learning, and therefore help social scientists learn how to *act* in relation to substantive social and political issues (Flyvbjerg et al., 2012). Such insight is also critical for understanding human experience (Silverman, 2013). Others argue that generalizability at the level of the theory can give a helpful explanation of similar persons or situations, rather than through being able to make inferences across a wide population (Eisenhardt, 1989, Maxwell, 1992, Glaser and Strauss, 1967, Hammersley, 2012)

An overview of the methods used in this research is given in the following table. All methods of data collection were undertaken with considerable (if not complete) temporal overlap; interviews and document collection and analysis were carried out over the same period as observation was going on.

Figure 3.1 – Table showing sources of data

Case Studies	**Interviews**	**Observation**	**Documents**
2 longitudinal studies	62 interviews carried out with 42 individuals, in two 'rounds' (one in 2011, one in 2012) each round lasting three months.	Over a two year period 63 meetings were attended for observational purposes.	For each project minutes from monthly board meetings, relevant reports and business plans and project proposals were collated. In the BES case study, 'status reports' of progress and information pertaining to the Green Deal phase was also collated (see pages 88 and 89 for explanation of Green Deal phase).

Further information on the sources of data including a breakdown of numbers and extracts is provided in Appendix A. All data is partial (Silverman, 2010), and all methods have their advantages and difficulties. Case studies allow a deeper insight into phenomenon, but have difficulty 'proving' the connection between variables (if such a thing is possible). Interviews allow the collection of rich data providing the exploration of meaning and perceptions, and yet it is difficult to know for certain if 'perception' corresponds to reality, or if the interviewee is withholding or distorting information (King and Horrocks, 2010). Observation has the advantage that the researcher can see for themselves what is really happening, without having to rely on the interpretations of another (Gobo, 2010), however this overemphasises the researcher's position. Observations cannot help to understand why something is happening the way it is. Documents can give helpful statement of facts and figures which are again not veiled by the interpretations of others, and yet they can be written for certain purposes, with certain agendas which are not always clear to the researcher (Prior, 2010). They also only represent a single point in time, and so meaning can be limited.

These methods are discussed in more detail below.

Case studies

Case studies were selected as the first qualitative method as they are useful for studying a contemporary phenomenon in context (Proverbs and Gameson, 2008, Yin, 2003), and hence can study natural events which are not manipulated by the researcher (Lincoln and Guba, 1985). Case studies are particularly well suited to a critical realist approach, as CR justifies the study of any situation, (regardless of the number of research units involved) if the process involves thoughtful in-depth research with the objective of understanding things as they are (Easton, 2010). Case studies are also well suited to gathering the multiple 'data slices' advised by Glaser and Strauss (1967) as they use multiple sources of evidence in order to facilitate understanding of the phenomenon of interest (Remenyi, 2012). Case studies are also beneficial as their multiple methods allow as full an understanding of the case as possible (Silverman, 2013), which allows important and unexpected themes to emerge.

Case study research also appears to be highly relevant to industries which are project driven (Proverbs and Gameson, 2008), and so was considered useful in looking at local projects for

sustainable energy. Case studies are also used because they make a number of interesting contributions to the current literature. Longitudinal case studies looking at processes of change *as they happen* have not yet been included in the sociotechnical systems literature, which mostly uses historical case studies (Geels, 2011). Case studies are rarely used in traditional behaviour change research which tends to use more quantitative methods (for example Göckeritz *et al.*, 2010, VaasaETT, 2011), but more qualitative methods in this area have been shown to be very illuminating (Hargreaves *et al.*, 2013). Case studies have been used often in planning research, sometimes with one case (Devine-Wright, 2011, Warren and McFadyen, 2010), and others with many cases (Devine-Wright and Wiersma, 2013, Bomberg and McEwen, 2012). Longitudinal case studies of local projects for sustainable energy will contribute to these bodies of literature. This is particularly because this method allows in-depth study of the full nature of the problem faced by these projects at the social, individual and group level (and hence the nature of success), as different issues, opportunities and outcomes arise and fade over time.

For a long period, case studies suffered a poor reputation in the social sciences; they were not generalizable, that there is no control over the conditions of the research and so the results cannot be trusted, they are not rigorous enough to stop the researcher from looking for confirmation of their preconceived notions (Campbell and Stanley, 1966), and that as they are not generalizable they can lead to unwarranted conclusions (Lieberson, 1991). However Flyvbjerg (2006) argues that many criticisms of case studies are unfounded, and points out that even Donald Campbell changed his views on case study research entirely and became one of the method's strongest proponents (Campbell, 1975, cited in Flyvbjerg, 2006). Flyvbjerg (2006) cites the experiences of a number of researchers in finding that case studies tend to *disconfirm* previous notions, assumptions and hypotheses, forcing them to revise their theories in several points. Constantly being confronted with real life situations in 'the field' is according to Geertz (1995:119) "a powerful disciplinary force: assertive, demanding, even coercive". The constant juxtaposition of the different realities reported by different people within a single case causes the researcher to "unfreeze" their thinking, and so the process has less researcher bias than theory built from logical deduction or incremental studies (Eisenhardt, 1989:546-7). Despite some misgivings within the literature about what constitutes an appropriate number of cases (Remenyi, 2012), good quality research can be

carried out whether one or several cases are used; it is a matter of what is appropriate to the research question (Silverman, 2013).

Selection of Cases

The aim of the research was to explore the nature of success of local projects for sustainable energy, partly by understanding the full nature of the *problem* that they faced. In order to understand the full nature of that problem, which changed over time, longitudinal case studies were necessary. As behaviour change was felt to be a significant part of this problem, longitudinal study was also required in order to explore behaviour at two time points, one before and one after the project beneficiaries' experience of the project, to see if energy behaviour had changed and why/why not. As physically delivering local projects for sustainable energy was also considered to be part of the nature of the problem, particularly with regard to *who* those people delivering it were, it was necessary to have two cases comparing different ways of operating, i.e. local authority-led and community-led.

Therefore interventions were looked for where the nature of the organisations running those interventions was different in some way. The two case studies that were chosen were the Birmingham Energy Savers (BES) project run by Birmingham City Council (for this research conceived of as the local authority-led project), and the Green Streets project run by Sustainable Moseley (SusMo, for this research identified as a community-led intervention). Birmingham City Council is the largest local authority in Europe and also a major landlord with over 60,000 properties. SusMo is a small voluntary community group, at the time of inquiry numbering between five and eight members, aiming to help its community (Moseley is a neighbourhood in South Birmingham) reduce its carbon emissions. This difference in size, organisational form, resources and potentially aims and constraints of the two organizations meant they could be used as 'maximum variation cases' (Flyvbjerg, 2006).

The circumstances of case selection in this research were predominantly pragmatic; these two cases were available and good levels of access were assured. These two projects had also both just begun when the PhD started and were due to end within two years. This timing allowed the researcher to fully immerse herself in the projects as they played out on the ground, and to be able to see the ebb and flow of different themes and issues within each. It

was decided that these two case studies provided a sufficient and robust way of getting sufficient, valid and reliable data that could be used in the process of theory building. Further reasons for this decision are given below.

Before the cases were decided upon, a number of potential cases were explored; the two mentioned above, a further case in Birmingham, another near Peterborough, one in Wales and one in Tamworth. These cases were highlighted through conversations with colleagues at Birmingham City University who had previous relationships with them. Introductory meetings, telephone conversations and email exchanges were carried out with all of these cases to discover whether they would be appropriate cases. Eventually all cases except BES and SusMo's Green Streets were rejected. One of the main reasons for this was that the other projects did not provide a *different* enough case to provide a good enough theoretical sample (Glaser and Strauss, 1967); they either provided another example of a project run by a voluntary community group or a project run by a local authority. The other main reason was that the project was not at the point of starting – it was either over or was 'in the pipeline'. This would not have allowed for an exploration of the changing and complex nature of the problems that these projects would have faced as they played out; the advantages that a *live* project would have had. It was also felt that retrospective discussions of the project with its organisers would only have given highlights of the key issues with the benefit of hindsight. Also, since behaviour change was considered a key part of the problem faced by local projects for sustainable energy, it was felt that being able to study a project at two time points; at the start and after the intervention, was critically important. Again, retrospective discussions of this with project beneficiaries would not provide enough evidence of the process of change. Hence BES and SusMo's Green Streets were chosen as they were just beginning their projects from the Autumn of 2010, and many people who were due to benefit from them had not yet done so by the spring of 2011, when the main data collection activities began. In this way, these two cases were also the most appropriate for longitudinal study, necessary for the exploration of how different problems or opportunities arose over time, and for an exploration of the process of behaviour change.

The Two Cases – BES and SusMo

It is here helpful to give a fuller outline of the two cases. Birmingham Energy Savers began in 2010 as a pilot project installing photovoltaic panels onto mostly council properties and some commercial properties, in order to tackle fuel poverty, kick start the local economy and reduce carbon emissions, under what was then called 'Phase 1' of the project. This extended into the Spring of 2011 on council properties, and the bulk of the interviewees for this research were drawn from this period of the project, then operating in the neighbourhoods of Aston and Nechells, more deprived inner-city neighbourhoods. This phase was carried out in partnership with a housing association (Family Housing Association) who focused on community engagement, and a small Birmingham based company (New World Solar) who undertook the physical works. 'Phase 2' began in the early Summer of 2011 aiming to install 1200 PV arrays on council properties in one year. This was done in partnership with a new contractor, G Purchase Ltd, who was responsible for the entire process of engagement, installation and aftercare. A small number of interviewees were drawn from this later phase in 2012. BCC paid for these installations through claiming the Feed-in Tariff, which had been introduced in April 2010 to encourage the installation of domestic microgeneration technologies. This project was being carried out with the aim of moving from PV to 'whole house solutions' under incoming UK-based Green Deal legislation. Birmingham City Council was at the time the most advanced local authority in terms of becoming a Green Deal provider, and had a number of social and economic aims to be addressed under the programme. Opportunistic sampling (Patton, 1990) was therefore a further reason for choosing this case study.

SusMo embarked upon their project officially in 2009, after having won £140,000 worth of goods and services from British Gas as part of their own Green Streets project. SusMo were one of 14 winners nationally, beating the other competitors in the West Midlands region. With this resource, SusMo arranged for the installation of PV arrays to be installed on a local church, a school, a mosque and a building in the local allotments, and other microgeneration technologies or energy efficiency measures to be installed in 17 houses. Moseley is a vibrant multicultural community boasting a monthly farmers' market (moseleyfarmersmarket.org.uk, 2013), yearly music festivals (mostlyjazz.co.uk, 2013, moseleyfolk.co.uk, 2013) and a large number of community groups (moseleycdt.com, 2013). Members of SusMo are actually also members of many of these other groups.

There were other benefits to focusing on these two case studies. As both were based in Birmingham, the cases were more comparable, operating as they were under the same planning, environmental and social policy background. Given that the organisations themselves were so different, it was considered an advantage to keep other variables as similar as possible. Birmingham is also where the researcher lives, and so restricting the cases to Birmingham meant that the time and expense of travelling to the different cases was greatly reduced. This had a further benefit in that since both cases were local, they could be entered into in a *great* amount of depth. Remenyi (2012) goes so far as to state that it is acceptable to do a single case study when that study is longitudinal with several data collection points, because of the amount of data generated by such cases. Involvement with BES lasted from the first introductory meeting in October 2010 until October 2012; two years in total. Involvement with SusMo's Green Streets lasted from the first introductory meeting in January 2011 until September 2012. Throughout this period, board or committee meetings for both projects were attended every month (when held), as were additional meetings, events and study visits when relevant (see Appendix A for numbers). Interviews were carried out in 2011 and 2012 with both beneficiaries of the projects and with the organisers (i.e. SusMo and the BES team and board). During this period relationships could be built up with the organisers of both projects allowing a great level of access, and for the researcher to embed themselves within the projects and increase the potential for understanding.

Given this level of access, the question is raised as to why the researcher did not look to do participant action research, instead keeping some level of distance from the research. While this was an interesting proposition, it was felt that the commitment of time and resource that would be required to do this across *two* cases at the same time was not possible. Furthermore, it was felt that the nature of voluntary community groups can be vastly changed if they have the benefit of a volunteer or employee who can give the significant resource of their time to further the aims of the group, and provide expertise, as shown by Derkzen and Bock (2007). One of the major differences between SusMo and the BES team was access to resources, specifically the resource of time. It was felt that by conducting participant action research on both of these cases, a key difference between them would be undermined.

Following the tenets of Grounded Theory, the early identification of the research question and possible constructs is helpful in beginning the research, however it is important to realise that

both are tentative (Eisenhardt, 1989). No construct is guaranteed a place in the resultant theory, no matter how well it is measured. By using case studies, the research can follow the lead of the data, giving rise to the possibility of the research question shifting during the research. This was the case within this research, as early constructs were found to be less important, and other data could be sought to strengthen constructs which appeared more promising. Throughout the case studies questions were changed in the interview protocol when necessary, and new interviewees were sought when it was felt that they had become relevant to the case studies during the different data collection periods. Extra opportunities to discover something new about each case were seized upon if they arrived; for example a visit to a BES Phase 2 beneficiary with members of the board. Following Eisenhardt (1989), this flexibility can be termed 'controlled opportunism' in which a researcher may take advantage of the uniqueness of a specific case and the emergence of new themes to improve the resultant theory.

Documents and Observation of Meetings

Kearns argues that one of the purposes of observation is to provide complementary evidence (2010); to gather descriptive information to provide added value to more controlled and formalised methods such as interviewing. As such for each case study, board or committee meetings were attended in order to carry out this observation. Committee meetings at SusMo were attended monthly for 18 months; in BES, monthly board meetings were attended for two years. This allowed the observation of the organisers of each project in a natural setting as they went about the business of planning and running their projects. Unlike interviews, which are unnatural or contrived situations, observation allows the researcher to remain in the 'flow' of everyday life, and develop understanding through being part of the spontaneity of everyday interaction (Kearns, 2010). Hence, the observational data provided an excellent opportunity to understanding the events of each project as they unfolded. Data gathered in this way was also compared to later interview data in order to provide convergent validity (Cohen *et al.*, 2007). Furthermore, the data was also drawn upon in the interviews themselves as extra questions or prompts to gain greater insight into the projects.

When gathering observational data, the researcher themselves is especially important as their own most crucial tool; they must blend in. However, a key difficulty with direct observation

is that it may influence the behaviour of those being observed, an example of which is the Hawthorne Effect (Landsberger, 1958, Russell *et al.*, 1992). The researcher might also misinterpret events from their own perspective. Observation is less intrusive and more effective when one is interacting most naturally with research participants. Listening and talking are key skills that help the researcher to blend in, and listening must *precede* talking so that the researcher can become attuned to what matters in a particular time, place and social setting (Kearns, 2010). This advice was adopted and some role was sought within the meetings to ensure that the researcher could be understood as participating rather than merely observing. Given that Reed (2012) argues that it is important that research participants themselves get something out of the research process, the role of official 'minute taker' was adopted at the meetings attended. This offered some benefit to these research participants as it eased the workloads of busy council staff and time poor volunteers. It also allowed a more participatory role, helping to establish feelings of trust which would facilitate natural behaviour (Babbie, 2012, Adler and Adler, 1987). Such a role also allowed the researcher to take field notes without disrupting the flow of the interaction. As the minutes were always written in a notebook, to be typed up later, participants were unable to tell at any one moment if the researcher was writing a minute or a field note. The difference was clear to the researcher, however, as all field notes (and thoughts about those observations) were labelled 'Rf' (short for 'reflection') or 'Obs' (short for 'observation').

However, taking minutes creates ethical and validity issues as some of the documents which formed part of the case study data were in fact created by the researcher themselves. However the minutes of the previous meeting were always checked and agreed by the board or committee at the beginning of each meeting, and hence were corrected where necessary. Checked and corrected minutes therefore formed part of the notes from observations, complemented by the abovementioned additional field notes. There are instances in the literature of researchers taking the role of minute-takers in such situations, for example Goodley (1999).

Other documents in addition to minutes were also used, such as reports, bid documents, evaluations and other working papers from BCC and SusMo. Documents are useful in a number of ways. They can be used in the early days of research to help the researcher understand the substantive area under study (Glaser and Strauss, 1967). They also allow the

researcher to 'fill in the gaps' if they have left the field and cannot gather more empirical data (Glaser and Strauss, 1967). They are of course also useful in providing facts and figures and other detailed information which the researcher can refer to at some later time. They are also useful in case studies as part of a CR approach, where data collection is 'eclectic' (Easton, 2010:124), and uses as many different data sources from as many different disciplines as is helpful in understanding the phenomenon in question.

The documents gathered for this research were used in similar ways; some served as introductions to the case studies, and provided the initial, basic understanding of them. Other documents built upon that understanding and provided more specific details; for example the monthly 'status reports' presented at each BES Board meeting which provided numerical and detailed snap-shots of the progress of BES. The information gained from these documents informed the researcher's overall knowledge of the case studies and was used both to inform later questions or prompts in interviews, and to write the case study descriptions presented in the results chapter.

Interviews

Yin (2003) argues that interviews are often the most important sources of case study information as they target people directly involved with cases, allowing the development of detailed insight. At a basic level, interviews are conversations (Kvale, 2008), and the quality of the information that is gained from them is largely dependent on the interviewer's skills and personality (Patton, 1990, King and Horrocks, 2010). However interviews, especially more informal or semi structured interviews can go very deep, uncovering an explanation of the meaning of a phenomenon for people (Haigh, 2008). For these reasons, interviews were chosen as the major data collection method. This provided a vast amount of data as over the course of the data collection period, 62 semi-structured interviews were carried out. This allowed the participants to demonstrate their own way of looking at the world, in ways unanticipated by the researcher, exploring what mattered to them (Silverman, 1993).

There are a number of difficulties with interviews, however. Interviews are not neutral forms of data gathering, but active interactions between two or more people where meaning is negotiated (Silverman, 2006). In many ways, the interviewer can inadvertently influence the

results, perhaps with unclear phrasing of questions or through not reassuring the participant that the results are confidential, or perhaps a lack of tact; causing an interviewee to answer in a certain way to save face, or perhaps through not ensuring that the results are confidential (Haigh, 2008). The respondent must feel comfortable and free to speak their mind, and must be able to trust the researcher from the beginning. For that reason all beneficiary participants were initially contacted by the organisers of the projects (Family Housing in the case of BES, and SusMo members in the case of SusMo's Green Streets), who arranged the interviews directly with them. These organisations acted as 'gatekeepers' for the beneficiaries, linking them and the projects they were part of to the researcher (Silverman, 2010, Tushman and Katz, 1980). The 'organiser' participants were contacted directly after they had been introduced to the researcher during initial board or committee meetings where the research was introduced and the aims of the research were fully disclosed. In the first round of interviews in the BES case study 10 beneficiaries and 6 people involved in its organisation and delivery were interviewed. In the SusMo case study, 8 beneficiaries and 5 people involved in its organisation and delivery were interviewed.

For the second round of interviews, the researcher contacted the beneficiaries by letter and then by a follow up phone call to arrange the time of interview. Interviews with the organisers of the interventions were arranged directly after board or committee meetings. By this point, both projects, but especially BES, had moved on, necessitating some changes in interviewees. In the BES case study, 8 of the original beneficiaries were re-interviewed. Two declined to be re-interviewed; one did not wish to give a reason, the other felt there was little more to add since "nothing's changed" (field note 17th May 2012). A further 3 beneficiaries were interviewed for the first time from Phase 2 of BES which had begun by this point. With regard to the BES organisers, 2 of the original interviewees were re-interviewed. The remaining 4 had had no further involvement in BES since they had last been interviewed either because they had been involved in its original design only, or because the project was now being delivered by different partner organisations. They were therefore considered no longer relevant. A further 7 people were interviewed for the first time; two from the new delivery partner G Purchase Ltd, two from the BES project team and three from the BES Board. In the SusMo case study, all 8 beneficiaries were re-interviewed. Three of the original five people involved in organising SusMo's project were re-interviewed, the fourth and fifth had had no further involvement since the previous interview and so were considered

no longer relevant. Two extra people who had been involved in organising the project were interviewed for the first time; the researcher's (by this point) greater understanding of the project led her to feel that they were relevant and important interviewees.

As mentioned earlier, interviewees' perceptions of reality may not correspond to reality, or may change over time and they may even withhold information. This was another reason for doing two rounds of interviews, to get two 'snapshots' which could be compared, and for interviewing many people involved in each project, to build a fuller picture of events.

To put participants further at their ease to comfortably express their own views, all interviews were carried out at a place of the participant's own choosing. For the beneficiaries, most participants were interviewed in their own homes, where they felt comfortable, where the researcher was to use a common phrase on 'their turf'. Interviews with organisers were often carried out in offices (in the canteen or a private meeting room) or participants' homes, again on their own turf. It has been argued that interview location is an important factor in constructing the reality of an interview, beyond mere convenience and comfort (Herzog, 2005). Rapport with all participants was built through a starter question just to 'get them talking', and the interview protocol was deviated from where it helped to further build rapport by making the interview more conversational. Importantly, the impression of the similarity of circumstances or understandings between the interviewees and researcher was built to help overcome difficulties of power asymmetries, as warned by Kvale (2008). For the beneficiaries, parallels were drawn between their situation as council tenants struggling to pay bills and the researcher's own position on a small research stipend struggling to pay bills. With the organisers of the projects, the researcher's previous experience as an employee of a third sector organisation working to help disadvantaged communities gave 'preunderstanding' (Gummesson, 2000), allowing similarities to be drawn between the researcher's previous work situation and the participants' current one, that of trying to help fuel poor householders.

Throughout the two rounds of interviews, the project beneficiaries were asked about how they used energy by focusing on how they used their electrical appliances, whether they left lights on, how warm they kept their houses and so on, and the reasons for this were explored. Importantly, in the second round of interviews, beneficiaries were asked if they had changed their behaviour in any way, or felt more in control of their energy use since the installation of

the sustainable energy technologies, and why this might (or not) be so . They were also asked to explain the reasons why they had signed up to the projects they had. The relative importance of and their perception of the role of the organisers (community group or local authority) was also explored. The beneficiaries were also encouraged to talk about their thoughts of the environment, and whether this had changed since the intervention.

Throughout the two rounds of interviews, the project organisers were asked about why they thought people had signed up to their project, whether they thought their behaviour had changed, and what they thought made people change their behaviour. Organisers were also asked about the importance of behaviour change as part of their project. This explicit role varied between the two projects. They were also asked why they had taken the decisions they had in running the project as they did; why they had decided to run the project in a certain way and what they thought the benefits of this would be. The organisers' own role (as a community group or local authority) was also explored, as well as the organisers' perceptions of beneficiaries' thoughts of that role. Again, questions were asked to gain an understanding of whether the organisers' felt that the beneficiaries' concern for the environment had changed since the start of the project, and why that might be. The organisers were also asked to explain how their projects fitted in with other programmes or processes going on at the local, regional or national level.

The thrust of both sets of questions was to understand how the beneficiaries responded to the interventions, in terms of their behaviour, their thoughts about the new technologies, and to the organisers themselves. It was also to understand how the beneficiaries' responses to the interventions were mediated by certain contextual factors. The questions also sought to understand the perceptions or assumptions that the organisers held about those beneficiaries, about why they behaved as they did with energy, and how this could be changed. It was also to understand how the organisers' applied those understandings in their interventions (what mechanisms they used to change behaviour) and how and why they were held back from doing so, or where they had extra opportunities to do so. These questions were asked to explore the perceived gaps in the literature; that of the energy user within the sociotechnical systems literature, and the way organisers understand the energy behaviour of others, and how this is operationalized in practice (from behaviour change literature), in local projects where the constraints for energy system transition are perhaps stronger than at the national level.

These questions were asked to understand how the micro level and the macro tie together; how projects for energy behaviour change as part of energy system transition, work out in practice.

There are problems of validity with interviews concerning whether the questions actually uncover the phenomena they are assumed to uncover (Cohen et al 2007). Indeed, it is difficult to know if participants will be honest about their views. As Arksey and Knight (1999) state, the views of the interviewees are 'provisional, uneven, complex and contested'; individuals will each have their own reasons for participating in the project explored by the case study, and a different set of circumstances. To deal with this, a number of different beneficiaries and project organisers from each intervention were interviewed to give a fuller picture of the reasons for the outcomes of the interventions. Furthermore, asking the same questions of everyone (despite encouraging participants to deviate where they wished) allowed some control over reliability (Cohen *et al.*, 2007). The problem of personal bias is acknowledged and is dealt with as far as is possible by the multiplicity of interviewees and by comparison with observation data from meetings. All interviews were recorded for accuracy, to ensure completeness of the data (Haigh, 2008). All participants were assured of their anonymity in the reporting of the research and that all recordings, once transcribed, would be destroyed. Given such reassurances, they gave their informed consent to participate in the interviews, and were recorded giving this consent at the start of the interview (see Appendix B).

An important final justification for using interviews was the need to inquire into behaviour change. The best way to see if a research participant has changed their energy behaviour is to take meter readings. However this was rejected as a research strategy for a number of reasons, the most important of which was that the research was actually focussed on their *perceptions* of their behaviour and *why* they had or had not changed it. Another reason is that a more quantitative method would have been undermined by the nature of the interventions – it would have been difficult to tease out the energy savings made because of a change in behaviour, as opposed to the improvements to the home in the form of energy efficiency measures or microgeneration technologies. Finally, given the short time frame for the research, the beneficiaries would only have experienced one winter after having benefitted from the intervention. As the severity of winter and the quality of summer have varied

greatly in recent years, such weather differences throughout the period of research could have themselves explained differences in energy use between the two time points.

Levels of Data

All of these alternative types of data collected were at different levels. In order to build a full picture of each case study, the helpful but relatively limited formal data from documents and texts was used to build initial understanding. Observation built on this to allow a fuller understanding of the day-to-day concerns and issues of each of the projects, beyond the specific interests of this research. The interviews were the primary source of data, allowing the researcher the freedom to explore those specific interests in greater depth.

Ethical Statement

For this research, the researcher was compelled to follow the ethical guidelines required by this university (Birmingham City University, 2010). Participants gave their informed consent both to participate and to be recorded. Organisers of the projects that were used as case studies were contacted soon after being identified. A number of meetings and discussions were held with these organisers to explain the purpose of the research before any formal data collection began. As a result of this process, the organisers of each case study were in a position to give their informed consent. The beneficiaries of each case study who participated in this research were introduced to the researcher through a trusted gate-keeper. They too received a full explanation of the purpose of the research before confirming that they would like to participate. All interview data was recorded, but participants were assured of their anonymity, and the confidentiality of their remarks. Within this thesis, no participant has been named. All recordings and interview transcripts were kept in a locked office, and no full names were used in the field journal, which in any case was kept close to the researcher at all times. A discussion of energy behaviours was not felt to pose a danger of psycho-social harm.

3.3 Reflexive Practice

This section of this chapter is written in the first person in order to let the researcher speak in her own voice and differentiate it from the surrounding information. This is an important component of the CR approach, which requires critical reflection.

Previous Experiences

Churchill and Sanders (2007) point out that previous life experiences and attitudes stimulate interest in specific research areas, and that it is common for personal experiences to motivate researchers to look at particular areas of research. My experience of coming into research was no different. My interest in sustainability issues was first piqued during my time at university as an undergraduate. My degree was Human Sciences, and contained no discussion of environmental conservation whatsoever, but the institution, the University of Sussex, I felt was more radical than other universities and seemed alive with political discussion on a number of topics. In my final year I lived with six other people, all of whom were considerably more left wing and environmentally aware than I was at the time. Our discussions interested me, but I did not have the confidence to act on these discussions and join environmental protests. However I became personally committed to sustainability issues when I volunteered on an organic farm in the south of France, where I also lived for 6 months. The wonders of nature are on full show in such a landscape and I fell in love with the land and the work. I was horrified by my host family's descriptions of farming practices on conventional farms, where soil would be 'disinfected' (thereby killing all life within it), and where unsold food was routinely wasted. On my return from France I looked to develop a career that would allow me to work for the improvement of the environment, and eventually embarked upon a career with a West Midlands based environmental and regeneration charity that looked to help disadvantaged communities. I was essentially a community development worker, but my title was, I felt, slightly grander; Community Project Officer.

During my time at this charity I worked on projects aiming to engage the community and improve neighbourhoods by improving shared green space, in partnership with those communities and other stakeholders. I helped set up community groups and guided them through the process of constituting themselves as formal organisations and applying for money. I led large clean-up operations of disused and abandoned areas that had become

havens for crime and anti-social behaviour. I assisted on initiatives that helped people to save money while saving energy, thereby addressing the climate change agenda. I came face to face with the real difficulties of disadvantage, and how the balance is set against such communities in participating in society. I felt disappointed, even a personal sense of failure when local people did not want to get involved in our latest project. However I could understand that they were more worried about topping up their gas meter, and making their food budgets last until the end of the week, than they were about recycling. I was outraged by some agencies plans to use community members to 'rubber stamp' decisions in forums they had no interest in attending, instead of using their money to address problems that I was telling them were priority issues for the community, having heard it from local people directly. I saw it as my role to fight for the interests of local people. I was constantly awed by committed individuals who turned up to meetings every fortnight to try and do something good for their community, while chaos and hardship was going on at home.

Overall I was ambivalent about my time at the charity. Having started with high hopes for my career and the difference I could make to communities as a Community Project Officer, I became more and more disillusioned. Having realised the importance of the work that at times we did so well, I felt frustrated at other times when budgets and timescales constrained us. At times we could not do the projects that needed to be done, only those projects that funders wanted to pay us for. When funders found they had underspends in February, and asked us to do a project before the end of March, I often felt that we were wasting public money, for all the difference a project of four weeks could make. As a result of the recession and cuts in public funding, the charity underwent its own financial difficulties. As a result the organisation had to take on whatever projects it could simply to pay staff salaries, and could no longer pick and choose work based on the quality of the project and the charity's ability to deliver it well. At times I felt as though I was just bribing "beneficiaries" to sign paperwork by offering them free flowers to demonstrate that we had helped 'x' number of people. These experiences eventually led me to leave my work at the charity and turn to research. I wanted time for reflection; previously I had been so close to the coal face that I could not see the bigger picture of our projects and the difference they were supposed to make. I wanted to be able to deliver projects in ways that were based on a reasoned understanding of why and how they would bring about change, not just in the way my superiors 'said', which was never

justified. I wanted to return to learning to better understand these processes of change, and why and how they happened in the real world.

Influences on Research Question and Methodology

My time at the charity had changed me more than I had realised. I was very much interested in the plight of the disadvantaged, and so was drawn to projects that aimed to help those in fuel poverty. I was interested in whether *voluntary* community groups might be more flexible and responsive in meeting the needs of disadvantaged people since they would not have to plan their projects according to the preferences of funders. I felt there would be a difference between paid and unpaid organisations; this assumption was one of the drivers behind my final decision to select the case studies I did. I also knew from experience what a difference having a paid member of staff to help forward the aims of a community organisation could make, which again reinforced my decision *not* to do action research, thereby undermining that difference. I was also very clear that I wanted to do qualitative research, and actually gather information through speaking to people. At the charity I often had to ask project beneficiaries to fill out 'evaluation' questionnaires. At the end of a particular two year project in which I had really gotten to know the beneficiaries in question, and walked with them on a long journey, the information captured in these questionnaires did not reflect what I felt to be the case at all. I conducted two interviews with beneficiaries from this project (despite concern from managers over the time this took to transcribe and 'analyse' for quotations) and found that this reflected (my view of) reality much better. Many individuals from the communities I worked with did not express themselves well in written questionnaires, or couldn't be bothered to go into detail, or fill them out at all. They felt much more comfortable answering questions verbally, and allowed us both to understand the question being asked and the answer being given through a conversation and negotiated explanation. I was convinced that this was the way I wanted to do research.

Myself as a Research Tool

Throughout my time collecting data I used myself as a research tool. Switching between a 'community development' persona and a 'green' persona (Fieldhouse, 2005) where necessary allowed me to better empathise with both beneficiaries and the organisers of projects. This

stopped me from being judgemental when participants said things in interviews which I did not agree with. By agreeing with their point and showing I understood potentially put participants more at their ease, and more able to respond freely. Finally, as someone whose grandmother had a key role in their upbringing, I have an instinctive, knee-jerk politeness to older people. It was natural for me to act in this way while meeting my research participants, most of whom were older than me. I was aware of the fact that I am a petit woman, and how it could make me appear even less threatening. I played the role of grandchild, sitting at the feet of someone from whom I was going to learn something (Fox, 2004).

I Must 'Act'

Flyvbjerg (2001) argues that the Aritotelian concept of *phronesis*, or practical wisdom, best describes the role of the social sciences, and argues that they have their greatest contribution to make in answering the questions 'where are we going', 'is it desirable' 'what should be done'. Seidman (1998) argues that it has long been a project of the social sciences to 'fashion' society for the good of everyone. In many respects I share these views. I wanted to embark upon this research because I wanted to bring about change. It is my view that society is beset with huge problems. Climate change will change forever the environment that we love and get our living by (that organic farm in the south of France will become desert), and in so doing will harm, even kill millions of vulnerable people across the world. Here in the UK, the related problem of the impending energy crisis causes immediate difficulties for people. In the UK, there is a higher rate of Excess Winter Deaths than do the Scandinavian countries, which have longer and colder winters (Sandwell PCT & West Midlands PHO (2009), as people cannot afford to heat their inefficient homes. In the summer, people cannot afford to cool their homes – particularly a problem in old solid wall redbrick houses (of which there are many in Birmingham) which can feel uncomfortably warm. Such heat, and its disadvantages are particularly felt amongst the elderly and vulnerable (Hajat *et al.*, 2010, MetOffice, 2013). The fuel poverty rate in the West Midlands is the highest in England (Palmer, 2011) and set to increase as energy prices rise.

The research process has fired my desire to act for change, and gave me opportunities to do so. It allowed me the opportunity to meet others who are working for change, and to get to know them. The theoretical frameworks I have built from my data can be used as a call to act

for change, to question assumptions and to open a debate about the problems which we face. As a result of my time in the field, being inspired by my case studies, I decided to act for change away from the research context. I have joined members of SusMo, who have joined with members of other community groups across Birmingham, to form CoRE 50 – a community benefit society that is now planning the installation of a number of energy generation technologies around Birmingham, which will be paid for by a community share offer. If we fulfil the aims of our business plan, a number of large energy generation installations will be owned by Birmingham residents. As secretary of CoRE 50 I am concentrating my efforts on putting structures in place to allow an inclusive membership, and am working on the best way to make sure that lower income families that cannot afford the minimum investment amount can still have a stake in the energy we produce.

Reflexive Practice

This sense of 'mission' that I have does create some problems for research. Critical realism argues that there is a world 'out there' which exists independently of its being perceived or represented (Hunt 2005), and that although we may perceive and understand the world as we please, the world will not tolerate all understandings of it equally (Kirk and Miller 1986). Research must be valid and credible (of which more later). In order to deal with these difficulties I engaged in reflexive practice (for example Cunliffe 2002).

Cunliffe (2002) argues that learning and knowledge is a constitutive process where knowledge is co-authored. She calls for an engagement in 'second order reflexivity', in which one comes to be aware of the discursive structures that exist in one's own ways of talking and thinking. This helps to uncover tacit knowledge and assumptions held by the researcher. In her paper Cunliffe explains how she encourages her students to write papers and keep learning journals to explore their tacit assumptions and describe those moments when they realise those assumptions and learn from them. Learning journals she argues, help her students to make connections between concepts and theories and their own lives, to link explicit knowledge with implicit knowledge, and realise the effect these tacit assumptions have on constructing their social realities. Following her advice, I kept my own learning journal throughout the research process.

Through the use of my learning journal, I came to realise that I was confusing what I wanted to see, in my community development worker persona, with what was happening. I realised that I was implicitly hoping that the visible microgeneration technologies installed in both case studies would act as 'boundary objects' (Star and Griesemer 1989) and lead to greater community cohesion as people began talking to each other about something that they could see they had in common. As I interviewed people in the first stage of interviews I found this was not the case. Some participants had mentioned their technologies to others, some had not. Those who did downplayed these conversations as minimal and by the by – they had not led to further conversation. I began to doubt that my research area was worth the inquiry; I was thinking too much as a community development worker – the project 'was not working' and needed to be abandoned. It took my learning journal and discussions with other researchers to realise that these findings were still valid as *research* findings. Eventually, I realised that it was legitimate to adjust my research direction (following grounded theory) to constructs that were more promising.

My research topic and methodology are a direct result of my personality and formative experiences (Weber 1949). I have a commitment to helping to alleviate social disadvantage and to protecting the environment which is evident in the *design* of my research. However by accepting my influence on my own research through reflexive practice I attempt to be more critical, so that the research *process* is carried out in such a way as to be replicable and hence reliable. Above all this reflexive practice demonstrates to me that the perspective I have is only one way of looking at the world; there are many others. My choice to focus on behaviour change in energy behaviours was just one way of looking at my case studies, one way of exploring their meaning and their success. I chose this lens because of my own research interests, which are motivated by my own values and experiences. Other researchers may well have chosen different lenses, and indeed have.

The Research Journey

Following the tenets of Grounded Theory, I was compelled to follow the data where it would lead me. I can distinguish three main periods in my research journey when my ideas changed dramatically; the first stage of research (2010-2011), the second stage of research following my transfer from MPhil to PhD (2011-2012), and the final period of the research process

which was concerned mainly with data analysis and writing (2013). See Appendix C for a diagrammatic representation of this journey.

From the start I was interested in behaviour change. This was a 'hot topic' in society at the time and lots of the work I had been involved in in my previous job had been focused on behaviour projects to 'save money, save energy' as we labelled it. Having just come from a community regeneration charity, I was also very interested in how energy and environmental projects could be used to build community cohesion. I wondered whether or not being involved in such projects could bring people together, if their new energy technologies would provide new talking points that might flourish and develop. I felt in my heart that environmental and social sustainability had to be linked, and I wanted to explore this in my research. However, my first round of interviews and the wealth of data that resulted from them quickly disabused me of that notion. Perhaps social and environmental sustainability were linked, but in Birmingham, in 2011, people were not suddenly becoming friends and better neighbours after an initial discussion about their new solar panels. I was disappointed about this, as I discussed in the previous section.

During the second stage in the research journey, I narrowed my interest to behaviour change, and how each of the projects were tailored to bring this about, if at all, and how this affected the outcome. I felt happy with this narrowing of the research question, as it provided further justification for talking to the organisers of the projects as well as their beneficiaries, to discuss what went *in* to the project as well as what came *out.* This interest in the project organisers had 'felt' sensible before, as a way of gaining a greater insight into the projects, but now seemed on a surer footing.

During the third stage of the research journey I found I was confronted by data that told me about so much more than energy behaviour change. Despite the willingness of all the project organisers to talk about 'my' interest in behaviour change, there were numerous examples of them wanting to talk about 'their' interest in some other aspect of their project. Behaviour change was one aspect or aim of the projects, but there were many more. Eventually, confronted with this "assertive, demanding, even coercive" (Geertz, 1995) force from my data, I capitulated. I was 'bullied' by my data to tell the story that *they* wanted to tell, not what I wanted. It emerged that the best concept or lens to use in explaining this story, was

that of 'success'. The concept of success was the best way to communicate the story of these projects. Behaviour change was *an* understanding of success. However there were many others. Narrowing the issue to one of behaviour change vastly underestimates the full scale and nature of the problem that each project was knowingly trying to address. Telling the story of success felt more honest to my case studies and the people I have interviewed; this thesis tells their story.

The following section, and the rest of the thesis, will revert back to conventional academic style.

3.4 Analysis and Theory Building

Interview Analysis

Before the interview data could be analysed, each interview was transcribed in full by the researcher. The only exception was where participants strayed wildly from the question they were answering for some considerable time (as advised by Strauss and Corbin, 1998 in their discussion of partial transcripts). The decision not to transcribe certain parts of the interview was only taken in two interviews, when the conversation drifted to (for example) itemised descriptions of the gardens of the researcher and participants, or full descriptions of recent christenings. Even information which seemed irrelevant, but related to life in the home was transcribed, because of its possible implications for energy use (Shove *et al.* 1998). Although exceptionally time consuming and tedious, the transcription provided the opportunity to re-familiarise the researcher with the data and become intimate with it (Haigh, 2008).

In grounded theory, data collection, analysis and theory generation occur simultaneously (Glaser and Strauss 1967), and although most researchers do not achieve complete overlap, most maintain some overlap (Eisenhardt, 1989). Furthermore, Glaser and Strauss point out that sometimes explicit coding of the data can seem an unnecessary and burdensome task, and as such the analyst might merely inspect the data for new properties of analytical categories and writes a memo on these. This advice was adopted in part in the present research. The data from the first round of interviews was reviewed and discussed with a colleague in an iterative process, culminating in a full presentation of ideas and arguments from the data to a number of colleagues (following advice from Eisenhardt) as part of the transfer process from

MPhil to PhD. Following these preliminary themes from the data, it was decided to re-focus the research question to follow those themes. As a result questions about 'community' were dropped in order to focus purely on energy and behaviour change.

Once the second round of interviews had been conducted and transcribed, a systematic process of coding was undertaken (Glaser and Strauss 1967). Again, despite the constructs initially used as a basis for interview questions, a number of different themes were evident from the data. As a result, analytical categories were developed inductively from the data to reflect these themes. For example, the interview questions covered the themes of behaviour change, technologies, governance and (initially) community. However the themes or categories that emerged from the data focused on the assumptions that project organisers held about the beneficiaries; the beneficiaries' descriptions of themselves with regard to energy, their priorities and their views about the world; assumptions about drivers of behaviour change; actual reasons for behaviour change and issues of working in the wider system. All interviews were coded according to this list of categories, which grew as the data required. Following advice from Miles and Huberman (1994), recurring patterns or themes were noted, and clustering was applied at the levels of beneficiaries and organisers, in order to understand the phenomenon better by grouping and then conceptualising those with similar characteristics. Similarities were searched for in the different case studies, in order to generate a more sophisticated understanding (Eisenhardt, 1989). At this point it became clear that there were often more similarities between the case studies than there were differences. The data from each case study was presented under a number of themes, and compared with each other, whereby ever greater linkage among variables could be demonstrated (Miles and Huberman, 1994)

The (majority of) interviewees were also interviewed twice to explore if there had been any change in the beneficiaries' perceptions of their energy use, or any difference to the process or priorities of the intervention according to the organisers, and to explore why that may have happened.

Case Study Analysis

The data from the interviews built on the observation data, and both were together analysed through the within-case analysis (Eisendhardt 1989). This involved a detailed write-up for each case study, presenting its story. Although these can be mere descriptions, they are central to gaining insight as they help to cope with the sheer amount of data generated (Pettigrew, 1988). Furthermore, humans are predominantly story telling creatures, organising the world into sets of tales (Gould 1997, cited in Remenyi 2012). These descriptive frameworks allowed the organisation of the case studies so that the appropriate links could be analysed. These case descriptions were validated against the interview data.

Theory Building

The data from these case studies could have been simply described, however the research aimed to develop theories that explained the data, and could be used for improving practice in some small way. 'Success' emerged as the key analytical category, and the analytical framework presented in Chapter Six is based on this. The stages undertaken in building this framework are described below, and were followed under the guidance of grounded theory (Glaser and Strauss, 1967, Eisenhardt, 1989).

The process was iterative. First, the data from the interviews with the project organisers were analysed according to three groups of codes; the organisers' understanding of the beneficiaries, the organisers' understanding of how behaviour change works, and the difficulties and opportunities that came from working within the wider context. The data from interviews with the project beneficiaries were analysed according to two groups of codes; the problems and concerns the beneficiaries faced, and how they had changed their behaviour. This latter group was broken into a number of different reasons (see Appendix C). These categories were drawn from the data itself. Following Glaser and Strauss (1967), these categories were both analytic and sensitising.

From this stage of analysis, the concept of 'success' emerged as a high-level category. A paper based on initial findings presented at the 2012 Urban Sustainability and Resilience Conference explored some instances where behaviour change had *not* occurred (see Appendix C) and yet interviewees did not dismiss their projects as failures. Success was a critical idea that emerged from the data; the interviewees continually volunteered information about where things had gone well or had not. It was the lens through which they appeared to judge their

projects. Success did not *necessarily* mean 'behaviour change had happened'. The case studies were therefore re-analysed through this lens, looking for other examples of 'success'. From these two stages of analysis, the findings were then interpreted in terms of the problems that organisers perceived and the solutions and mechanisms required to solve them, and the problems that beneficiaries perceived, and the factors mediating their response to the project. This analysis was further refined during teaching at both undergraduate and post graduate level, as students were introduced to the case studies during lectures on renewable energy and asked to think about the problems the organisers of each project might have faced.

The following stage was to physically lay out these categories diagrammatically in different ways, to see if they better explained the data. The data was presented diagrammatically in a number of different ways to find the best way of explaining the phenomena studied. These diagrams were presented to colleagues at BCU's Faculty of Technology, Engineering and Environment Research Conference in 2013. As a result of feedback from this conference, the diagrams were adjusted. Where the relationships laid out in the theory did not best fit the data, modifications were made until a general match was found. Some diagrams were discarded entirely (see Appendix C for discarded diagrams). These diagrams and the theory they represented were then presented at an international conference (the European Conference on Sustainability, Energy and the Environment). The paper for this conference was submitted two months later. During this interval as a response to feedback from conference delegates and further critical reflection and re-immersion in the data, both the diagrams and the theory they demonstrated were further refined. Appendix D includes the original presentation for the conference and the final paper. The difference between the two documents demonstrates this fine-tuning of ideas as a result of this critical debate and exploration of the way the ideas worked in the world.

One of the criteria of grounded theory is originality. As stated above, this originality can be in the form of new categories and insights, it should be of social or theoretical significance, and it should challenge or refine current ideas and practices (Charmaz, 2006). Grounded theory, given its generation from real data, can be of use for improving society. Thus, it is hoped that the theory generated from the present research will be of use in understanding and properly appreciating the role of local projects for sustainable energy.

Validity

In discussing validity for qualitative research, Maxwell (1992) employs critical realism to argue that the applicability of the concept of validity does not depend on the existence of some absolute truth to which the account can be compared, but on the fact that there exist ways of assessing accounts that do not depend entirely on features of the account itself, but relate in some way to the things the account claims to be about. He emphasises that this approach refers primarily to accounts, not data or methods. Maxwell instead prefers to talk of understanding rather than validity, and talks of a number of different types of understanding. Descriptive validity deals with the factual accuracy of the case study. This was ensured by recording all interviews, and taking field notes at meetings as thoughts occurred. Interpretive (or construct) validity is inherently a matter of inference from the words and actions of participants studied. Although these accounts can be partial or biased, nevertheless they constitute part of the reality of the whole case. Feminist or other critical scholars argue for the importance of such 'experiences' as opposed to hard objectivity as part of the understanding of validity (Silverman, 2011). Following a critical realism stance, reality is separate to our knowledge about it, and therefore accounts of reality represent it, but do not reproduce it. Validity is therefore more a question of confidence in our knowledge, rather than certainty of its truth (Hammersley, 1992). The present research sought interpretive validity by collecting a large number of these 'realities' or perceptions in the form of interviews from 41 different people across the period of the case studies. Theoretical validity was sought by critical debate and eventual agreement with a variety of academic colleagues (as described above) about the categories and their relationships presented in the theory that was generated from the data.

Maxwell also talks of generalizability, or external validity. Many authors basically agree with the argument that in qualitative research it is difficult to generalise from in the sense of from a statistical sample, the point is theoretical rather than statistical sampling (Eisenhardt, 1989, Yin, 2003, Glaser and Strauss, 1967). Some emphasise the development of testable hypotheses (Yin, 2003, Strauss, 1987). In contrast, other authors believe that only time and context bound working hypotheses are possible (Lincoln and Guba, 1985), ergo, ones that cannot be generalised. Flyvbjerg (2001) goes so far as to say that there does not and probably cannot exist predictive theory in social science (i.e. theory which can be generalised) as all

social knowledge is context bound. However since he argues that the key contribution of the social sciences is knowledge of how to *act,* the insight that concrete examples can give can be used in different cases. This is how people become experts, or 'virtuosos' through the accumulation of knowledge from thousands of individual cases.

The research presented here aims to give this insight, to understand the nature of the problem faced by local projects for sustainable energy, and the nature of success. It is hoped this insight will help such projects in their search for success.

3.5 Conclusion

In trying to understand the nature of success for local projects for sustainable energy, the unit of analysis *must* be the local project itself. Therefore, a research approach was taken that took two local projects that were just beginning, and due to end within the research period, as longitudinal case studies. This in-depth approach using a variety of methods allowed an understanding of the nature of the problem at the level of the *group* of individuals running that project; at the level of the individuals who benefitted from that project; *and* how the problem at both of these levels was further affected by problems at a social system level. This approach shows the ebb and flow of themes within a local project as they happen, and shows how opportunities, difficulties and changing priorities arise, and how they are actually acted upon. By using a longitudinal case study method, this thesis makes a valuable contribution to the literature.

This chapter has also introduced the researcher, in order to deal with her unavoidable position in the research and to introduce the reader to the ways in which she dealt with that position. This thesis now turns the first of the case studies that were explored for this research; that of Birmingham Energy Savers.

Chapter 4
Findings – Birmingham Energy Savers: A Local authority-led Local Sustainable Energy Project?

This chapter will tell the story of the Birmingham Energy Savers project, and demonstrate the nature of the problem faced by this local project for sustainable energy, and hence the nature of its success. This chapter will begin, however, with an introduction to the city of Birmingham, and the neighbourhood areas from which the interviewees who benefitted from this project were taken. These neighbourhoods were Aston, Nechells and Woodgate Valley.

It must be noted that the language used here will be the language used by the participants of research. "Energy user" and "individuals" are exchanged for "project beneficiaries", or "householders" or "building occupiers" (although this latter is rarer), or simply "people"; terms used by the project organisers themselves. The people running the projects are referred to as "project organisers".

4.1 Birmingham

Birmingham is the UK's second largest city, with a population of just over one million people (ONS, 2011c), situated in the West Midlands region of the UK. It began as a minor Anglo-Saxon settlement in 700AD (Dick, 2005), but was of little significance until the de Bermingham family purchased a royal charter for a market in 1166 (Larkham, 2003). This charter allowed Birmingham to grow as a trading centre, and become larger and more important than its surrounding neighbours.

Birmingham expanded rapidly during the Industrial Revolution. Raw materials such as iron ore and coal were brought in from the Black Country (the name for the conurbation adjoining Birmingham, made up of the boroughs of Dudley, Sandwell, Wolverhampton and Walsall) via the proliferating canal network, and fashioned into finished products. Birmingham was described as the 'city of a thousand trades' and the 'workshop of the world' (Larkham, 2003), making jewellery, guns, brass goods and shoe buckles. Birmingham became a centre for manufacture as Matthew Boulton opened the Soho Works in 1762, the first such large factory, and by 1800, the largest in the world (Dick, 2005). Armaments, aircraft and tanks were made

in the World Wars, and Birmingham became a centre for car manufacturing in the 20th Century. Innovation was also key to Birmingham's success; Boulton and Watt patented the steam engine in Birmingham in 1896, and the Spinning Jenny, cotton wool and the pneumatic tyre were first used or invented here (Larkham, 2003). Birmingham was also home to the Lunar Society – a group of thinkers and reformers who met between the 1760s and the early 1800s, and whose scientific, technological and medical activities had a lasting influence (Dick, 2005).

Birmingham gained an elected Council in 1838. The Council brought in by-laws to regulate new development in the name of public health. There were improvements in sanitation and urban facilities. Increasingly opulent public buildings were built and a university was established, demonstrating Civic pride, and the city began to expand to incorporate the neighbouring villages, including Moseley, Harborne, and Quinton, and many more into the 20th century. The model village of Bournville, built to house the Cadbury factory workers, was begun at the end of the 19th century. During the interwar years, Birmingham worked to clear the inner-city slums and build 'homes fit for heroes'; by 1939 over 50,000 had been built. The recession of the 1930s did not greatly affect Birmingham, which prospered as a result of the car industry.

After 1945 the City sought to reinvent itself, and was inspired by the progressive and modernist optimism of the day (Hanley, 2012). New council houses were built to replace old homes, with flats in large concrete tower blocks in the 1950s and 60s. The Bull Ring Shopping Centre was created. The City increasingly facilitated the car, with large roads, multi-storey car parks and subways to allow pedestrians to cross roads safely (Dick, 2005). Not all of these changes were well received by Birmingham's people – often communities were torn apart as slums were cleared and people moved without consultation, and flats in tower blocks proved unsuitable for families and unpleasant to live in (Dick, 2005, Hanley, 2012). In the 1970s and 80s, manufacturing went into decline (Keeble, 1978a), adding economic difficulties to this picture. The city was hit by unemployment and deprivation.

Since the 1990s Birmingham has sought to reinvent itself once again; this time as a service economy, a centre for business tourism and as a city of culture. The International Convention Centre was opened in 1991, and houses the City of Birmingham Symphony Orchestra, and

Symphony Hall, the acoustics of which are world class (Larkham, 2003). Brindleyplace was opened as a 'mixed-use' regeneration area which is now a thriving work and entertainment district. The Bullring was updated, and Millennium Point opened, to provide a new home for the City's Science Museum (Dick, 2005). More recently, a spectacular new Library of Birmingham was opened in September 2013 (Clark, 2013), and Eastside City Park, the first major new park in the city for 130 years, has been joined by the extension of Birmingham City University's City Centre Campus and Birmingham Ormiston Academy in the regeneration efforts in the east of the city centre (BirminghamCityCouncil, 2013a).

Birmingham is, and has long been, an ethnically diverse city. Currently, approximately 47% of people in Birmingham describe themselves as other than White British (ONS, 2011a), making Birmingham one of Britain's most multi-cultural cities. The Asian community in Birmingham is particularly large, comprising a host of ethnicities and faiths, and there are also a large number of Caribbeans, and a smaller population of Africans (ONS, 2011a). The Irish community was once very large, but has been declining in recent years. Jews and Italians have also been part of Birmingham's population in the past, and Birmingham today has three synagogues (Dick, 2005).

The City still suffers today from deprivation and unemployment (especially youth unemployment, with over a fifth of 16-24 year olds unemployed, Michell, 2013), and is the third most deprived of the core cities (BirminghamCityCouncil, 2010). Birmingham is a mixed city in terms of its prosperity, with some neighbourhoods having little or no deprivation, and others having a large number of super output areas (SOA) within the 10% most deprived in the country. Deprivation is particularly clustered in wards around the city centre. Nechells and Aston, two of the three wards from which the beneficiary interviews for the BES case study were carried out, are both inner city wards, and are the third and fourth most deprived wards in the city, respectively (BirminghamCityCouncil, 2010). 42% of adults living in Aston in 2011 were not in employment (ONS 2011), the figure is just over 44% for Nechells. Both wards have large proportions of people with long term health problems or disabilities; approaching 30% in each. Woodgate Valley, from where the remaining interviewees were drawn, provides a slightly more complex picture. Woodgate Valley Country Park is overlooked by two estates; Woodgate Valley North, in the ward of Quinton, and Woodgate Valley South, in Bartley Green. Both estates are greener than Aston and

Nechells, being on the periphery of the city. However in other respects, there are similarities. Bartley Green has, again, about 41% of adults not in employment, for Quinton, this is slightly less (approximately 38%). Again, in Bartley Green approximately 30% of people have a long term health problem or disability; in Quinton it is slightly less (ONS, 2011). Figures for the estates in question do not exist.

Fuel poverty is particularly a problem in the city of Birmingham. One of the consequences of Birmingham's history of expansion and major interwar house building is that a quarter of Birmingham's housing stock was built before the First World War, the rest mostly built before 1975 (WMCCE, 2011), before more stringent regulations were imposed to improve energy efficiency of new buildings. High numbers of people in Birmingham live in fuel poverty; up to 17% is some Lower Super Output Areas (Centre for Sustainable Energy (2011). The West Midlands suffers from a higher rate of Excess Winter Deaths than do the Scandinavian countries, which have longer and colder winters (Sandwell PCT & West Midlands PHO (2009). In these respects Birmingham is similar to many large, formerly industrial cities which have been hit by the demise of manufacturing and recession, and whose populations now suffer some amount of deprivation (Keeble, 1978b, Larkham, 2003).

Birmingham as a city has been struggling with such social and economic deprivation since the 1980s (Dick, 2005), and although much has been done to regenerate the city and reposition its economy, such inequality and hardship still exist. These are some of the most important local difficulties for Birmingham, and the City Council to deal with.

4.2 The Story of Birmingham Energy Savers: an Overview

The story of Birmingham City Council (BCC)'s "Birmingham Energy Savers" programme is a one of different themes and objectives jostling for primacy in a wide-ranging, ambitious and nation-leading programme to achieve environmental, economic and social targets. The following story is knitted together from reports, meeting minutes, interviews and field notes gathered in the early stages of the research. Interview quotations in this section are used to provide factual information relating to the story of the project, in section 4.3 they will be used interpretively.

Birmingham Energy Savers (BES) began as a germ of an idea in 2008 under the name of the Green New Deal. A group of people including representatives of Friends of the Earth, the New Economics Foundation, forward thinking economists and environmentalists based in London began talking about a New Deal, reminiscent of Roosevelt's New Deal of the 1930s, to deal with the triple crises of the credit crunch, climate change and peak oil (Elliott *et al.*, 2008). The idea was introduced to the West Midlands and a series of meetings were held at Localise West Midlands (LWM); a not-for-profit organisation which promotes a localised approach to supply chains, money flow, ownership and decision making (LocaliseWestMidlands, 2012), in 2009. At these meetings, LWM drew together representatives of Birmingham Environment Partnership, (and with it Birmingham City Council), Advantage West Midlands (the local Regional Development Agency) and a number of relevant businesses, social enterprises and regeneration and community organisations.

The aim of the Green New Deal in Birmingham was essentially to refurbish a large number of homes and commercial buildings within Birmingham in such a way as to reduce carbon emissions and the need for ever more expensive fuel, while at the same time creating jobs; a green-collar industry in a city suffering with high unemployment. As described by one early organiser:

> *"We needed to invest in primarily improving the energy efficiency of homes.. and small businesses. And . . by doing that, you can reduce people's .. costs, you can save money, you can create jobs and you can create that virtuous circle. So it was based on that, you know, that no-brainer, that if we can spend so much money on your home to reduce your bills by 20% and the repayments on your bills you know, can pay off the capital works, there is a virtuous circle which we could get going there, we could make that happen"* (BES early organiser)

Essentially for the householder, through the Green Deal they could agree to have a number of energy efficiency measures installed in their home at no upfront cost, and then repay the cost over time through a charge attached to their meter, from the savings the improvements would provide (See Appendix A for the original business plan). This represented an innovative financing mechanism. As a result of the discussions at Localise West Midlands, the Birmingham Environmental Partnership (situated within Birmingham City Council) went on to secure funding from the Environment Agency and Be Birmingham, (the local strategic partnership) to write a feasibility study. While this was underway in Birmingham, the

discussion around Feed-in Tariffs (FIT) gathered pace in Parliament; and this began to be included in Birmingham's plan. The Birmingham feasibility study manifested itself as the Birmingham Green New Deal Business Plan (Morris and Rhodes, 2009) which was reported to Birmingham City Council in the autumn of 2009. It outlined the full retrofit programme, to be funded upfront and paid back through the Green Deal financing mechanism and the FIT. This business plan was used as the basis for a funding application to the Working Neighbourhoods Fund (WNF), which was successful. A million pounds was awarded as a grant to begin what became known as Phase 1 of the programme.

Phase 1 got underway in 2010 after the Feed in Tariff scheme was officially deployed in April (DECC, 2012b), awarding 43.3p per kilowatt hour for PV systems under 4kW (different small scale renewable technologies were awarded different rates). At this point a programme manager was appointed to the project from Birmingham City Council's pool of Change Agents. A BES Board was set up, and the name of the project was changed from Birmingham Green New Deal to Birmingham Energy Savers, which BCC led research had shown was more meaningful to local people. The first or pilot phase focused solely on installing photovoltaic (PV) panels onto domestic and some commercial buildings, to demonstrate that such a project would pay for itself, that there was interest on the part of building occupiers in PV, to make some carbon dioxide savings and help building occupiers with their bills. It was co-ordinated by Thomas Vale; Birmingham City Council's contractor, who contracted New World Solar to actually install the PV panels. Family Housing Association generated the leads for the installations by door-knocking in the chosen areas, and explaining the project to tenants. Some of the installations were followed up with a 'Green Doctor' visit to provide tailored energy saving advice; this was carried out by Groundwork West Midlands. This phase continued until March 2011, expanding from Northfield, where the installations began into other areas of the city; namely Aston, Nechells, and Newtown. It is from this phase that the bulk of beneficiary interviewees are drawn. 177 domestic properties were fitted with PV, and 15 commercial properties.

While Phase 1 was underway, BCC began procuring a delivery partner for Phase 2, putting out an OJEU[2] notice in November 2010. This phase was once again to install PV, this time

[2] OJEU, or the Official Journal of the European Union is the central database for European public sector tender notices. Contracts whose value equals or exceeds certain thresholds must be advertised here.

solely on the homes of council tenants. This was to be a much larger undertaking – at least 1200 installations were planned within Birmingham. This phase would be funded through public borrowing, to be paid back through the FIT. As part of this procurement BCC, along with the Birmingham Chamber of Commerce, the Initiative for Social Entrepreneurs and a number of local housing associations, set up a community interest company called Buy for Good, which acted as the procurement body on behalf of the City Council. Buy for Good awards locality-based contracts and frameworks for use by the public, third sector and private sector organisations, which are in full compliance with the EU Procurement Directive (BuyForGood, 2011). Other organisations could buy into Phase 2 framework and use the delivery partner, thereby saving themselves the cost of going out to tender themselves. A number of housing associations and other local authorities within the West Midlands bought into this framework, and Phase 2 therefore awarded their eventual delivery partner a contract worth up to £35million. That delivery partner was G Purchase Construction Ltd (a West Midlands based company) who carried out the installation of PV from the beginning to the end of the process, from first door-step conversation to technical survey, installation and customer satisfaction survey. The installations began in the summer of 2011, and covered the neighbourhoods of Woodgate Valley, Bordesley Green, Quinton, Aston, Northfield, Handsworth Wood, Winson Green and Acocks Green.

From the very beginning of the programme, the BES Programme Manager was spending at least a day a week (increasingly more as the months progressed) planning Phase 3, the original Green Deal plan to retrofit homes both privately owned or rented from social landlords to increase their energy efficiency. This would use the Green Deal legislation allowing a charge to be put on the householders' bill to repay the cost of measures over time, while meeting the 'golden rule'; that that charge would be less than or equal to the savings made as a result of having the measures. This phase of the programme was originally envisaged as a three year programme which would borrow £100million to improve 15,000 homes, before refinancing and going on to work on a sizeable proportion of Birmingham's 400,000 dwellings. The procurement for a delivery partner for this phase of the programme began in September 2011 with the publication of the OJEU notice, which as in Phase 2, included other local authorities. The procurement process was through 'competitive dialogue', an iterative process of bid applications, evaluation of those bids followed by discussions with the contractor, which lasted from January 2012 until 8th October 2012, when

the Delivery Partner for Phase 3 was announced. During that time period Phase 3 became an 8 year project worth potentially £1.5billion across the West Midlands, which would also make use of the Energy Company Obligation to reduce carbon emissions from energy, wherever possible.

All three of these phases were underway in various forms from planning to operation throughout the period of study and represented a tremendous amount of work for a core project team of three to four people. The programme saw the surprise change of the rate of the FIT in November2011, which necessitated remodelling the finances for Phase 2 and led to the ramping up of PV installations from 20 a week to 100 a week, to meet the deadline for the rate change. The planning for Phase 3 was also driving forward amidst constant changes and stalling within DECC as they sought to bring the Green Deal legislation before Parliament, and had to adjust its procurement to deal with those. Birmingham City Council also underwent a change of administration in May 2012. These 'wider system' incidents affected the programme in different ways, and its ability to facilitate behaviour change. As the story of BES is so complex, the following timeline is helpful in giving an overview (see the following page):

Time →

	Summer 2010	**Autumn 2010**	**Winter 2010/11**	**Spring 2011**	**Summer 2011**	**Autumn 2011**	**Winter 2011/12**	**Spring 2012**	**Summer 2012**	**Autumn 2012**
Phase 1	Project Manager Installed	Installation of PV on domestic properties	Installation of PV on domestic properties	Installation of PV on domestic properties	Monitoring of PV systems	Monitoring of PV systems	Monitoring of PV systems	Monitoring of PV systems	Monitoring of PV systems	Monitoring of PV systems
Phase 2		OJEU notice published for Phase 2 Delivery Partner		Buy for Good is created Contract awarded to G Purchase Ltd	Installation of PV on domestic properties	Installation of PV on domestic properties Announcement of change to FIT rate and remodelling of project finances	Installation of PV on domestic properties	Installation of PV on schools and sheltered housing Installation of PV on Central Administration Buildings	Monitoring of PV systems	Monitoring of PV systems
Phase 3						OJEU notice published for Phase 3/Green Deal Delivery partner	Outline bids submitted Dialogue sessions held Stakeholder consultation events held	Stakeholder consultation events held Detailed bids submitted	Dialogue sessions held	Final tender bids submitted Contract awarded to Carillion

Figure 4.1. Timeline of Birmingham Energy

4.3 Aims of Birmingham Energy Savers

As previously stated, BES has environmental aims – to reduce carbon emissions through improving the energy efficiency of buildings; social aims – to reduce fuel poverty through reducing the need for energy (through renewables and energy efficiency) and to improve health outcomes through improving the thermal comfort of homes; and economic aims – to provide jobs within Birmingham by growing a green industry locally. Underwriting all of these aims is a further aim; that the whole programme must be self-financing. BES must meet its three aims only as far as it can afford to. These aims create tension within the programme, as the BES Programme Manager explains;

> *"When I first set up the governance arrangements for the programme, I quite deliberately set up three champions within the board, who were champions of each of the three benefits, so there was a social benefit champion, who happened to be from the housing side of it . . . there was an environmental champion, . . . and there was a kind of economic and um, benefits . . . So within the board, I had a tension. Now the reason that that's important was that some of the decisions that you have to make are between those. So for example if you sourced um, photovoltaic or, or perhaps some of the parts for those photovoltaics locally, you would increase the amount of economic benefit. But if that meant that you so increased your costs, that you would do less,. . you decrease social and environmental benefits, or you could say well actually you'll get more environmental benefits from putting the photovoltaic onto the largest energy users, which might well be in Sutton Coldfield, where people . . . large owner occupiers using a lot of electricity, but you wouldn't derive any of the social benefits of addressing fuel poverty. . . . So . . . the project has always been steered with all three benefits in mind, and quite consciously, with different champions pulling in different directions . ."*

Fuel poverty was *"at the heart of that"* according to a member of the BES project team. The BES Programme Manager described how BCC, unlike central Government, saw the FIT as "*primarily a fuel poverty response"*. Phases 1 and 2 were targeted at disadvantaged households in council properties because of the programme's aim to help those who were struggling with their bills. The Head of Climate Change and Environment at BCC and member of the BES Board points out that;

> *"one of the particular aspects that we've always seen for energy savers is not just to go for the quick wins, er but be able to bring some real benefits to people who are faced with fuel poverty"*

Another underwriting and implicit aim of BES was actually to get Phase 3 up and running. BES is really primarily concerned with whole-house thermal efficiency improvements, and in many ways Phases 1 and 2 were really only about paving the way to Phase 3, both in terms of paying for the procurement of its delivery partner through the FIT earned, and in terms of proving the concept that energy efficiency can pay for itself at a political level, as the Programme Manager explains;

> *". . until then everybody had seen energy efficiency and renewable energy as being small pilot projects . . . maybe a few hundred thousand here, a few hundred thousand there, and to actually have a project, phase 1 that was 1.3 million, and then phase 2 that went from 15 to 30 million quite quickly, was a sign of how senior management and politicians moved in terms of their willingness to accept that . . .these things could be self-financing. And that was essential in getting phase 3 onto the books."*

Behaviour change of the householders was an implicit aim throughout the project. One of the key reasons for that was to address fuel poverty. As the main activity of this project was the installation of PV, if householders shifted their use of energy to match times of peak production, i.e. during the day, they would get the most benefit from it. Behaviour change was also important since Phases 1 and 2 were largely directed at tenants in fuel poverty, and so the more those householders could make use of the 'free' energy, the more money they would save. As one member of the BES project team explained:

> *"The best way of getting people to save money on their electricity bills is make them change their behaviours that are giving higher electricity bills at the moment. I mean for some vulnerable occupiers that is not possible. But for example if you're living with someone with a disability, chances are that you may be using appliances a lot more like washing machines, that is also true of families with young children, that they have to use washing machines a lot more. If they've got PV fitted by the project, then it's our sort of mission to them to say right, now you've got this free electricity during daylight hours, use it properly. Because you can't store it"*

Beyond actually changing behaviours to match times of peak production, behaviour change was also important in terms of reducing the amount of energy used overall. The BES Programme Manager believed that if people had a little more control over their energy costs

through shifting their energy use to when it would be free, they might then go on to think how much they could save by being more careful generally.

> *"once you start thinking oh I could do this at this time rather than that time, then you can start thinking maybe I could not do it at all"*

A hope was expressed by various BES organisers that behaviour change in this area might lead to behaviour change in other areas with an impact on the environment. One BES Board member describes how *"our surveys initially on phase 1 were asking people if they had a recycling box"*. The BES Programme Manager cites an early evaluation report of Phase 1 (Millward and Beardmore, 2011) which suggested that some of the beneficiaries of the project *"thought about turning the tap off while they brushed their teeth"*. Finally, if the council were to hit their carbon emission reduction targets, *"everyone's gotta do it [change their energy behaviour]"* (BES Board member).

Birmingham Energy Savers was a complex project with a number of aims. This chapter demonstrate the complexity of the problem faced by the project, as seen by the organisers and beneficiaries. The following sections will look at the assumptions that the organisers had about the problems that the beneficiaries faced. This was perceived quite broadly – as BCC sees itself as in some way responsible for the quality of life of all Birmingham citizens (not just its own tenants who gained from this project), and so as BCC saw it, many people stood to gain in different ways from the project. There were also problems that were antecedent to those of the beneficiaries – if the BES project was to address these problems they had to gain support within the council for an expensive and ground-breaking project; a difficulty in itself.

Firstly, the way the organisers understood the nature of the problem will be laid out; the problems of organising a large project and the way this had to be overcome through a multiple agenda project; fuel poverty; energy overconsumption (for its implication in fuel poverty *and* in environmental degradation); and the suspicion of new technology. The beliefs they held about the solutions to those problems and the mechanisms required are then laid out; namely the importance of having a multi-agenda project, the importance of social norms, the importance of installing technology itself and the importance of learning and feedback. The way the beneficiaries understood the problem will then be laid out; the issue of economic

concerns and saving money. The mediators to the beneficiaries' responses to the project and their eventual outcomes are then given; namely social norms, trust, energy practices and (economic) choice. The difficulties and opportunities of working within the wider context will then be explored, covering issues of time and budget constraints, difficulties with the technology and organisation and the decisions it forced, a lack of engagement, and on the positive side, the access to resources and expertise.

4.4 Organisers' Assumptions about the Problem

Organising a large project – addressing multiple problems

Organising a large project that will cost £35million (as Phase 2 did) while building support to expand said project to something worth £1.5billion, is a difficult thing to do. The way in which this was done was to set up the project to solve multiple problems that the City Council believed needed solving. While the project organisers worked to carry out the project, they became more and more aware of the extent and nature of the problem, and had to increasingly draw attention to the project's potential multiple benefits as one of the ways of overcoming this. Therefore, this section will be laid out to include both the problem and perceived solution to it. This is a departure from the lay-out of the rest of this chapter, where conceptions about the problem are set out separately from the perceived solutions to them and mechanisms to solve them.

A key reason why Birmingham Energy Savers is perceived as such a successful project by its organisers is that it has political and managerial support at all levels within the local authority. It was essential to have this support in order to progress with the project from one phase to the next, and expand it. It has that support because it engages with multiple agendas:

> *"the reason it's such a lovely project is that it delivers against fuel poverty, it delivers new jobs, it, it delivers um, a sense of society and social value, it delivers job creation and, and inward investment, it you know, so it, it, it delivers improvements for our, for our tenants, and it delivers CO2 savings. So, it had this really wide range of social, economic and environmental benefits"* (BES Programme Manager)

> *"isn't about energy, this is about public health, because it's pulling people out of fuel poverty and heating their homes and meaning that we can stop the bed blocking, because she can go home now because her home's warm . . . so it cuts across many many agendas within the city council, which is why I think it's um, been championed so much"* (BES board member)

This helped build support at a political level within the BCC Cabinet. This was a complex process, (as reflected by the length of the quotation below), as the Cabinet at the time of this research was a Liberal Democrat-Conservative Coalition, and therefore potentially full of opposing views (see May BES Board meeting minutes and BirminghamMail, 2012 noting the change from the original Council political make-up).

> *"the cabinet member for housing is pleased because his tenants are pleased, the cabinet member for regeneration is pleased because . . . we're targeting and making our buildings more energy efficient, the . . . leader is pleased because of economic benefits to Birmingham, . . . the cabinet member for finance is pleased because it's a self-financing programme. The deputy-leader is pleased because he's head of climate change and sustainability agenda, so he's the only person really, around the table that is sitting there thinking I like this because of the carbon cuts. All of the others like it because it's delivering all the other outcomes, . . . within the cabinet there . . . is at least one climate change sceptic. Um but um he's pleased because he happens to be the cabinet member for equalities, and . . . human resources, and I am an internal consultant, which is a scheme that he promoted . . . so you know, he's pleased for another set of reasons, so everybody who sits round the table have got a big beaming smile on their face, and want to be part of our success."* (BES Programme Manager)

An important part of the earlier phases of the project was also reassuring politicians and senior management that energy efficiency projects were worth spending money on and that it was possible to borrow money to pay for these projects knowing that that money would be paid back.

> *"it took a lot of work going round politicians and senior management, usually again and again, . . . because, it just doesn't make sense in the first instance. You, you're telling me that we do this, and we put the money in, and then people pay us back, well, why would they? Well no it's ok, because . . . it's part of the feed in tariff. . . also with all of the background noise that there was about changes in government, people not trusting the government, DECC reneging on the feed in tariff . . . the fact that we were able to say no it's all alright, it still makes sense, I've done the modelling . . . we're gonna carry on, um, you know, and giving that reassuring noise all the time . . . has been a really important part of if you like the background noise to this all. Um, and so if you're looking at behaviour change,*

> *changes of attitudes, then you have to think about that at the governance level, not just at the household level"* (BES Programme Manager)

Having to deal with these concerns at the wider system level within Birmingham influenced the running of the project, and the way that it was carried out. The phased approach was very important in this process of reassurance;

> *"the way to . . . deal with . . . anxiety, in both senior management and politicians, is actually to break things down, so you say oh well, never mind it's only five million this time round . . . so you, you approve an outline business case and that doesn't actually commit you so much . . . and then you approve the full business case, but you only approve the full business case for the pathfinder programme, and that's only this much money, and then you approve the full business case for the whole programme . . . you have to lead them on a journey"* (BES Programme Manager)

Furthermore Birmingham City Council sees a role for itself in doing big projects, and therefore in being part of the solution to the problems facing the city;

> *"there's a history of Birmingham in terms . . . of civic . . . munificence. Where we do big stuff . . . water supply, and we get it from North Wales and we build an entire pipe by gravity to make it happen,"* (BES board member)

> *"Birmingham has got a reputation. . . its motto is Forward. . . and they've always been innovators right back to Chamberlain days, the city's very proud that it is able to um, redesign itself and adapt to whatever the challenges are . . . things like the convention centre, the national exhibition centre, all of those were deliberate attempt to change the, the nature of the area, so they've always been very proud as a city of, of moving forward and adapting, responding . . . it's just the way we are"* (BES board member)

And it has a role in looking after its citizens, and acting for the greater good;

> *"The City Council doesn't exist to make money, it exists to deliver services to the citizens and the, generally speaking they're public goods so it's a service that a commercial enterprise wouldn't come in and deliver . . . and it's grown up traditionally over . . . however many hundreds of years so, you you've got a core of services that by and large are delivered by public authority . . . Why would you do energy savers? Because as a city with an obligation to its citizens, em, to meet . . . the Kyoto, whatever, so many percentage carbon savings. Individuals aren't really, there's nothing in it for the individual. Why would they, . . .it's a social target that we have to put through for, if you like UK plc. So we drive it through, nobody else is going to drive it through"* (BES board member)

One of Birmingham's key problems is its deprivation and struggling economy, of which all BES board members were well aware:

> *". . . the economic agenda; we've got one of the highest levels of unemployment . . . in the country! It, it's, you know, it's not good for the City . . . unemployment is linked to poverty, violence, crime um, so many things, mental health, public health"* (BES Board member)

One of the key aims of many of BCC's major projects has been the creation of jobs, and BES was no exception.

Therefore the roles of helping citizens (both socially and economically) and of doing big projects, which both have a long history, helped build legitimacy for the project. BES is in keeping with the large and ambitious projects that are part of BCC's history. BCC's self-perceived role and the fact that the project was designed to meet many different agendas enabled BES to set challenging targets for itself regarding the number of PV installations, which itself reinforced the benefit that the project could have;

> *"if we're gonna make it happen we've got to think big. But if we think big, then we get all the other benefits with, then we get the jobs"* (BES Programme Manager)

Fuel poverty and Energy Overconsumption

The BES team believed that a major problem for their direct beneficiaries was the fact that many of them were struggling to pay their bills. This was perhaps because beneficiaries were using too much energy; either because of inefficient appliances and thermally inefficient homes, or they were wasteful with energy, or they simply had too little money to meet the rising cost of bills. BCC sees one of its key roles as helping its citizens as some of the earlier quotations have demonstrated, and particularly those in fuel poverty;

> *"As a local authority we have a duty of care to our residents, whether they be council tenants, owner occupiers, housing association tenants or private landlord tenants."* (BES Project Team member)

> *"one of my sort of flagship causes, for years has been fuel poverty . . . you will find that the fuel poor in society are the ones . . . actually disadvantaged most because they're on prepay meters, with higher tariffs. But the, the impact of the Energy Savers project was most immediately seen for those people"* (BES Project Team member)

Therefore the project set out to help those in fuel poverty;

> *"The communities we engage in are probably some of the most deprived in the country"* (BES Project Team member)

> *"[Phases 1 and 2] were very much targeted at um, er, disadvantaged households, so it was really taking advantage of social housing . . . and er, one of the particular aspects that we've always seen for energy savers is not just to go for the quick wins, er but be able to bring some real benefits to people who are faced with fuel poverty"* (BES Board member)

> *"The majority of the neighbourhoods [the project has worked in] have been, um, or communities, quite um, deprived, high level of unemployment type areas"* (Family Housing Project Coordinator)

> *". . most of the PV in Birmingham is on social housing, and was done for fuel poverty reasons"* (BES Programme Manager)

The project organisers cited the 'chance to save money' as the primary reason the beneficiaries had for signing up to the project;

> *I would say, the main driver for anybody to get involved in a project like this is economic benefit . . . it's got to be um, you ask the normal everyday man in the street, why would he sign up for any project? What's in it for me. And it's gotta be the economic benefit. They're not worried about the planet, they're not worried about the carbon savings for the city. Some of them maybe, but the vast majority, it's gonna be how much can I save"* (BES Project Team member)

> *". . if this technology was just to save energy somehow but it didn't have any impact on their financial status, then um, I don't think we would have as much take up, as we did."* (Family Housing Project Coordinator)

> *"[The beneficiaries] get a benefit of, obviously the free electric that the panels generate, erm, the framework ensures the residents who live there get the benefit of the free electric . . . not everyone has a green agenda, er, not everybody wants to save the planet, people just wanna live. And I think that if, if by having*

> *measures done to the property means that they've got a few more bob in their pocket . . ."* (G Purchase Manager)

Suspicion of new technology

Another problem that the organisers perceived as demonstrated by the following quotations was the initial suspicion that their beneficiaries would have of the PV panels, and that people in general have towards new and unfamiliar technologies:

> *"we're a technophobic culture, in general so people aren't, they don't necessarily know much about technologies, they don't understand, they can be quite frightened of them"* (Early BES designer)

> *"it felt like cold calling,* [in Phase 1] *and I think people were suspicious. But I think it was also people were a bit suspicious because nobody knew about the feed in tariff, or photovoltaic . . ."* (BES Programme Manager)

> *"The take up* [in Phase 1] *was a lot less than we expected"* (BES project team member)

> *". . . because the technology is new . . . there is a distrust initially of the figures. . . So people don't believe that it will do what we say it can do. So that is, that is another big reason that people didn't take it up* [in Phase 1]*."* (BES project team member).

This initial suspicion or nervousness towards the PV panels was borne in mind by the organisers, and resolved as the project progressed and people became more accustomed to seeing PV panels, as will be discussed below.

4.5 Organisers' Assumptions about Solutions and Mechanisms

Social norms for behaviour chage.

The BES Programme Manager, being in a position to step back and see a bigger picture thanks to his strategic view, had a view of behaviour change with energy very much connected to ideas of community.

> *"increase people's sense of um, security, satisfaction, solidarity and significance . . . so, security, particularly energy security, particularly for people in fuel poverty, particularly for people in ill, with . . . health issues related to, to cold homes, how can we make them feel more secure by the way we work, not just by making their house better, but by increasing their sense of security in other ways, so layering on other security, so perhaps doing a smoke alarm check while we're in the property, perhaps by, by doing a domestic security check while we're in the property, those, so . . . now the reason that these are significant, these four 'S's, is . . . that these increase people's sense of security, no this increases their sense of community. They build community, and they build cohesion. And therefore you begin to not only address an individual but you begin to grow a, a kind of a community sense that we can do something about this, and that together we can make a change. And I think it's there that we will then get . . . communities thinking that they can make a difference, that then you start getting behaviour change . . . and because they're being reinforced from all directions"*

He argues that by increasing people's sense of (energy) security with PV panels, they become satisfied, for example with the fact that the sun is shining and they are not paying for washing they are doing. They then begin to feel a sense of solidarity with others in the same situation; *"so you're part of something . . well you're part of a bit of er, a movement towards renewables"*. The Programme Manager often spoke of BES beneficiaries as being part of a club:

> *"it was almost serendipity, um, I think the, the kind of energy savers sounding like a club, and so people talk about joining energy savers"*

From that sense of solidarity, the Programme Manager argued they would go on to feel a sense of significance, that they were part of something important;

> *"and now cabinet minister has actually come to my home . . . and the BBC want to interview me, and ooh!"*

Related to this idea of growing community through the project is the idea of community engagement. Earlier in the project the Programme Manager had been to various tenants' and residents' groups to speak to them about BES and to help neighbourhoods get the best from it, despite the fact that many houses would not be able to receive PV panels, either because they were not oriented appropriately, or the roof had not been replaced recently enough. He said;

> *"I went to um, tenant associations and um ward committees and tenants' forums and said we are going to be delivering this in your area, and everybody said that's great, and I said, and 75% of you will not get [receive] it. Um, and I expect you, to show community leadership. Why should 25% miss out, because 75% . . . are not getting it?"*

Engaging with the community in order to manage expectations was therefore as important as trying to 'spread the word' about the PV, and encourage people to adopt them. Engaging with communities for this latter reason was highlighted as important by other members of the BES Project Team:

> *"we found in sort of projects in the past, with the city that if you can get local community groups or even people that are recognizable in a community, then it makes it easier to engage . . . Certainly if you can get some of the key, sort of religious groups say, involved . . . Cos then the message got through to the community that it was ok to open your doors to these guys, cos they're gonna do something good for you"*

Some of the BES organisers pointed to the importance of 'word spreading' as those who had signed up for PV panels told their friends and neighbours about the benefits of the new technology.

> *"One neighbour came on board [in Phase 1] and then the other eight have sort of found out what it could do, the benefits, so they're now interested."* (BES Project Team member)

> *"I think they do in terms of talking to friends and neighbours about you know this is good and that. Er, so people are much more, I think people are getting more aware and more interested"* (BES Board member)

> *"you'll find you'll start doing an installation, and before you know it you get people ringing up going 'erm actually, did you knock on my door?' Previously we've not been able to get answers, then all of a sudden they've seen the panel go in, they've chatted to the tenants next door"* (G Purchase Tenant Liaison Officer)

Some BES organisers believed that people talk together about their panels, and that therefore the behaviour of others was a key influence on the behaviour of the individual, and on their decision to sign up to the project. It can be inferred from this that community engagement, or some other method of demonstrating to potential beneficiaries that other people were signing up to BES and changing their behaviour, would facilitate this process of change.

Installing technology for fuel poverty reduction and behaviour change

In order to bring about change, the BES organisers did something very specific – they installed a piece of technology. There are potentially assumptions behind that decision about the role of technology in influencing behaviour (Latour, 1992a). The issue here is complicated by the fact that behaviour change is here taken to mean both signing up to BES and agreeing to have PV panels installed, *and* changing energy behaviours within the home after the installation. As the previous section discussing fuel poverty and the economic motivation to sign up suggested, the PV panels, *"as a mechanism for saving money"* (BES Project Team member) did influence behaviour in the former understanding. However there is also scope for behaviour change with energy within the home after the installation to match peak production of energy, and potentially for further conservation of energy as a result of the installation. All of these were important in the early thinking about the potential of BES as an intervention to bring about behaviour change:

> *". . if you look at it scientifically, to tackle climate change in Birmingham by putting photovoltaics on the roof is daft. I think if we, every property that could have PV . . . we'd get 0.1% of Birmingham's energy needs. It's just miniscule . . . However, the evidence of working in Birmingham was we were getting up to 80% carbon reductions . . . from putting PV on the roof. When it can't! . . . But it's the behaviour change that's resulted from the PV being on the house. That's been the key thing . . . they become engaged about energy, and they can see that the meter can go backwards . . . that they're generating, they can see that . . . why have I got 50watt halogen light bulbs . . . when I turn two of them on, that takes all the power from my PV. Surely I should get some energy efficient ones. So people, started to change things in their home, and change their lifestyles, and becoming much more frugal on energy . . . because, they've had the PV."* (BES Board member)

The role that different technologies could have in disrupting behaviour, and changing it to be more sustainable was a key idea and cornerstone in the thinking of the early organisers of the project:

> *"We did a project with Warwickshire District Council where we put wood fuel heating into a council house . . . it was a single mum who lived in the house, she used to not pay her direct debit to E-On and had years of arrears . . . the first thing she discovered having been very keen about this project . . . was that now she had to buy a sack of pellets to put in her pellet boiler, and if she didn't have*

> *any money, she can't buy the pellets, so she gets cold . . . she's actually directly responsible for her own energy system"* (BES designer)

Of course it is very possible that this woman may have eventually developed a negative opinion about this project when she realised that she really would be cold if she did not pay for fuel, in contrast to her previous situation. This is especially so if she ended up paying more for her energy, for the simple reason that affordable fuel is still more expensive than refusing to pay for energy at all. However this example makes clear the importance of a new technology in making people 'wake up' to their behaviour. With regard to the PV project, the BES Programme Manager described a more gentle 'awakening':

> *"the idea of saving money and using energy as it is being generated, made people think about energy, perhaps for the first time, so I think people started saying, hang on, um, if I do this at this moment, then the energy is not going to cost me anything, and they start thinking now hang on it, makes me think that energy does cost me something, now in the main, . . . once you start thinking oh I could do this at this time rather than that time, then you can start thinking maybe I could not do it at all. Or, er, you know, and that sort of thing, so I think it, as you say is, it, it helps people think that this is something over which they are in control"*

Hence the importance of explaining to the BES beneficiaries the constraints of the technology, and how to get the most out of it;

> *"families with young children, that they have to use washing machines a lot more. If they've got PV fitted by the project, then it's our sort of mission to them to say right, now you've got this free electricity during daylight hours, use it properly. Because you can't store it. You've got to use it as it's produced"* (BES Project Team member)

Technology was perceived as a way of changing behaviour, or at least something the benefits of which could be maximised with proper usage. However, even if the technology did not change behaviour, and beneficiaries just carried on behaving with their energy as normal, it would reduce their energy bills anyway. In this way it still would have resolved one aspect of the problem.

Resolving Fuel Poverty via a Trusted Agency

Given the role that BCC has in looking after its citizens (see above), it perceived itself as a trusted agency to deliver fuel poverty reduction projects. BCC felt it was important that it lend its name to such projects, and be involved in delivering them, as its citizens trusted the council, and certainly more so than utility companies in providing energy saving (and hence money saving) assistance.

> *"So the advice they were getting from the local authority had more weight, and I think that, that's where we come from. You know we have a responsibility but also we have a trusted face"* (BES Project Team member)

> *" . . . people do, um, in Birmingham I think, think that the local authority is accountable, they do go to their councillors and complain, um, and therefore I think people have got this sense of um, if you, if they don't like what's been done, they can always complain about it, um, so there is that sense in which they probably feel a bit safer that . . . there is a, a route, if, if they made a mistake and if, if someone put PV on their roof and they didn't want it, they could, they could always go back to their councillor . . . but there's a feeling of more accountability . . . and therefore, more redress, if it, if it turns out to be a bad, bad decision"* (BES Programme Manager)

> *"I believe that if something is promoted by the City Council as a good thing, I think people believe that. I think if a company comes to your door saying I'll do this and . . . there's always a part of you that thinks, yeah, as soon as I open the door you're going to try and sell me something else"* (BES Board member)

This understanding was woven into the intervention; BCC purposefully placed their logo on the introductory letters, and on all marketing materials in the later stages of the project, to demonstrate to people that this was a Council-run project. BES saw itself as better able to reduce fuel poverty if it did indeed emphasise that it was a Council project, and therefore inherently more trustworthy.

Visible Technology Creating Social Norms

Installing technology also played a role in creating social norms, as they were a physical and visible manifestation of the behaviour of others. The physical visibility of the panels also helped abate some of the initial suspicion (see above) that people had about the technology, so that by the Summer of 2012 the BES organisers were noticing an increasing interest in the PV panels.

> *"Yes they are [talking about the panels]. . . because they can see it"* (BES Programme Manager)

> *"I think they do in terms of talking to friends and neighbours about you know this is good and that. Er, so people are much more, I think people are getting more aware and more interested"* (BES Board member)

> *"When we were talking to people about having them done, some people were saying no, then they were talking to neighbours that had had it done very early on, and they were going, ooh, maybe I will have this"* (BES project team member)

> *". . people were very fussy and they'd sort of go oh are they going on the front or the back cos if they're going on the front I don't want them cos they look ugly. Now you get less of that. You get less of that because particularly as we've been working for such a long time in Birmingham . . . the-they're popping up all over the place and people are starting to look and go oh, well you know, they're not the prettiest of things but they're there, and they're everywhere"* (G Purchase Tenant Liaison Officer).

BES organisers eventually began talking of 'PV envy';

> *"we've had properties we call it PV envy, er, where some properties are unsuitable and some properties you can fit on, the unsuitable ones'll chase you, why can't I have em on mine, I need to know the reason"* (G Purchase Manager)

> *"Lots of PV envy about, yep, when are you coming round, yep, why haven't you come to mine, I signed it up before they did"* (BCC officer working on BES)

This did create something of a problem within the project; as BES Programme Manager realised from the start these expectations would have to be managed in order to help people deal with disappointment and inadvertently deprive their neighbours of necessary help (see page 129). Possible reasons why this valuable work did not continue will be discussed in section 4.8. Nevertheless, technology was certainly perceived as part of the solution to fuel poverty, and an important aspect to behaviour change. This was especially so, however, if that technology was visible. This way it could demonstrate to potential beneficiaries that many others were taking advantage of the project and that therefore the technology was worth having, and even desirable. Eventually, 'PV envy' turned to frustration; people saw them as

so desirable that they were disappointed and upset if they could not have them. In this way PV was different to other measures that BCC had installed before; no tenants in the past had been told that their home was unsuitable for double glazing while their neighbours in near-identical houses were receiving it. From the tenants' point of view, this appeared to be the case with PV.

Learning and feedback for behaviour change

The BES organisers had assumptions about change which had to do with the role of information, building understanding, learning about energy saving behaviours and learning about new technologies. They understood that information was needed if beneficiaries were to change their behaviour,

> *"where an area had already had some kind of reasonably recent contact, from something like an affordable warmth or health through warmth scheme, so somebody had already been to the householder and talked about how they might save on their energy bill. So if somebody had already done that, then the, then the householder was ready for a conversation"* (BES Programme Manager)

> *" . . some people are not aware of what they use and how they use appliances and things like that. So you make the information available, and you have to keep restating the information, so through the use of websites, connections to energy saving trust, and organisations like that, it's the only way, it has to be, it has to be a constant message. You can't just tell people what's what, and let it go. You know you have to keep restating through various media, you know, you need to try and save money"* (BES Project Team Member)

> *"people put [free energy saving lightbulbs] in and realised actually they don't really like these bulbs and that was it, they kind of gave up on them, instead of having it explained through and chatted to"* (G Purchase Tenant Liaison Officer

They also appeared to assume that if beneficiaries could learn more about their technologies and how they worked, they could get more out of it. This fed into the hope that the beneficiaries' involvement in BES as a PV project would make them go further in their behaviour change from merely shifting their energy use to match times of production, to actually reducing their energy use, and perhaps become more 'green' overall.

> *"they can see that the meter can go backwards, it's, it's, that they're generating, they can see that . . . so what, if I'm generating, w-why have I got 50watt halogen light bulbs . . . when I turn two of them on, that takes all the power from my PV. Surely I should get some energy efficient ones."* (BES Board member)

> *"so she embraced it . . . made her think, well if I'm saving that much without really trying, what can I do if I try. But she also took on board the fact that it was a good thing to do, it was a green thing to do . . . she then said, well I'll get me boxes sorted out and I'll do me recycling as well."* (G Purchase Tenant Liaison Officer)

One further way in which the BES organisers' assumptions about the importance of information and feedback manifested itself, was through the use of the Green Doctor in the first phase of the project. The Green Doctor was part of the follow-up visits, and gave the beneficiaries further information about how to save energy, get the most from their new PV panel (and sometimes even other energy technologies such as their boiler), and how to make low cost or no cost changes to save money.

4.6 Beneficiaries' Assumptions about Problems

Fuel Poverty

The organisers of BES were right in thinking that economic difficulty was a key problem for the project beneficiaries; all of the beneficiaries were concerned about managing on their low incomes. At the very least, they were careful with money through sheer necessity, as the variety of quotations below shows.

> *"I'm incapacity benefit basically because I had an accident a few years ago . . . er, income support based . . . er benefit. I haven't got much savings, I've only got thirty pounds in the bank"* (BES Beneficiary – Phase 1)

> *"He's er, he's a pensioner you know and, and it's hard to, you know, cope with massive big bills basically"* (Bes Beneficiary – Phase 1)

> *"You know we don't waste money, you know we can't, we aint got the money to waste!"* (BES Beneficiary – Phase 2)

For all the beneficiaries interviewed, the chance to save money was cited as one of, if not *the* main reason they signed up to the project, and they appreciated the opportunity to get some help in paying their bills.

> *"[I] didn't want to miss out on something that could possibly help in regard to paying bills like, you know, everybody wants to try and get in there."* (BES Beneficiary – Phase2)

> *"I thought ok, we'll have a go and see if it saves any money . . . Every little penny counts these days, doesn't it? Saving money is like one of the main factors of why people choose Sky or Virgin, BT or Virg-, you know, it is, it's all, it, it's not always about the service is it, a lot of times now it is about how much money you can save"* (BES Beneficiary – Phase 2)

> *". . . since February, when there was a balance of ninety pound in the meter, there is still a balance of thirty pounds. So, since February till June, it's only cost us that much, sixty pounds. So it's cut it in half. . . I'd say we were [using] at least twelve pound a week . . . So we were delighted"* (BES Beneficiary – Phase 1)

> *"I think it's a good thing, meself. I mean I think, the panels are, they were really great . . . And then you can use that time, that you got, four hours, to do your washing and everything else you see. Yeah, [they are a] great help, yeah yeah."* (BES Beneficiary – Phase 1)

> *"I estimate on last quarter, that we, we er saved about thirty pounds . . . About ten pound a month. . . That's ten pound I never had before."* (BES Beneficiary – Phase 2)

Given this overriding concern to save money, in many circumstances, the project beneficiaries *did* change their behaviour as a result of having the new technologies installed, mostly in terms of shifting their energy use, so that they performed their most energy hungry tasks when the panels were producing the most energy. In this regard, their behaviour was directly influenced by the technology:

> *"So for four hours . . . you get the four hours free . . . I put a, me immersion heater on upstairs . . .Any vacuuming that's gotta be done, I do it . . . All before two o clock."* (BES Beneficiary – Phase 1)

> *"I used to do all my washing on a night time . . . and then early the next morning take it out . . . but not now, . . . so obviously I'm getting my washing done free now. . ."* (BES Beneficiary – Phase 1)

> *"I've got a lamp that I use in the night, for when the [dog] goes out to the toilet and it's dark and . . . I put that charge on, charge in the day time now. . . Whereas I would've just put it on charge any time before. . . And I say the phone, you obviously, if it runs out in the night, we leave it till the morning. Then put it on charge."* (BES Beneficiary – Phase 2)

However, how much and for what reasons the beneficiaries actually change their energy behaviour is a complex issue, as shall be explored further below.

4.7 Beneficiaries – Factors Mediating Response to Project

Social Norms

Despite the ability of PV to save money for beneficiaries, and hence it being a rational decision to adopt the technology, people were initially suspicious of the technology, just as the BES organisers perceived (see above). However, the behaviour of others, and the increasing ubiquity of PV panels across the city throughout the course of the project began to change this initial view, and impact upon peoples' decisions to adopt PV panels in the later stages. Phase 1 beneficiaries noted a change in the attitudes of their neighbours when interviewed for the second time, a year after having their PV installed:

> *"Cos when we signed up, hardly anybody would have them . . . people were thinking they were, oooh, there's a catch there somewhere . . . you know, and it was hassle having them done anyway . . . and of course now they realise that you know, they're sorry that they didn't have them!"* (BES beneficiary – Phase 1)

> *"A lot of people are interested in the, the scheme, but . . . it is only for council tenants" (BES beneficiary – Phase 1)*

Phase 2 beneficiaries had sometimes already seen PV panels in their neighbourhood or other areas of the city, which possibly made them less suspicious.

> *"we'd seen, we'd seen them in Northfield first hadn't we? . . . then the next thing they started doing this estate like"*
> *"Did that affect your decision?"* (Interviewer)
> *"Oh yeah, yeah, I was aware of it like, you know"* (BES beneficiary – Phase 2)

The number of PV panels going up was such that this beneficiary felt that it was possible to distintuish which houses were council-owned and which were privately owned simply by the presence of PV;

> *"from what I can gather I mean you can see the patches, I mean most of them are . . . privately owned"* (BES Beneficiary – Phase 2)

These large numbers of panels obviously on view perhaps normalised the technology to other residents and made them feel more confident about the project, and the possibility of signing up to it:

> *"I'd read quite a lot about it . . . you know there was quite a lot of information about it . . . I'd seen it going on around, you know, I'd seen them being installed a lot around here."* (BES Beneficiary – Phase 2)

There were also stories concerning the disappointment and therefore perhaps negative feeling of neighbours who had been left out, for example:

> *" . . . she's Birmingham City Council and she wasn't offered them . . . two doors that way. Some of the houses that way have got them too . . . but she said that she hadn't been contacted and she's on Birmingham City Council . . . it is a shame really. But . . . I don't know why, she doesn't know why . . ."* (BES Beneficiary – Phase 2)

Notwithstanding some negative feelings occasioned by this BES beneficiaries were indeed talking to friends and neighbours about the project, and so normalising the technology and involvement in the project amongst themselves, as hoped for by the BES organisers. Some beneficiaries signed up when reassured by family members who were also signing up to the project:

> *"my daughter lives up the road . . . she had a letter same as me. She, she contacted them, decided to go ahead. So, I decided to go ahead then, cos she, she*

> *checks everything out much more so than me . . . So I go with her"* (BES Beneficiary Phase 1)

However, despite the BES Programme Manager's desire for the project to feel to the beneficiaries like a sort of club, and to build a wider sense of community cohesion, this was fairly limited from the point of view of the beneficiaries. (How inclusive such a 'club' could be when based upon the accident of one's house's suitability for PV was not discussed by the Programme Manager). They did not feel as though they were part of a 'club' or wider movement;

> *"it's not something you really think about basically that, it's, it's just you basically, you know, you've got them, .. if people don't want them they, if, if they've been offered them and they don't want them, then that's up to them basically"*

The organisers of BES also attempted to have a celebration for those early beneficiaries of the project. However it was cancelled due to a lack of response:

> *"I sent out 300 invitations, I got responses from less than 10 households. And that was ultimately why we had to cancel it. Because we had no response"* (BES Project Team member)

It seemed that there was a lack of engagement with BES, beyond simply receiving the PV installations. This lack of engagement shall be discussed next, as another factor mediating the involvement of project beneficiaries with BES.

Lack of engagement

Part of the possible explanation behind the above quotation concerning the low response rate to the BES celebration event was a general lack of engagement with the project beyond the material help in saving money on energy bills that was given. The intervention as experienced by the beneficiaries was quite brief. The whole intervention lasted roughly six weeks, from the beneficiary first receiving a letter about the programme, to a doorstep conversation and survey, to installation and after-care visits. The relative briefness of the intervention could possibly have led to the beneficiaries feeling as though the project had been 'done to them'. However for most beneficiaries, this was not the case. When asked if

they had any further contact from the City Council since the installation of the panels, most beneficiaries said no, and did not volunteer displeasure at this. When prompted, one beneficiary said *"that's fine"*, another responded;

> *"Well, it's up to them if they want to come down, it don't bother me."* (BES Beneficiary – Phase 1)

As one member of the BES Project Team explains:

> *"they've got out of the project what they needed, so they don't need to be further involved"*

Perhaps another reason for this lack of engagement was that beneficiaries, as tenants, felt differently about their homes than a home owner might do:

> *"It's their property isn't it? . . . Once I've gone . . . they'll have to do it up for somebody else to move in wouldn't they? . . . they have to keep it up to scratch"* (BES Beneficiary – Phase 1)

BES beneficiaries however, appear to be happy with this arrangement, and do not feel they require any further intervention. As the G Purchase Manager explained, not everyone has a green agenda and wants to be so engaged in such a project; people just want to get on with their lives. As one BES Board member explains, this is a common experience that Birmingham City Council has with its citizens;

> *"that's what we get back in the consultations, when we're saying oh as a city you know we believe that, that we should engage more . . . they say well no we don't really want you to do that, we just want you to get on and do a good job . . . it's a surprisingly common view."*

Energy Practices

As described above, many beneficiaries did change their behaviour with regard to shifting the performance of energy-hungry tasks to the period of the day when the panels were producing energy. However the beneficiaries' behavioural response to the project was complex. Beneficiaries changed or did not change their behaviour for a host of reasons that were often

unrelated to the process of the intervention of BES. Some beneficiaries had not shifted their behaviour to match peak production at all, continuing to behave as they always had done with their electrical appliances, to carry out the same practices within the home, and follow the same habits;

> *"I still leave them[radios] turned on, plug in . . . Yeah, the radio and the kettle, um, the telly I leave on, me telly, that's plugged in, you know, I just leave that on standby when I go to bed of a night . . I can't be bothered to go round turning everything off of a night time"*

For others, this was put down to 'lifestyle' constraints, a word used by some of the beneficiaries for what appear to be habits or general energy practices:

> *"basically people, people will, can't really change their lifestyles."* (BES Beneficiary – Phase 1)

> *" I don't think to myself I won't do the washing today cos the sun's not out, I, I just carry on as normal, I don't change my routine, I do, do the washing and do the drying, I don't wait till tomorrow in, in case, I don't do that sort of thing, . . . just because . . there's so many of us that if I waited till tomorrow I probably wouldn't get into the kitchen"* (BES Beneficiary – Phase 2)

For other participants, using electricity in the daytime did not actually represent a change of behaviour:

> *"I used to use me washing machine during the day anyway, so I still do that, you know I mean like, obviously me ironing I do during the day, but you know I mean, not much has changed."* (BES Beneficiary – Phase 1)

This was because these beneficiaries were pensioners or on long term benefits due to inability to work and so were at home during the day in any case. These were precisely the people that BES, with its fuel poverty tackling agenda, was trying to help, and so many beneficiaries would have been unable to make certain behaviour changes, and hence savings.

For some, the intervention did not increase awareness of energy in terms of where it comes from and how it is produced. These beneficiaries appreciated the fact that it helped make

their bills more affordable, but nevertheless after a while, the panels became 'invisible' to the beneficiaries and had no further impact on their behaviour.

> *"I think I forget they're there almost, it's just when me bills come in, and you hear other people say oh, I had me bill in you know, and you think god, mine's a lot less than that"* (BES Beneficiary – Phase 1)

> *"I just, I've just accepted it like, . . . you know, I just take no notice now. They're on there, that's it!"* (BES Beneficiary – Phase 1)

> *"It's the more you use something, you've got a mobile phone, and whassnames, so you take it for granted."* (BES Beneficiary – Phase 1)

Energy practices therefore mediated the response of project beneficiaries to the project as the technology became incorporated into their daily lives. This meant that although the beneficiaries made the effort to make the best use of the energy from their PV panels by doing energy hungry tasks during daylight hours and sunny days, sometimes it was ignored altogether (like many technologies and appliances using energy). At other times their own laundry/cooking/tea drinking practices carried on as usual, regardless of whether this made best use of the electricity from the PV panels or not.

Trust

Trust was another factor which mediated the response of project beneficiaries to the project. Trust in the council by the beneficiaries is a complex issue since the council was also their landlord, and therefore potentially had negative connotations. Many beneficiaries, when asked about the council reported difficulties they had had with them in the past concerning repairs and other maintenance works done. However, as one beneficiary succinctly put it:

> *"I actually I think I would prefer to be with the council [in a PV scheme] . . . no really, I would. You know, um, better the devil you know than the devil you don't!"* (BES Beneficiary – Phase 1)

A basic trust in the council (at least with regard to other alternatives) is implied in the fact that many beneficiaries still saw it as the role of the council to help its citizens where they struggle with their bills, and to be a responsible landlord.

> *"Oh I think it's [the PV panels] brilliant. You know, it's . . . actually given us something instead of taking."* (BES Beneficiary – Phase 2)

> *"I think they got it together and I think they've realised that it is a good thing and I think it's a feather in their cap isn't it really"* (BES Beneficiary – Phase 1)

4.8 Wider Contextual Issues

Birmingham Energy Savers was influenced in many ways by wider machinations at the local and national level. National government was really the source of opportunity for this project. According to one of the project organisers, BCC had been working on a climate change action plan for about four years; a main part of which was retrofitting the city. When the Feed-In Tariff came in, it was seized upon as an opportunity for the project:

> *"at that point Feed In Tariff started, F-Feed In Tariff which were pie in the sky before, suddenly we thought well actually this might happen, Feed in Tariff might actually occur . . . How can we, push Energy Savers towards feed in tariffs"* (BES organiser)

Because of this aspect of the wider national system; i.e. the national introduction of the Feed-in Tariff in April 2010, BES was set up to install PV.

Access to Resources and Expertise

At the start of the project, PV was very expensive, and a lot of upfront capital was required to actually install the technologies in large numbers. BCC was able to overcome this difficulty far more easily than many other local authorities could:

> *". . . we are obviously the largest local authority in, in Europe probably . . . we can, er command resources in borrowing, I . . . I can go and get you know seventy-five million pounds worth of borrowing as easily as most authorities can get a hundred pounds worth of borrowing . . . we have that capacity, we have that size, and . . . I have access to the leadership, um, and the people who make the decisions . . . I don't have a problem getting to the people I need to, to get decisions made"* (BES Programme Manager)

BCC had access to

> *". . . the resource and the expertise to be able to deliver to scale . . and that, that's what's needed"* (BES Board member)

As a result of this capacity, a target was set within Phase 2 to do 1200 homes. By October 2012 across both Phases 1 and 2, PV panels had been installed on 1341 homes, 15 non domestic buildings, 74 sheltered homes and two schools. The targets for Phase 3, the full Green Deal project, are much larger.

Technology Requirements

As a result of this aspect of the wider local system, BES was actually possible as a project in Birmingham – installing large numbers of PV was feasible. Installing PV as an intervention, however, had its own influence on the style of the intervention. As a result of PV, the project was at times more building-centred than people-centred:

> *"we started with actually with the building, rather than the person. Which is perhaps a rather strange way of doing it . . . we would look on a, on a kind of, geographical area, because obviously it makes sense in terms of efficiency and reducing cost, to deliver into a certain area . . . So we would identify an area, and because we were starting with a scheme that was about photovoltaics, we had a series of criteria that would, that fit the technology, so it obviously has to be a south-facing roof . . . we decided that we would only um, put renewable energy onto a property that was already energy efficient . . . and the roof must be have a guaranteed life of 25 years, i.e. it must have been replaced in the last 25 years because roofs roughly last 50 to 60 years"* (BES Programme Manager)

This may have had an impact on the project's potential for behaviour change. The previous sections, for example show that some beneficiaries were influenced more by their lifestyles and usual daily practices to behave with energy in a certain way, than they were by the technology.

A key aim of BES, underpinning all the other aims, was that it had to be self-financing. The project had to achieve its social, economic and environmental aims, without costing the council any money.

> *"It is a self-financing programme so essentially what it has to do is seek um, government funding to, to pay for the um, or no,* ***has to*** *find borrowing to pay for the installation of . . . renewable energy and then find a way of getting the money back"* (BES Programme Manager – author's emphasis)

A lot of work went in to ensuring that BES would be self-financing:

> *"The model is a financing, self-financing model for um, energy savers, er based on the feed in tariff . . . and it looks at um, ostensibly for PV, the cost of fitting and maintenance etcetera etcetera, er and in simple terms the costs of putting in PV as opposed to the income over the . . . 20, 25 year life of the feed in tariff, so that's it in simple terms, but obviously . . . does it balance . . . So it's cost of borrowing, interest rates, cost of refinancing . . . so, had to make sure all of those assumptions were correct, and make sure really that the model stacked up for the city council"* (BES Board member)

This aspect affected the style of the intervention, making it even more building-centered:

> *"I think it's inevitable that we will stay with a building-centred approach because um, er the schemes have to be self-financing, and therefore all the time, the drive on me is to, how can we deliver these same measures more and more efficiently at lower and lower cost, and, and derive more and more benefit, so um, and the answer to that is .. in the main go, you go for the right measures for the right houses."* (BES Programme Manager)

Again, this potentially reduced the ability of the intervention to facilitate behaviour change. The size of the project came with its own risks regarding the depth of behaviour change:

> *"The danger, I think is it becomes just big, and not personal . . . it needs to have that, it needs to, bigger behaviour change, it isn't just about, I think the danger to me is it's just about the house, not about the person, it's not about their lifestyle, it's not about what they do in the supermarket. . . And we've got to think differently, it's not about the nature of our community . . .When stuff becomes big, it can become, one size fits all"* (BES Board member).

Both the technology focus of the project, and the necessity to ensure the project was self-financing, led to a number of decisions which potentially interfered with the project's ability

to build understanding about energy use through learning and feedback, as the organisers had originally hoped. An example of this is through the change in the positioning of the PV generation meter. All beneficiaries interviewed from Phase 1 had their generation meters placed in easy view; usually in the hallway of their homes. They could see when their panels were generating electricity, and had the opportunity to understand that in a quantitative way. Within each of those generation meters was a SIM card which transmitted information about generation back to Birmingham City Council so that it could be used to claim the FIT to repay the cost of the installation; vital for the self-financing of the project. However there was a problem with some of this information getting through to BCC; it was thought that the signal from the SIM card was being interfered with by other electrical equipment in the house. Therefore in Phase 2 the decision was taken to install the generation meters in the loft, to reduce the chances interference. In the end, BES organisers came to believe that this 'interference' was not the cause of the problem; the SIM cards were themselves faulty. However the decision had been taken, and it meant that Phase 2 beneficiaries could not see how much electricity they were generating. This could well have led to difficulties in changing behaviour to get the most out of the panels:

> *"all we got . . . the explanation was that, the scaffolding would go up, with them on the roof . . . and then you will get a certain amount of free electric during the day, and that's basically all. . . Yeah. .. it hasn't actually told us how many appliances we could use free of charge, and, and any – I mean obviously there must be, a certain amount that you can run free because otherwise there wouldn't be any excess to go into the national grid, would there?"* (BES Beneficiary – Phase 2)

The above quotation demonstrates a lack of understanding of the Feed-in Tariff through no fault of the beneficiary's own. It was left to the researcher to explain to this tenant about the fact that there was a meter, and where it was to be found in their home. For another tenant in the same situation, they considered this decision, and the installers' response to their questions very patronising;

> *"All you get told is if that green light's on, in there, in the cubby hole, then it's using that, the electricity off solar panels. If that green light's out, then it's not using it. I'd've thought would've been better moving, if they'd've dropped it [the generation meter] down into the cubby hole . . . You know to see what we are generating. Yeah? What we could be using, what we're not using, all that information is up in the loft . . .But they said, they turned round they said well you*

> *don't need to see that.. . I mean I'm, I'm a person who takes interest, you know in what's going on! You know I'm not one of those 'er' and that's it. You know? . . I like to know what's going on in life! You know, if I'm, if I'm having energy free, you know, I'd love to see what I'm having! . . And keep an eye on it . . ."* [BES Beneficiary – Phase 2]

This may have led to a more negative outcome from the project, and less engagement with the technology. Had the tenant been able to see how much energy was being generated, and been able to have an engaging conversation with the installer about how to get the most out of the technology, this may have led to more behaviour change and hence more conservation of energy produced from non-renewable resources.

Funding and Timing Constraints

An important aspect of the wider context which influenced the way the project was run was the sheer speed of BES, and the amount of work that was being delivered and planned at the same time (see *figure 4.1*). Some plans for integrating behaviour change advice or engaging with local communities ended up being put to one side because the Project Team were so busy that these aspects of their thinking could not be acted upon:

> *"I mean we have so many things going on um that need dealing with, and we do try our best to cover all the bases"* (BES Project Team member).

> *"Well, we're now in a situation our flex leave works on an eight week cycle. By this Friday my flex leave should be down to less than fifteen hours. It's currently, if I manage to take two and a half days off, between now and Friday, I'll be on fifteen hours . . . I can't see me taking two and a half days off between now and Friday . . . it's the nature of the project. I mean, I should imagine [Programme Manager] works pretty much 7 days a week on it."* (BES Project Team member)

The amount of work was one reason for this speed, but there were other reasons as well. One was the first pressure point in funding; Phase 1 of BES began late summer 2010 using WNF money, which had to be spent by the end of the financial year (demonstrated in the BES Board minutes for February 2011). This, and difficulties with different partners working together (BCC, Family Housing Association, Thomas Vale) also made the delivery of the project quite rushed. The below quotation demonstrates some of the results of the difficulty of communication between those partners; in this case the hindering of addresses of

potentially suitable homes for PV reaching FHA from BCC, so those householders could be contacted and asked if they wanted to participate in the project, in enough time for works to be carried out before the WNF deadline.

> *". . . for example like the addresses when we said that we needed more addresses um, it just took a long time for that to follow through, so it just mean there was no lead time, so everything was just really rushed rushed rushed, and it didn't necessarily have to be rushed, if we had addresses at a certain time"* (Family Housing Project Co-ordinator)

> *"Obviously Phase 1 we were travelling at a hundred miles an hour, we had targets to deliver, and the actual strategy about how those were delivered wasn't perhaps clear at the start"* (BES Project Team member)

This could have been the reason behind the style of the behaviour change advice given. Green Doctor visits, specifically providing tailored energy saving advice were part of Phase 1, and the following quotation demonstrates some of the difficulties of fitting that advice into the BES programme:

> *"[it would have been] more effective if it'd been part of it throughout, so rather than having customer engagement and support through the process and then a bit of energy advice for an hour at the end, it would have been a lot better if that could have been a process working through it . . . if you'd been able to give energy advice at the beginning, before the installation er, and then sort of reinforce that post installation, I think that, that would have had a bigger overall effect."* (Green Doctor for BES Phase 1)

A further reason for the speed was preparing for the Green Deal, which according to BCC's timetable had to be ready to go by the Autumn of 2012. Although as it transpired, the use of the Green Deal mechanism would not be available until January 2013, the Energy Company Obligation would be available, and BCC saw BES and the Green Deal beginning early as a way of drawing that money to Birmingham, as it would be the first city that was 'ready' to deliver that work through BCC's Green Deal delivery partner. Therefore BES had set itself a tight deadline to get Phase 3, the Green Deal, up and running. This meant that earlier phases were placed to one side:

> *". . .phase 1, it's a watching brief at the moment just to check the performance of the panels is doing what we expect them to do, and on the whole they are."* (BES Project team member)

> *"I think we – we just do, cos Green Deal's coming online everything that Birmingham's doing now is towards Green Deal so the PVs the bit, it's been like shoved to one side, well we've done that, we're gonna move on to Green Deal now"* (BES Project Officer)

> *"I mean he's [Programme Manager] concentrating on Green Deal at the moment because they're going through the last dialogues. So you know we're nearly there with, with them, and that's taking up all his time"* (BES Project Officer)

A final reason for this speed was another pressure point in funding. Phase 2 had been envisaged as lasting 18 months (according to a BES Project Team member), from the summer of 2011. However, on 31st October 2011, the Minister for Energy and Climate Change announced a change in the FIT rate (DECC, 2011a). Previously it had been set at 43.3p per kilowatt hour for PV installations below 4kW, whereas now, with effect from 12th December, that rate would be 21p per kilowatt hour. This had severe implications for the possibility of paying back the cost of the technology and therefore for this phase of the project to be self-financing; the ability to do so had been predicated on the higher FIT rate. In the November BES Board meeting an extraordinary item was raised in the agenda to discuss what would be done about this. Six different options were considered, from terminating the programme on 12th December, to continuing the programme beyond 31st March 2012 on different sorts of buildings and possibly taking some of the money saved on energy bills, in order to help pay back the initial cost of the PV. In the end, the decision was taken to continue to install PV on non-domestic BCC owned buildings after 12th December (such as schools and central administration buildings), where BCC would itself have the benefit of cheaper electricity (unlike in it's social housing stock where the benefit of cheaper electricity would go to the tenants), thereby helping to pay back the initial cost of the technology. However, after a meeting with suppliers and their Phase 2 delivery partner G Purchase in early November, the BES Board also decided to try and install as many PV panels as they could before the cut-off date of 12th December. The number of installations increased significantly over those two months:

> *"well we normally do 20 or 40 a week, so we were doing a hundred a week, and by Christmas time, then or thereabouts we'd installed . . . a thousand systems"* (G Purchase Tenant Liaison Officer)

> *"Between the 1st November and the 12th December we installed 500 systems"* (BES Project Team member)

This created immense pressure on time, as BES tried to install as many systems as quickly as possible. It is unsurprising if any plans for behaviour change advice or community engagement were shelved in the rush to get systems on roofs. BES continued installing PV panels into the New Year in the hope that the 12th December deadline would be extended (see January 2012 Meeting Minutes, Appendix A) while many other PV installers stopped. This caused a problem at the District Network Operator, who then took up to six weeks to register PV installations for FIT (see February 2012 Meeting Minutes – Appendix A).

This whole incident had implications for the running of the project:

> *"Well it was a frantic time . . . in that it was all change, we expected you know, we, we're sort of a project is, is planned you know or plans are made and all of a sudden there was a change and a significant change, you know enough to threaten our, you know the finance er, the costings, et cetra, businesses, and clients. Um, so you know we had to take a long hard look at that, and again I think the board did a great job, the BES Board in terms of, and, and and, D- in terms of looking at everything, and agreeing a way forward, and I think we definitely, we benefitted from, sort of keeping going"* (BES Project Team member)

It also had implications for the embedding of learning and feedback within the project. There were few opportunities to reinforce the energy saving message, to understand how beneficiaries were getting on with their panels and improve that experience where necessary, to help beneficiaries learn about their energy use and how it fitted in to a social cohesion and environmental agenda.

> *"This is probably a big gap in what we're doing, we're doing very much the front end, getting the panels on, and then we walk away. We're not getting any feedback from the residents"* (BES Project officer)

> *"We tried to make sure that there was energy advice both before and after the installation . . . we haven't done nearly as much as, as we should in terms of for example having a, a follow up . . . I think we need to keep reminding and encouraging people to think again, but we haven't done enough in that"* (BES Programme Manager)

> *"I don't think they see themselves as a community, or a collective anyway, . . . er I think that people feel that experience individually not that they're part of a bigger bit, and I don't think that we've done, which is quite sad really, but we've not promoted it as an authority about, you know, we're going forward to green . . . I don't think it's been promoted in that way. It's a missed opportunity there maybe".* (BES board member).

Finally, this speed also had implications for the use of an understanding of the behaviour of others in changing behaviours. Whereas at the beginning of the project, the Programme Manager had been to visit several community groups to tell them about the PV panels and rally support for them, in later phases of the project he simply had no time to do this.

> *"I haven't done some, [visiting community groups] of that many recently"* (BES Programme Manager)

The implications here for behaviour change are complex. It is possible that such a large number of installations happening at once increased the potential for behaviour change at least in terms of sign up to the project. As discussed above, seeing neighbours having the panels installed appeared to encourage people to sign up themselves. However, the speed of the project certainly precluded any wider engagement beyond simply door knocking. Eventually however, the installations on domestic properties *did* come to an end earlier than originally envisaged as BES moved on to installing PV on schools and sheltered housing.

> *"Our management team, our finance people, they can't think, well there's going to be millions coming in, we could do so much more for our tenants, but we're just not doing it"* (BES Project Officer)

There were also difficulties with funding 'pots' within the council. The money to pay for the PV installations was initially taken from the Housing Revenue Account (HRA), and FIT payments therefore had to go to HRA to repay that investment. However it had been hoped that the FIT could also contribute towards the cost Phase 3 procurement. If the PV panels were classed as a fitting, and not a fixture, and hence were technically temporary, then some

of the FIT money which had been repaid to HRA could be transferred to General Fund, and released for Phase 3 procurement and related tasks (such as building a website). There was much discussion in Board meetings about this, with the understanding that written confirmation of PV's status as 'fixture' rather than 'fitting' would be forthcoming and all that was required (see February 2012 Board Meeting Minutes, Appendix A). However by the May 2012 Board meeting, it had been decided that HRA money was not eligible for release for the payment of Phase 3 procurement costs. Costs that could not be covered by the Council were therefore to be recouped through extra repayments on Green Deal measures in Phase 3 (see May and June Board Meeting Minutes, Appendix A).

These funding and timing issues added further difficulties to the already difficult task of delivering such an ambitious project. At times, the need for the project to be self-financing perhaps trumped other project aims such as reducing fuel poverty and saving energy (although any PV that was economically viable in terms of its orientation and lack of shading and hence the potential to earn FIT would *necessarily* save the householder money). Overcoming all these emerging and unexpected difficulties was key to the success of the project.

4.9 Conclusion

The problem faced by Birmingham Energy Savers was vast and complex. A major part of the problem was Birmingham's economic difficulties and hence the fuel poverty and unemployment in which many of its citizens find themselves. It was because BES went some way in addressing these issues (experienced at the individual level by tenants and by the social level of the city as a whole) that it was considered successful. Furthermore, the delivery of the project was a very difficult problem for the BES team; it was very ambitious and hence would have been beyond the capabilities of many other local authorities. It was also carried out in changing circumstances, in conditions of extreme uncertainty and under constant pressure not to cost BCC any money (given the economic situation within the Council, as a result of the recession and severe cuts to their funding by central Government).

That the project continued and had the impact that it did, especially in the face of these difficulties, is indicative of success.

These 'successes' of reducing fuel poverty and economic hardship, and being able to deliver such an ambitious project were perhaps the two most important successes of the project. They are successes at multiple levels; individual, group and social. There were other, 'smaller' successes to do with the *way* in which the project created these larger successes. In order to reduce fuel poverty and begin driving a 'green' economy, BES installed a technology; a technology could bring about the necessary change. However, they were aware that this was more likely to be the case if that technology was installed by a 'trusted' body. Many of the beneficiaries agreed that the Council was a trustworthy body, and that they perhaps would not have signed up had the project been run by another organisation. Furthermore, the technology installed was visible, and its adoption thereby created a social norm (and reduced suspicion of the technology) amongst Birmingham's residents, or even an *expectation* that council tenants should receive PV as part of the normal improvements to their home. At times this did have negative consequences, as people were disappointed if their homes were ineligible for the technology. Nevertheless, the visibility of PV, indicating as it did high levels of project take-up, and large numbers of individuals who now had help with their energy bills, was indicative of success. Again, this success was at multiple levels, particularly at the individual level and the group level.

The project was perhaps less successful in dealing with the problem of wasteful energy behaviour (where this was sometimes the case); something that was certainly part of the problem that BES perceived itself as trying to address. Beneficiaries were not always deeply engaged in the project and just carried on with their normal everyday lives after the installation of PV, which may have contributed to this. Within their everyday lives the beneficiaries all had their own energy practices, which sometimes limited how much they could make use of the free energy from their PV panels. The fact that BES organisers desired that the beneficiaries change their energy behaviour indicates that behaviour change was one of their understandings of success, whether or not that success was achieved.

It can therefore be seen that the problem faced by BES was complex and multi-level. That the project was delivered is indicative of success for the group of individuals that made up the

BES team. That it assisted a large number of individuals with their energy bills is indicative of success at the individual level. That it contributed to the improvement of Birmingham's economy, to the incomes of many of BCC's tenants, and to the city's increased acceptance of PV as a technology is indicative of success at the social level.

Chapter 5
Findings – SusMo: A Community-led Local Sustainable Energy Project?

This chapter will tell the story of SusMo's Green Streets project, and demonstrate the nature of the problem faced by this local project for sustainable energy, and hence the nature of its success. This chapter will begin, however, with an introduction to the neighbourhood of Moseley. Again, the quotations used in sections 5.1 and 5.2 are used for the factual descriptions they provide; in subsequent sections quotations are used interpretively.

5.1 Moseley

Moseley is a neighbourhood of Birmingham to the south of the City Centre, within the Moseley and Kings Heath ward. The village centre dates back to Saxon times, but it developed into a fashionable suburb between 1850 and 1910 (MoseleySociety, 2013). It was incorporated into Birmingham in 1911 (Larkham, 2003). An old manor house is now home to Moseley Hall hospital, and part of its former park is retained as Moseley Park and Pool; a private park (MoseleySociety, 2013). In 1979, Moseley Society, a registered charity, came into existence to work to protect the 'village' from development that was unsympathetic to its character, and is still in existence today. Part of the neighbourhood became a conservation area in 1983, and was extended in 1987 (BirminghamCityCouncil, 2013b).

Moseley is a multicultural and diverse area. It is relatively affluent, although with pockets of deprivation, particularly in north Moseley (Bull *et al.*, 2012). The average household income in Moseley and Kings Heath ward is higher than the Birmingham average at £35,000, and only 9.7% of people here are unemployed (compared to approximately 40% in the wards discussed in Chapter Four). Just under 55% of the population describes itself as White British; there are large Pakistani and Indian populations as well as small populations of other ethnicities (ONS, 2011b).

Moseley is described as a vibrant and cosmopolitan place (MoseleySociety, 2013). The Moseley Society is just one of many community groups and community organisations in the village. Moseley Forum, the neighbourhood forum is another, there is also Moseley Community Development Trust, which houses the Moseley Exchange; a creative co-working

space (moseleycdt.com, 2013). Moseley In Bloom is another community group working to improve the neighbourhood through planting floral displays (MoseleyInBloom, 2013). The neighbourhood hosts a monthly farmers' market (moseleyfarmersmarket.org.uk, 2013), multiple music festivals in Moseley Park and Pool (moseleyfolk.co.uk, 2013, mostlyjazz.co.uk, 2013). As one local councillor described in 2011, in Moseley there is;

> *"a really deep rooted sense of civic pride and community engagement, community working, it's a very tight knit community, although it's still welcoming to . . . outsiders, erm, but it's very active in terms of community spirit . . . it's a good representation of what I think Big Society should look like, and it's happening, it's been happening in Moseley for a long time now"*

5.2 The Story of SusMo's Green Streets – An Overview

The story of Sustainable Moseley (SusMo)'s Green Streets project is that of a community group who had long existed to try and help its neighbourhood reduce carbon emissions from all types of consumption through behaviour change, who won the opportunity to do a tangible project focusing on reducing carbon emissions from energy use. The following story is knitted together from reports, meeting minutes, interviews and field notes gathered in the early stages of the research.

SusMo was set up as a sub group of Moseley Forum – a neighbourhood forum for the Birmingham neighbourhood of Moseley, in existence since at least 2005 (MoseleyForum, 2013) – at a public meeting of that Forum entitled "Save Money and Save the Planet", in 2007. It is an entirely voluntary group of individuals. In the first two years SusMo had a core group of around 20 people who met monthly in different locations around the neighbourhood to discuss what could be done to meet their aim; "supporting our community in reducing our carbon emissions". The group did not achieve a great deal in the first few years and had some difficulty deciding its direction:

> *". . SusMo . . . was trying to figure out what it could do next, you know, what was the meaningful thing it could do for the community, and bear in mind we were talking about things like calendars* [12 month calendars with pictures of Moseley and pro-environmental tips] *at this point"* (SusMo Chair)

In 2009 British Gas announced their Green Streets Project, in which they made £2m available to invest in energy projects within communities. Communities from across the UK were asked to pitch their project ideas to British Gas, who eventually chose 14 communities to take part in the 'Green Streets Challenge'. Each of those communities were given a portion of the £2m to set up their energy projects (targeting one community building and twenty homes) and compete with each other to see which could save the most energy, generate the most energy, and most engage local people. The project started in 2010, and was due to finish on 31st March 2011, whereafter a winner would be picked who would then receive a further £100,000 to spend on a local environmental project of their choice.

SusMo decided to apply for this funding and entered into a more formal partnership with Moseley and District Housing Association (MDHA), St Mary's Church, the Hamza Mosque, the local allotment association and the local Church of England school. They pitched the idea of installing PV on *four* community buildings – (the church, mosque, school and allotment pavilion) and other energy generating or energy efficiency measures on 20 homes of householders experiencing difficulty with their energy bills. SusMo won their bid and received £140,000 worth of microgeneration and energy efficiency measures. They proceeded with their installations on the community buildings, and turned to their partner organisations to nominate householders in most need of help. MDHA were asked to nominate 10 households, and St Mary's Church and the Hamza Mosque were each to nominate five households. Hamza Mosque and MDHA picked householders that they felt most needed the help that the project could offer, while St Mary's Church announced the project during service and in their newsletter and asked the people nominte themselves. Unfortunately, St Mary's Church was unable to nominate 5 people – one of their nominees dropped out and another transpired not to live within Moseley. SusMo had hoped to have equal representation from both religious communities in the interests of fairness, but it appeared that there were not as many members of the congregation of St Mary's Church requiring assistance as SusMo had expected. Hamza Mosque therefore contributed an extra two households.

Sixteen households were improved through the Green Streets Project. All householders were required to change their energy supplier to British Gas in order to participate in the project. Three households received solar thermal panels, one received solar PV, six had new boilers installed, and twelve had loft insulation. Originally, all householders were supposed to

receive smart meters as part of the project, to better help them understand their energy consumption. British Gas did not install smart meters across the board – only two householders received them. SusMo also received a number of 'small measures' to distribute both amongst the householders, and among Moseley residents as a whole, to generate further interest in the project and help more people change their behaviour to reduce their energy consumption. 'Power downs', reflective panels to be fitted behind radiators, and eco kettles were distributed to over 1500 residents. SusMo distributed these measures at the monthly Moseley Farmers' market, at meetings with the original 16 householders, and at other 'green' events and events that partners were holding (such as the Moseley and District Garden Party). The Moseley Farmers' Market occurs every month, and SusMo attended as often as possible, not only to distribute these small measures, but also to talk to local people about climate change and sustainability, and what people can do in the neighbourhood to address such issues. SusMo asked householder beneficiaries to assist with this 'spreading the word' task at the Farmers' Market.

To help with the project, SusMo engaged two unpaid 'interns' through the organisation Regen WM, to help deliver the project. One left soon after beginning the internship as a result of an offer of paid employment elsewhere, but the other played a key role in delivering the project, and took an interest in SusMo as an organisation to the point that she felt as much a SusMo member as the original members. SusMo also anticipated a long term benefit for itself in the project through the Feed in Tariff. All solar PV to be fitted through the Green Streets project was to be received by the building occupiers, and SusMo agreed with the community organisations that they would receive a 10% cut of that Feed In Tariff to do further work in renewables and energy efficiency within Moseley. CoRE 50 is the direct outcome of this wish, and is a registered Industrial and Provident Society (i.e. a co-operative) currently working to install renewable technologies in Birmingham.

SusMo and its partner organisations liaised between British Gas and the householders throughout the installation of the measures. However as well as installing technologies with British Gas, SusMo also tried other ways of addressing behaviour change as part of the Green Streets Project. All of the householders were asked to sign up to iMeasure (Oxford, 2012) as part of the project. This is a website where those who have signed-up to it can upload their weekly meter readings and track their energy consumption. At the time of the project the

website allowed the comparison of energy consumption with other households of similar size. Finally, when distributing the Green Streets small measures to Moseley residents more widely, those residents were asked to sign up to iMeasure, sometimes signing a pledge that they would do so in return for these measures (SusMo meeting minutes May 2011).

Representatives of St Mary's Church had been attending SusMo meetings since the summer of 2009, and had gone ahead and applied for planning permission for solar panels for the Church building in September, before SusMo had submitted the Green Streets bid;

> *"It's believed . . . that we had a strong influence on winning the [Green Streets] award for Moseley . . . because we had plans . . . and had applied for planning permission . . . made Moseley or SusMo look as though they were quite ahead in the game"* (St Mary's Church warden and SusMo member)

However this planning application was refused in February 2010, (despite over 50 letters of support) after the planning committee endorsed the recommendation to refuse permission, as it was deemed that a PV installation would not enhance or preserve the church. The decision was close, with seven voting in favour, five against, with two abstentions. It was decided to appeal this decision, and that appeal was won in September 2010. However, at this point the Diocesan Advisory Committee – whose approval was also required to proceed with the installation – refused permission to install PV panels. The final decision rested with the Chancellor of the Diocese of Birmingham who gave his report in March 2011, dismissing all objections and granting permission for PV on St Mary's Church. The PV panels were eventually installed in July 2011.

The other three community buildings also required planning permission. This went smoothly in the case of Hamza Mosque and the school, but the allotment pavilion had difficulties. Despite the reassurance from British Gas surveyors, Birmingham City Council (as the owner of the allotment building) delayed signing the agreement for planning permission because it was concerned that the pavilion roof was not strong enough to support the PV array. BCC wanted to have their own surveyors look at this, but were unwilling to do so as this would incur a cost. Eventually with the co-operation of the allotment association, local councillors and BCC's Head of Climate Change and Environment, the money for this was found, the necessary work to strengthen the building done, and the panels installed.

Despite Green Streets being due to finish by the end of March 2011, these complications caused the project to run over time. This was accepted by British Gas, who allowed the project to continue until completion. All installations, on both households and community buildings were completed by the summer of 2011.

Due to these added complexities, the following timeline is helpful in giving an overview (please see the following page):

Time →

2007	**Autumn 2009**	**Winter 2009/10**	**Spring 2010**	**Summer 2010**	**Autumn 2010**	**Winter 2010/11**	**Spring 2011**	**Summer 2011**	**Autumn 2011**
SusMo is formed	St Mary's Church submit planning application for PV	SusMo are awarded Green Streets	SusMo plan project delivery	Planning application for St Mary's rejected Appeal submitted Work begins on households Distribution of small measures	Appeal for St Mary's church is won Work continues on households Distribution of small measures	Chancellor of the Diocese of Birmingham gives his approval for PV at St Mary's Work continues on households Distribution of small measures	Planning applications submitted for PV on Hamza Mosque, allotment pavilion and school. Work continues on households Allotment pavilion has difficulties; money is found to strengthen the roof to support PV Distribution of small measures	St Mary's installs PV PV panels installed on Hamza Mosque and school. Distribution of small measures	PV panels installed on allotment pavilion Final queries related to work on households Distribution of small measures

Figure 5.1 – Timeline of SusMo's Green Streets Project

5.3 Aim of SusMo's Green Streets

SusMo saw the Green Streets project as a key opportunity to change people's behaviour; behaviour change had a strong role within the project. As previously stated, SusMo's tag line is "supporting our community in reducing our carbon emissions". As the SusMo co-ordinator explained;

> *"Yes, climate change [mitigation] isn't going to happen unless peoples' behaviour changes . . .it's quite, to me a very obvious thing . . . It isn't going to happen because of what the government says and what the local authorities say and do, it's going to happen because people are motivated for it to happen, they realise the, the importance of it . . . and, you know, stop driving cars round for short distances, and stop buying everything encased in plastic, and so on . . . it's not going to, to happen."*

SusMo, throughout the Green Streets project, as well as simply installing technologies that would help residents in fuel poverty to better manage their bills, were trying to do much more. The quotation above demonstrates that SusMo as a group are aiming for behaviour change to reduce carbon emissions across different areas of life, rather than just domestic energy use. Within the Green Streets project itself, a range of different measures were installed, only a small proportion of which required householders to *shift* their behaviour to make best use of the technology (i.e. solar PV and solar thermal). The majority of householders received new boilers or had their loft insulation topped up – measures which really help facilitate the *reduction* of energy consumption. SusMo wanted the Green Streets beneficiaries to reduce their use of energy and to understand energy consumption better. SusMo's use of iMeasure throughout the project is an example of their holistic approach to behaviour change; improving understanding of energy use in order to reduce usage, as well as installing practical measures to further help that reduction. As the Chair of SusMo says:

> *"I'm not particularly interested in helping people to kind of like eco-bling their house . . . i-in the absence of anything else that's fine, because . . . the fuel will be saved just by happenchance of it, you know cos that's what the technology's for . . . it helps you to use less fuel, so obviously, that's better than nothing, but to get the best out of something you want people to understand it"*

Green Streets, in this regard was a project which complemented SusMo's aims. It's three stated objectives were to save energy, to generate energy, and to engage the wider community

(BritishGas, 2009, Platt *et al.*, 2011). This project allowed SusMo the opportunity to do something tangible to cut carbon emissions, and with which to engage their community in the issue of climate change, and what they as community members could do to tackle it. Ultimately, some SusMo members originally hoped for more; that by being involved in the project would make beneficiaries more 'green', and become more deeply involved in sustainability issues, as this member describes:

> *"We wanted [the project] to be something that they continued, and they kind of shared with their neighbours, and their neighbours would become interested and ask for a monitor . . . and really get people actually really interested in SusMo . . . and for the kids as well"*

In essence, a deeper 'conversion' was sought by some members.

This chapter looks at the nature of the problem faced by the organisers and beneficiaries of this project. The following sections will look at the assumptions SusMo held about their community and how to bring about change are laid out; first the perceived problems and then the perceived solutions and how these were implemented. The beneficiaries own understandings of their behaviour are their presented, first in terms of the problems that they saw that they had to face, followed by an exploration of the mediators of their resulting behaviour. Finally, the wider context will be explored, which had its own impact on the outcomes of the project.

Two partner organisations' representatives were interviewed for this research – the agent for St Mary's Church and the community liaison officer for Hamza Mosque. These two respondents occupy a blurred position within the project as both 'organisers' (they nominated householders to benefit from the project, and were attending SusMo meetings and contributing to ideas at the time the Green Streets bid was submitted) and as beneficiaries, speaking on behalf of organisations whose buildings had received solar panels. Where relevant, their responses will be considered either as those of a project beneficiary, and those of a project organiser.

5.4 Organisers' Assumptions about the Problem

Behaviour Change

> *"Climate change isn't going to [go away] unless people's behaviour changes"* (SusMo co-ordinator)

Behaviour change in order to deal with the problems of resource overconsumption and climate change was a critical problem for SusMo. They see the overproduction of carbon emissions as an individual-level problem that can be solved by individual action. Many of the members of this group live relatively (if not extremely) low-impact lives themselves, and see this as the manifestation of their own values. It is perhaps unsurprising that as a voluntary, community group behaviour change was a high priority for them, as this is the sort of thing that with their personal connections within a community, they are most likely to do;

> *"people are more likely to change their behaviour if, if they see somebody that they know doing it"* (SusMo member)

Fuel Poverty

SusMo believed that the majority of the householder beneficiaries were struggling with their fuel bills, and would be motivated to join the project by the chance to save money. They had aimed from the beginning to help those in fuel poverty, and in this regard were different from other Green Streets winners who often used the project to improve their own homes (Platt *et al.*, 2011). The following quotations are examples of this sentiment of SusMo's;

> *"the way we decided to do it, because we didn't dream . . . it didn't occur to us that people in that room should put their own house forward and get in loads of free stuff. You know we wanted it to be representative."* (SusMo member)

> *"Our main aim as a group was to help people who are in fuel poverty, to definitely, stress that the people in need were the people who should get the insulation and things like that"* (SusMo Co-ordinator)

This was a driving motivation for running the project in the way that SusMo did; fuel poverty was as important a problem as they perceived it as resource overconsumption. This assumption, of the problem of fuel poverty in Moseley, quickly informed key decisions about the project.

5.5 Organisers' Assumptions about Solutions and Mechanisms

(Visible) Technology as a Mechanism for Behaviour Change and Dealing with Fuel Poverty

Technology was an important and obvious solution for the problem of fuel poverty; the best way of helping people in fuel poverty was to make their bills cheaper through the installation of energy efficiency measures or microgeneration technologies. As the SusMo Chair explains when asked if people were managing to use less energy as a result of the measures they had received as part of the project:

> *"If you've had a terribly inefficient boiler, that's been . . . throwing your good fuel after bad, just to keep your house warm, you are gonna, even if you don't moderate your behaviour at all, you are gonna save some money* [if you receive a new efficient boiler]*"*

Beyond this, however, SusMo also viewed technology as a way of 'spreading the message'; when it was visible it could be used to demonstrate that other people were using energy sustainable technologies, and influence people's behaviour. This was part of the reason behind the decision to install PV on St Mary's Church and other visible places:

> *"There was obviously wanting to have a . . . flagship project, something we could point to . . . that was kind of visible, . . . both St Marys and the Hamza mosque both really have that because they're both visible arrays to a certain extent"* (SusMo Chair)

> *"The sole reason was to get the word out, to get people interested, so if you just do one, I mean the flagship was obviously the church, that was the thing that we thought everyone'll, you know, that will catch everyone's eye, everyone will see that, that'll be a big thing"* (SusMo member)

Technology is important because of the role that it can have in building social norms, as the next section discusses.

Social Norms as Mechanisms for Behaviour Change

The most commonly cited assumption about change upon which SusMo based much of their decisions about how to run their intervention was that peoples' behaviour is influenced by that of those around them. If they wanted their neighbours behaviour to change, they had to show their neighbours that more energy conscious behaviours were common. Given this assumption, at the heart of SusMo's Green Streets project was the importance of showing what others were doing in the realm of renewable energy and reducing energy consumption, and where possible trying to create a norm of energy sustainability. The above point about using visible technology to change behaviour is entirely consistent with this point, it was a way, like many others, of demonstrating what others were doing; a particular manifestation of the behaviour of others.

Engaging the full diversity of Moseley's community also ties into this. The Chair of SusMo explains her views on peoples' behaviour and how to use this to normalise renewables and energy saving:

> *"I'm a great believer in the 'people like me' effect . . . it's saying ooh, there's a lot of people round here who are doing this . . . the pressure of society is a really important factor . . . it's about showing that . . . this is not just something that belongs to one type of person, it's not rich people, it's not eco-activists, it's about saying actually this is really normal"*

> *"the feed in tariff was . . . something that stimulated and made [PV] kind of accessible and then caused it to spread and then the 'people like me' effect kicks in so you see that . . . your neighbour's had it done, you ask them how they had it done, you think ooh that seems fine"*

The feelings of SusMo are succinctly described by this member:

> *"People are more likely to change their behaviour if they see somebody that they know doing it"* (SusMo member)

There was talk of making energy saving measures less strange and frightening for people, to make them more normal:

> *"Having people with these energy saving measures . . . removes the stigma of, gets people just a little bit interested, a little bit less afraid of it, a little bit less suspicious of it"* (SusMo member)

The school was also important in this normalising and sharing of behaviour, as it was thought that the children would learn about the PV panels on their school building and then go home and tell their parents. The small measures also helped spread the conversation more widely, according to the organisers, and demonstrate to people that this is what others were doing, and that they might like to do it too:

> *"I think the small measures that we got helped us . . . we had a kind of sufficient number of things that we could . . . give away to people who weren't involved in the project that meant we could work in larger numbers . . . it starts a conversation"* (SusMo Chair).

> *"nobody was interested [in the radiator panels at first] . . . so what I did was I . . . started putting them in the mosque . . . and . . . they saw me putting them in . . . after I put them in, because it was winter, they, they felt the, the actual heat was coming out more . . . and then . . .everybody just was knocking . . . on my door every day, I want some of that, I want some of that! . . . So I think it must have been about, about oh just over a hundred people who actually um, put em in"* (Hamza Mosque Community Liaison Officer)

Further to this, SusMo were cognisant of the fact that the community of Moseley was a diverse multicultural one, and used this fact in designing their project, to make further use of the influence of others' behaviour. Although the Green Streets project stipulated including just one community building, SusMo decided to work with *four* community buildings, to best address this diversity, and bring about a greater change. Moseley is very diverse in that it has both white British and Asian communities within the ward. As the community liaison officer from the mosque explains (speaking as an organiser but also as someone who perceives himself as living within the situation he describes):

> *"Our community is actually split in half here, you get one side . . . the indigenous English people, and then you got the other half which are semi-indigenous but they're Asian background . . . there's like an invisible barrier as I call it, . . .*

> *there's a north Moseley and there's a south Moseley. So the north Moseley people have their own things and everything in North Moseley, and the south Moseley have their shops and their own thing in south Moseley . . . if only one community benefits then then others won't bother about anything"*

SusMo therefore aimed to spread the potential for behaviour change by putting PV on buildings that were important to both of these communities, and to other groups as well. In this way all the different communities or groups within Moseley would be addressed by the Green Streets project, and would have an opportunity to learn about renewable energy and think about its implications within their own lives. As the SusMo co-ordinator explains:

> *"There seemed to be four very good cases and we thought they would be more significant in behavioural change because they would be more noticeable . . . we felt that involving the community was, would be more effective through community buildings, and the fact that we chose the parish church and one of the mosques in the area meant that this was definitely the case . . . the third community building was the primary school and because when we started off in 2007 we were very impressed by Ashton Hayes, the village which was going carbon neutral, and the whole project there really was led through the primary school . . . the fourth community building is the pavilion at the at the allotments in Moor Green [Moor Green Road in Moseley] . . . the allotments have a very diverse community and on those four community buildings we have put photovoltaic panels"*

This allowed SusMo to address a much greater number of people. As the agent for St Mary's Church described:

> *"I mean the mosque and the church, I think are pretty important, the number of people that attend the mosque is about 1500 or something . . . 200 for the church, right, so, um, but, …it must, it must have an effect"*

It is difficult to directly assess the wider impact of these installations as the beneficiaries interviewed *also* had measures installed in their own homes, which will also have affected their awareness of the project. However, as previously stated, the church, mosque and housing associations were each asked to nominate households to participate in the project, and so the different communities were addressed in this way as well. One householder who was nominated by the mosque and received PV demonstrates the impact that had within his community, in generating interest about the technology and how it could help anyone to save money:

> *"everybody . . . on the street's been interested in what the panels are all about . . . the amount of people that have stopped me on the road and said, you now, what are those things on your roof, you know, how do they work?"*

As one of Moseley's local councillors points out, the project was popular across the community:

> *"You know you can usually find a, you know an anti-lobby somewhere, but curiously enough there wasn't one for this"*

A final assumption of SusMo's about behaviour change centred on the importance of longer, deeper and more community based projects. The previous quotation from the SusMo co-ordinator concerning the importance of local people changing behaviour over and above the role of government or local authorities (page 140) is echoed by another SusMo member:

> *"that's what SusMo's all about, it's, changing . . . little changes, locally, you know it's not saying we're gonna solve the problem, we're just gonna say what can we do immediately on our doorstep"*

The agent at St Mary's Church thought it was important to have a local body working in the area of climate change mitigation to reassure local people who might also be concerned about these issues:

> *"I think it's very important to be able to point to organisations that are working on these things, so it can be a community like a church, but also SusMo, because it's an identifiable . . . even if there's only half a dozen that do anything . . . just being able to name the body . . . it gives the impression to those . . . individuals that there is some outfit there that knows about it, and is doing something about it . . . so you don't feel alone . . . you don't feel that you're out on a limb"*

A local councillor also felt that it was important that change came from within the community, as opposed to being imposed upon it by the local authority:

> *"there's a sense in which the, the local authority is divorced, from what's actually happening on the ground. And that's why, it, I think, it needs to integrate itself better with people, people that live everyday, you know, people that know what's happening on the ground."*

SusMo felt it was important that they were seen as a permanent body working long term on these issues, who would always be there for the community. Green Streets was just part of their ongoing activity;

> *"If you go in completely cold people think you're selling something, and they think you're an oddball, which is why we always try and keep . . . the ground warm if you like, so that's why we're trying to keep the SusMo farmers' market stall"* (SusMo Chair)

The importance of engagement over a longer period is also echoed by the Hamza Mosque Community Liaison Officer:

> *"We said we don't want . . . to do too much at the one time because what it is people, people lose heart . . . throw them in at the deep end, we doing slowly by slowly . . . now the winter is approaching we'll be approaching them and saying things like draught proofing . . . I know from, from past, when, when you do something very quickly, people lose interest very quickly as well . . . but when things go slowly, they accept as a way of life."*

It was hoped that all of these aspects would build a social norm of sustainable energy use and behaviour. However SusMo did not just want people to be blindly following social norms, but to understand the changes they hoped people would make, through deeper learning.

Learning and Feedback as Mechanisms for Behaviour Change

Another key assumption of SusMo's about how change happens is the importance of information to bring about behaviour change in energy use. One key aspect of the project that was going to help with this was to be the installation of smart meters in every participating household. The following quotation shows the SusMo co-ordinator's frustration that this didn't happen, and hence shows the underlying assumption as to the importance of smart meters:

> *" . . . there, there wasn't anything like enough spread of smart meters . . . That's what's needed"*

As SusMo saw it, people don't often understand how much energy they use, and so don't have the opportunity learn how to reduce their usage, instead seeing it as something which cannot be changed:

> *"people see certain things as flexible, and certain things as non-flexible, and they see energy as something that they have to pay for"*

SusMo hoped to address this by encouraging the householders to use iMeasure, which allowed people to upload their meter readings onto the web and compare their consumption with past consumption, and that of others. It was hoped that this would help householders understand how much energy they were using, and where they could make savings. The co-ordinator explains the importance of this feedback:

> *"taking your readings makes you aware of what you're doing, of what you're spending money on . . . if you're going away for a weekend or something, if you come back and . . . you find that your readings were still too high, it's because you left things on. And you begin to be aware of . . .things more"*

This aspect of giving information to facilitate change also complements the assumption that change happens when people are influenced by others. As the Chair of SusMo explains when asked about the use of iMeasure:

> *"the appeal, the kind of game playing of it, almost, which is what I was quite attracted to in iMeasure, it's kind of teaching people by stealth about their energy use by making them compete with people in their kind of immediate neighbourhood"*

The opportunity afforded by iMeasure to help people change their energy behaviour was so important to SusMo that when there were some delays on the part of householders in signing up to the website, one member went to the households to talk them through the process:

> *"we just decided that I'd just go to each house and sit down with them, and explain it, and make them understand"*

Such information in the form of feedback did lead to energy behaviour change with one of the partner organisations – the Allotment Association. As part of the Green Streets project all beneficiaries, both householders and the community buildings, had to submit meter readings

for the previous year to British Gas, so that the utility company could see how things were changing. The SusMo co-ordinator describes how this led to change:

> *"the allotments found greatly to their surprise that their electricity bill was higher in the summer than in the winter, with the heating! And they were very puzzled by this until they realised that it was all down to their cold drinks cabinet, because they have a bar in their pavilion, and their bar is only open at the weekends, but all the drinks were kept cool twenty four seven. . . drinks don't deteriorate . . . it's just people like to drink them cold, so they . . . started switching off their drinks cabinet and only putting it on at the weekends, and it immediately reversed their heating bills"*

One householder did receive a smart meter, and although he did not look at his daily meter readings, he did find the indicative light display (green for low energy use, amber for higher use and red for very high energy use) helpful in increasing his awareness about how much energy he was using, and in helping him reduce that use:

> *"I think we, we're probably using a little bit less energy now, now that we've got this wonderful thing . . . smart meter, which British Gas have installed, so . . . we have this wonderful er, light indicators on there, the red amber green . . . so you know, it makes us a bit more conscious about what's on in the other room . . . I think that has helped cos as you can see it's flickering at the moment because of, er, I've just noticed somebody's doing some ironing in the other room, so . . . if you're doing the ironing maybe we can turn the telly off or turn the lights off in the other room where nobody's there, it, it does kind of does help with that, that's definitely helped."*

5.6 Beneficiaries' Assumptions about the Problem

Fuel Poverty

SusMo sought to help the fuel poor specifically, within their project, and so it is unsurprising that difficulty in paying bills was a major concern of the project beneficiaries. Two of St Mary's nominees were not struggling with their bills and did not give economic reasons as their motivation for signing up for the project. Many of St Mary's congregation are well-off according to the SusMo co-ordinator, and perhaps the social stigma of being seen to struggle with bills within this smaller community was a contributing factor in St Mary's not being able to recruit many participants. However, all of the other beneficiaries were nominated because

they struggled with their bills. Many of those interviewed were indeed struggling with their bills and gave 'the chance to save money' as a reason for having signed up to Green Streets:

> *"I think one of the obvious reasons [for signing up], because I'm a single parent, and . . . I'm self-employed as well so sometimes . . . my income can fluctuate . . . with the gas, because of the problem I was having with the boiler, my overall bill was . . . one thousand seven hundred"*

> *"so I said well I do rather fancy the idea of having a new boiler for nothing . . . We're old age pensioners , we've already been mugged by British Gas, hammered for money by npower, Texaco want more and more every time I go to fill up, and er, and so on!"*

> *"it's something that could benefit us you know as a household . . . through the, er, kind of ways of saving money if you like and you know, being more energy efficient . . . those were the sort of things that you know, kind of, attracted us."*

5.7 Beneficiaries – Factors Mediating Response to Project

On the whole, for many of the beneficiaries it is difficult to tell if their behaviour changed as a result of the project. At times it appeared not to change at all; at others it was not clear if the project was the only cause of any change. This is because the beneficiaries' relationship with energy was complex and ever changing. For some it was difficult to tease out whether the project or just the cost of energy lead to a reduction in energy use, and some householders found it difficult to reduce energy use as they already used very little already as a result of economic concerns.

> *"I'm more conscious of the fact that I need to use less energy [since being involved in the project] . . . I think so, definitely [that this is because the project has raised my awareness] and plus trying to save money, cos everything's just so expensive at the moment"*

> *"before these smart meter and the solar panels it was, we, we generally in our household, we don't really use you know, more than what we needed . . . parents have always, very strict with you know, using it carefully, and I guess that was . . . more a financial thing, you know, my parents aren't very well off"*

> *"frankly I was always conscious about switching off the lights, I always like to be the last one to go up the stairs . . . I've never liked going to bed and leaving*

> *family say watching the television, or um, doing the washing up . . . or reading the paper, I like to be the last one to go to bed [to turn off the lights behind me]"*

Beyond this, there were important factors mediating the beneficiaries' responses to the project, some of which lessened the likelihood of behaviour change, some which had the opposite effect. These mediating factors; lack of engagement, energy practices, social norms and values; are each now explored.

Lack of Engagement

Working with householders who were in fuel poverty and who were social tenants, proved difficult for SusMo. The tenants were not as forthcoming and as willing to be involved as they had hoped. SusMo were perhaps unused to working with social housing tenants, and came to realise that many of their early expectations of the beneficiaries were unrealistic. SusMo had hoped that by involving householders in Green Streets as a project they would bring about a big change in the lives of these householders vis-a-vis their commitment to working towards sustainability:

> *"At the beginning, there were some people that . . . had an expectation that if you were a householder involved in the project, you should then become a SusMo activist, and should be going to the farmer's market and turning up to loads of meetings and stuff . . . I think that expectation was unrealistic"* (SusMo member)

> *"what we had hoped for was through doing all this work, through engaging four different community groups and the householders . . . that our core group of people would be greatly enlarged with all these people who had been inspired by everything, and in that we were greatly disappointed"* (SusMo Co-ordinator)

SusMo formed as a result of a well-attended public meeting aiming to address climate change from within the community. The people who came to that meeting were, by virtue of having attended, so concerned about environmental issues that they were willing to leave their homes to discuss these issues in public, and to see what they could do themselves to address them. As a group whose original members were composed of such people, SusMo were perhaps unused to working with social housing tenants who were less concerned about environmental issues and who perhaps did not care or feel empowered enough to do anything about them

themselves. SusMo were perhaps unused to working with people who are only willing to participate in projects in a more passive way, as the following quotations demonstrate:

> *"sadly I think there's definitely . . . in the case of the householders . . . a sense of you can have something for free"* (SusMo Chair)

> *" . . . both people suggested by the mosque who were in fuel poverty, and all the tenants from Moseley and District, they obviously, they have expectations of the state. They have expectations of assistance. So in a way we weren't . . . providing that much for them, because they would have got it from the housing association . . . anyhow . . . certainly most of them didn't want to become champions . . . about behavioural change . . . what we had expected was that people who had been helped would become champions for their friends and neighbours."* (SusMo Co-ordinator)

Certainly those that did go on to help SusMo by standing at the farmer's market to tell people about how they could save energy were beneficiaries nominated by St Mary's Church, and were not social housing tenants. Some of the social housing tenants did change somewhat – the picture here is complex, and this shall be addressed in a later section. Some social housing tenants said they could not attend meetings as SusMo had hoped, mostly because of childcare issues:

> *"I did go to the meet, um a meeting at the mosque, but I didn't go to very many meetings, it was hard for me with the . . . with the kids, I couldn't just leave them"*

This lack of engagement, (or perhaps difficulty in engaging) also meant that many beneficiaries did not take advantage of the opportunity to learn more about their energy use through using iMeasure to see their energy consumption. Many residents did not sign up to iMeasure despite repeatedly being entreated to do so, and offered incentives:

> *"we decided that we'd hold the [eco] kettles, because that seemed to be what everyone was really keen on, and use them as an incentive for once you've signed up to iMeasure and have been inputting your meter readings for a month, because nobody was doing it, it was so difficult to get them to sign up to iMeasure"*

Minutes from SusMo's April meeting in 2011 show that SusMo were still having difficulty getting people to sign up to iMeasure, with concern that very little progress had been made despite 'iMeasure' being an agenda item for a long time'. By the June meeting SusMo still

had not been able to contact two householders to speak to them about iMeasure. Uploading meter readings to iMeasure every week was perceived to be inconvenient by one of the householders; others felt uncomfortable using a web based platform:

> *"you had to sign up to something called iMeasure . . . well I thought, well, what I'm doing now is quite enough, and I didn't really want to sign up with that. Well I have signed up with it, but I haven't given them my meter readings weekly. I felt it was just too much, I had to keep opening the cupboard in the house and do my meter readings."*

Again, a web-based platform for behaviour change might not have been the most appropriate mechanism for behaviour change for their particular beneficiaries.

> *"We're getting a lot of difficulty in [getting people to sign up to iMeasure] actually because the people who actually joined us they um, they're not very computer savvy"* (Hamza Mosque Community Liaison Officer)

On the whole, social housing tenants did appear to be less engaged in the project. This quotation is a typical example of the difficulties SusMo had in engaging many of the beneficiaries in their project:

> *"There was one, which house was it? There was a house that I think [the co-ordinator] and I between us, we must've been like close to harassment, going round the house, posting letters through the post box and stuff but we just didn't hear back from them, and then one day I got a phone call out of the blue and arranged to go round, and, he sounded really keen on the phone but when I turned up he wasn't there, and, you know, you just have to give up sometimes"* (SusMo member)

The minutes of SusMo meetings in 2011 do not mention any social housing tenants due to help at the Farmer's Market. The minutes also mention that one householder who received PV "should be working hard for SusMo", (SusMo Meeting Minutes 2011 27 07) and record that a discussion was had over how best to suggest this. The minutes also show difficulties engaging tenants with iMeasure, (SusMo Meeting Minutes 2011 22 06). Furthermore, SusMo only managed to speak to 10 of the 16 beneficiaries to ask them to participate in interviews for this research, and two of those potential interviewees were never actually available to be interviewed, despite repeated attempts to meet them at pre-arranged times. This lack of engagement was perhaps one of the greatest barriers to the success of SusMo's intervention,

given the style of that intervention and the assumptions underlying it. As the SusMo co-ordinator said in the second quotation of this section, this was 'a great disappointment'.

Energy Practices

The way the beneficiaries actually used energy was often 'non rational' (i.e. not the result of conscious decision making to maximise economic utility by keeping energy bills low), which goes some way to explaining why many beneficiaries did not engage with iMeasure and its potential for feedback and learning, or straightforwardly change wasteful behaviour. Energy was instead implicated in other priorities. Some households used a lot of energy because of the children in the house:

> *"my four year old will actually, on occasion, sleep in the dark . . . he tries not to have the night light on, I do have a night light on the landing in case he wants to go to the toilet, I just think that's common sense cos we've got stairs"*

> *"it's more my son, he'll just put it on . . . You know my children need, they have more baths, . . . like, five or six times a week he's going in the bath, sometimes more . . . laptop, everything's always on charge . . . an ipad, ooh, like they've got everything, they've got all these different gadgets, DSs, computers"*

With others, quality of life has implications for energy use:

> *"I do find energy saving light bulbs, if you have them everywhere makes you feel quite ill . . .because the colour's very draining . . . I've got an overhead light somewhere that's got about three or four bulbs in it . . . two energy saving ones and a real one, just to make, a nicer light. Cos I think your quality of life, and your living environment is quite important"*

Therefore, despite SusMo's encouragements and incentives to change behaviour and become more conservative with energy use, many of the beneficiaries did not reduce their energy use as much as was hoped. This was because of the way energy use was implicated in their daily lives. Daily practices to do with keeping children safe, washing, recreation, and being able to see 'comfortably' (according to the perceptions of beneficiaries) all have implications for how much energy is used. Without a change in those practices, energy use could not be reduced.

Social Norms

By showing people what others were doing (and by showing the different communities of Moseley what their own community was doing; particularly in the case of the mosque), people began to change, and to adopt more of these measures, and discuss their measures together. One beneficiary (nominated by the mosque) when asked if he had told anyone about his PV panels answered:

> *"Everybody on the street . . . everybody around the area, friends who I know, have all inquired about you know, the panels on the roofs, people at work and stuff, you know, um, have made people there aware, just through general conversation about the panels and stuff, you know. I, I talk quite positively about them"*

This beneficiary also related how he had discussed with another beneficiary from the mosque the measures they had both received, and how this other beneficiary had 'got smarter' in how he was using energy to make best use of his measures (he received solar thermal panels). By working with the mosque, SusMo managed to access a whole community and help them to change through showing them that others in that community were also changing. The Hamza mosque Community Liaison Officer reported that many of the congregation had begun enquiring about insulation and smart meters since the Green Streets project, since the project had actually benefitted some families from the Mosque, others were starting to 'listen'. This was not confined to the mosque, St Mary's church also influenced people to change through its flagship status;

> *"The encouraging thing was the overwhelming support from the community . . . from letters written . . . the city planning department is obliged to send you copies, . . . so I saw what had actually been written . . . you knew that you had the backing of the community"* (Agent for St Mary's Church)

Again, the Agent for St Mary's church described how two members of the church had installed PV on their homes as a result of St Mary's involvement in the project. The church's generation meter is also visible to the public who do go and look at it, according to one of Moseley's councillors, hence the benefit of using public buildings:

> *"I was in the church the other week and I was looking for that meter, and while I was looking at it, two or three other people joined me . . . these are public buildings"*

There was also some evidence that SusMo were best placed to lead such a project because they were a local community group; they were known and their views trusted:

> *"a paid person when he goes to work you know he feels that he has to do things, because . . . he's getting paid for it, and he's gotta do, he's got to answer for it . . . A volunteer you know, does it because he feels like he wants to work, yeah? So um, it's . . . he or she has . . . prove, it's just proving to themselves and, and . . . that's more important"* (Hamza Mosque Community Liaison Officer)

> *"It's very much more credit, to me, a community project is very much more creditable."*

> *"it's not selfishly sought after. Em, it's not, for them. I think it's because they, because they live within the community, they want everyone to benefit. So it's a community initiative"*

> *"members of the community are, people who you could probably trust a bit more if you like, you know, they, they live in the neighbourhood, they generally will advise you on things which are probably good for you, otherwise you could go and knock their door a week later and say, hold on you told me that . . ."*

As the members of SusMo lived side by side with the beneficiaries of the project, they could not 'walk away' from their project if it went badly. As they were volunteers, the project was also more than 'just a job' to them. The above quotations demonstrate that their beneficiaries held these perceptions about SusMo, and hence trusted them more than they would have a non-voluntary, non-local organisation.

Values

Values were also another mediator in the response to the project. Within the Asian community, the way the project was responded to had some bearing on the family structure;

> *"in our community there's two types, there's the elders and there's the youngsters, youngsters are very highly um, . . . modern, modern in the way that they're up to date with everything, elders are not. Ah and it's usually the elders*

> *that actually make the decisions in the house . . . but now this changing actually because um, the youngsters are like becoming middle aged now, you know, so you know most of them are becoming elders . . . there are more youngsters actually running the household now*" (Hamza Mosque Community Liaison Officer)

These 'youngsters' perhaps would not have had the liberty to respond to the project as they might have wished; the decision to participate in the project and how to do so was taken by the head of the family. Being more comfortable with technology, their response might have been different. Generational turnover alone might have more impact than SusMo's Green Streets project if these 'youngsters' are happier to use the internet to get feedback and regulate their energy usage.

However conversely, where the project questioned peoples' values and began to change them, the effects were very noticeable:

> *"Since the solar panels we have become very interested in developing other green projects in the mosque, instead of doing some small things we were gonna do big things now . . . dig up the car park um, lay in the ground source heat pumps, and put some water catching tanks for collecting rainwater"*

Furthermore, the status of elders in Asian households had positive outcomes when that individual's values were those of the project:

> *"The tenants and the people whose house they install this, to explain them that you are saving so much and your people who you know . . . you must give them the chance to save also energy and that will affect the bill . . . and in this way they can spread the word . . . I told my own two sons, they are owning their house, to install this, you know they have got great big house . . . they can, not two panel, they must put more than two!"*

The above quotation shows that this individual was encouraging his sons to install their own solar thermal panels, thereby spreading the impact of the project throughout his own family.

5.8 - Wider Contextual Influences

SusMo – Few Resources

As an entirely voluntary group with little human resource, SusMo were likely to be more greatly curtailed by wider system influences as they sought to bring about change. Originally a larger group, when the Green Streets project began, SusMo found itself greatly reduced in numbers:

> *"I have to say, when I first attended SusMo there were maybe twenty people all attending, and then . . . as soon as this came up, the Green Streets, there were things to do right, work to do, right, you'd be astonished how many people evaporated . . . the number of active people . . . went down rather than up"* Agent for St Mary's Church.

This made it more difficult to deliver the project, and engage beneficiaries as much as SusMo would have liked:

> *"It's difficult to get in touch with people, and it is* time *as well, there's 20 people, you can't be visiting them every week, you have to spread it out . . . a couple of people I only saw maybe twice throughout the whole process, and that's, you know you're then not gonna feel that engaged, are they?"*

Being both a small group and hence, a smaller project, the potential for change was perhaps less. This was certainly felt by some of the Green Streets beneficiaries, who perceived that SusMo should be doing more:

> *"SusMo is there, as an organisation, which may only be hanging on by their fingertips, if I can say that . . . or by four or five or six dedicated people . . .but I think we should hang on, and think of something which might have some dynamism"*

> *"I was a little bit disappointed in the way that that um, SusMo isn't sort of more active . . . I think the Green Streets was a big thing for SusMo, but I came across an old Birmingham 13 magazine* [local neighbourhood magazine for Moseley] *last year and SusMo's been around for years and years and years! If you . . . badge yourself as an organisation, community organisation that's called Sustainable Moseley then you need to have quite a high profile!"*

Quite simply, at the time of this research SusMo was such a small organisation that it was hard pressed to deliver such a complex project as Green Streets. The fact that the project was run by four or five active individuals was not lost on many of the beneficiaries. Given such

small numbers, *all* resources taken up with just trying to deliver Green Streets, leaving little time to extract the maximum potential from the project, let alone work on other projects.

British Gas Constraints

Being a small group with far fewer resources working on a major project like Green Streets was certainly a drain for SusMo members, and possibly made it more difficult for SusMo to deal with their biggest system constraint; working with British Gas. SusMo originally questioned the very idea of working with a utility company, which had such different aims to its own. The Chair explains their thoughts at the time:

> *"They [the big six energy companies] share the market, they artificially keep prices quite high . . . somewhat artificially . . . you don't get that market effect that you're supposed to get. So we I suppose had to have a serious think about whether you, is it ok as a community group that believes certain things, to take money off a group that doesn't necessarily believe the same things. But I think we came to the conclusion that you know, £140,000 . . . worth of renewables for your community that we could get an income from, that we could use to exemplar to people, that we could use to engage people around the . . . aims and objectives of our group . . . it's worth trying isn't it?"*

SusMo did decide to work with British Gas, but their early fears had some foundation: as one member stated, British Gas often ended up being 'the main barrier' to implementing the Green Streets project. The project had to be delivered in a way that British Gas determined. Only goods and services that British Gas actually supplied were eligible for installation; not always the measures that householders thought would be most useful;

> *"the green streets project was very targeted in the things that they deal with themselves, there were a lot of the houses felt that they really, a lot of their problems were due to single glazing, and to draughts and bad floor insulation, old houses with cellars, a lot of the heat loss is down to the cellar, and the green streets project didn't deal with any of those things. . . It was a bit, well you're not offering me what we really need"* (SusMo Co-ordinator)

Although not a primary aim, SusMo would also have liked to use the Green Streets project to provide support for the local (Birmingham and Moseley) economy:

> *"one thing that SusMo tried to do in green streets, we were really keen on having local suppliers, and we weren't always successful in petitioning British Gas for that, but we were always quite clear, a that you now, it makes sense to have things that aren't travelling so far to get to you, that just makes sense in terms of getting a project done efficiently, but also local jobs"* (SusMo Chair)

However, as the Chair said, they were not always successful in that, and many of the people who carried out the physical works for Green Streets were from companies based outside of the West Midlands *region*, let alone the West Midlands conurbation. The way British Gas worked, (along with other aspects of the way SusMo ran the project such as working with partners) created some other difficulties which may have limited the capacity for change through the dilution of trust:

> *"A part of the problem was that people didn't know who they were being addressed by, cos it was British Gas, and they were saying well is it British Gas that's doing this, and we were saying no it's SusMo, but it's Green Streets, but it's Moseley and District, and then when somebody'd come out to do the work it'd be an entirely different company working on behalf of British Gas . . ."*

In many ways, British Gas framed the Green Streets project in such a way to suit itself and its normal business model. It did not fundamentally change its practices even though the Green Streets project was supposedly about a community-approach.

British Gas – Dealing with Mistakes and Poor Service

As a small community group, SusMo possibly found British Gas a lot more difficult to deal with than a larger organisation with more resources and clout may have done. Difficulties were often due to problems with communication within British Gas, and the way British Gas worked, which made things difficult for householders. This in turn made them less likely to change. The SusMo Co-ordinator gives an example:

> *"from the British Gas point of view there was a really horrific mess up about the installation of solar thermal panels, on, on one house because British Gas just couldn't get it together, um they visited, they came with um, people and kit from Cardiff? Somewhere? I mean they didn't use local people and I think it was, it took four visits before they actually had the right, the right kit and the right people in the right place, which was incredibly disruptive to this particular family, and really unacceptably, and you know British Gas was embarrassed, and sent them flowers and things, they're an Asian family and that really isn't part of their culture . . ."*

As previously mentioned, all beneficiaries were supposed to get smart meters, which would help them to better control their energy use and cut down on their bills. This was used as justification and reassurance for the beneficiaries when they were asked to switch their energy providers to British Gas for a year, even if British Gas could not match their current tariffs. However most beneficiaries did not receive smart meters, to the frustration of the beneficiaries:

> *"I think this is what really got my goat, they promised to install a smart meter, I arranged two appointmetns, and the first one they said they were coming but they didn't turn up, the second one was arranged, but they didn't turn up, so I thought right, I've had enough . . . I would* never *go back to British Gas"*

This beneficiary's winter bill was far higher than she was expecting, and she switched back to another provider as soon as the agreement with British Gas expired. SusMo meeting minutes from February 2011 show that there were also concerns about whether the proposed smart meters would be interoperable between different energy providers, or if having a smart meter would tie the recipient to British Gas for life. To return to the issue of switching, another beneficiary ended up spending more money on their bills after switching:

> *"British Gas agreed to give me discount um, for old age . . . but when I started er getting, er, I joined them, nothing happening, they said that scheme is scrapped"*

The SusMo intern called British Gas on behalf of this tenant to try to help him:

> *"when I phoned up British Gas on behalf of – and asked if he could have the old person's rate . . . and I said he's part of the Green Streets um project and sort of explained it and they just had no idea, and I thought, it's obviously not a priority for British Gas"*

The following quotation is from that same tenant, explaining how after the installation of the solar panels, he did not see a reduction in his energy direct debit payments:

> *"I was paying most equally to . . . without panel . . . they told me . . [British Gas said]. it's because er in winter you, your panel was not installed, er we installed it in May, so you missed winter, I said that was . . . not a good reason, because in winter we don't heat the water by solar system, so I said what about summer,*

> *summer was quite alright for about six seven month to heat the water . . . and still I was paying the same amount [as I was in winter]"*

Another tenant had difficulties with the boiler that British Gas installed for him. The minutes of SusMo meetings show that this issue took from at least February 2011 until April 2011 to be resolved. Essentially the boiler did not appear to be big enough to provide hot water to all 18 of this beneficiary's radiators. British Gas engineers came to his home more than once and told him that he needed a powerflush, but did not actually install one until 27th April (SusMo meeting minutes 2011 27 04). An extra pump had to be fitted so that hot water did travel as far as the furthest radiator. As this beneficiary said:

> *"the boiler has been fitted, but it's been full of problems right from the start. . . When they fitted it, it broke down overnight. Huh! . . . I could dwell on the problems with British Gas as regards their boiler quite a lot"*

As the SusMo intern pointed out, this would have had implications for behaviour change:

> *"But – was so upset about it, you know, you've got somebody who's signed up for something and you know, was really enthusiastic, and that's, if there's anything that's gonna make somebody disinterested and disengaged, that's it, isn't it?"*

For other tenants, it just seemed to take so long to install the measures that were promised:

> *"you know it was supposed to happen in . . . October, or thereabouts, that time, but it stretched, went on a little bit too long actually and in the end I was thinking, blow it, don't bother, that's, don't, don't bother"*

There were also problems with the one beneficiary who received PV, when he tried to claim his feed in tariff payments. He registered for the FIT before the reduction in rates came in on 12th December.

> *"With British Gas . . . I called them the week after I gave them the meter readings . . . according to their system they should reply back by email to confirm they've had the readings, and they said oh, sorry nobody's picked the readings up from our payments department . . . we'll notify them and someone will call you back within 24 hours. No one called. So I waited another three weeks , cos that was the first time I could get back on the phone to them . . . oh sorry, nodbody's picked up your meter readings from payments . . . I will personally give them, I, I can see your meter readings are here, 731, they quotationd the readings that I*

> *gave them on April 8th or some, somewhere around then, and I said oh this is exactly what I was told last time I called three weeks ago. So they said ok, I will personally give your meter readings to payments and I will call you back myself to tell you when your cheque will be out . . .I'll call you back by the latest tomorrow . . .still nothing! Another two weeks gone by . . . called them again, sorry, your details have not made it to the payments department!"*

The day before the interview with this beneficiary, (23rd June 2012), the beneficiary finally received a cheque. This beneficiary mentioned how this 'painful' experience with British Gas was causing his father to feel very negatively about the solar panels, which would again have a negative impact on engagement and behaviour change.

Having to deal with all of these difficulties with British Gas was a great strain on SusMo. Despite having to do a huge amount of project management work, there was no funding to cover the costs of the group:

> *"There was no money for phone calls, postage . . . transport, no, no money for that"* (SusMo member)

> *" . . .the workload. And that it actually was more than we as volunteers could cope with, and I was the only one of the core group who was actually retired, everybody else had jobs and kids . . . we didn't realise the implications on our personal lives . . .it is still a real bugbear that I have to go over to West Bromwich for something and you know, no offer of payment of fares or anything"* (SusMo Co-ordinator).

> *"The downside is burnout, for a few individuals . . . I wouldn't go through with it again. Full stop"* (SusMo co-ordinator)

This interfered with how well SusMo felt they were able to deliver the project:

> *"the fact that we were burnt out for a lot of it . . .really had the bad effect that we haven't been out to talk to people um, who have had the measures, as much as we ought to have done"* (SusMo co-ordinator)

SusMo also had to work hard to stop their own reputation being 'tarred by the same brush' as British Gas (see the previous quotation demonstrating the effort SusMo members went to in order to help beneficiaries who had received poor service; page 160), creating further work for themselves.

Dealing with Bureaucracy

A final aspect of the wider system which caused some problems for SusMo was having to interact with Birmingham City Council and the Church of England bureaucracy in order to gain permission to install PV panels at St Mary's Church. Despite much sustainability policy published by the Council (Boyd, 2010) the planning authority appeared less than welcoming to the idea of PV:

> *"What we tried to do was get advice from the City about how to go about it . . . they extremely grudgingly came along once and, and you know, we said how do we make the application . . . the form for planning permission assumes you're building an extension or something . . . or something like that, and there's absolutely nothing whatsoever about solar panels right, so you, you have to cross out nearly the whole form and so, we said we wanted somebody to say well what do we do . . . and it was hopeless, they, they were* useless, *utterly useless . . . they asked for all sorts of stupid things like, er, an archaeological survey, we're not digging up . . . I've never come across such relatively dim or people who don't have a clue what, what their job is almost"* Agent for St Mary's Church

There were difficulties in processing the application before it went to committee and was refused:

> *"The council made mistakes and so there was a delay of about three months at least, er made bureaucratic mistakes in dealing with the paperwork, and then it went to the planning committee with a recommendation from the planning officers that it should be rejected, right. Um and there was a half hour debate and the planning committee that a lot of us attended, er, where the voting was seven to five against it, with two abstentions, which to me wasn't, um, wasn't a result!"*

The planning application was refused and the decision was appealed against, as explained. Once the Planning Inspectorate had overturned the decision, permission then had to be sought from the Diocesan Advisory Committee, who had refused permission, to the disgust of the agent working with SusMo:

> *"I wrote a strong criticism of the way they'd handled it, which was extremely lazy, right . . . they did no homework . . . they had no expert on, on the panel . . . we'd looked into a wind turbine, we'd also subsequently looked at heat pumps, we'd looked at double glazing and so forth . . .and it almost appeared as though*

> *they hadn't read it! Right they . . . they said we hadn't adequately looked into alternatives . . . so I was hopping mad"*

Eventually, the decision went to the Chancellor for the Diocese of Birmingham to take, and after a seven month period he wrote a fourteen page document in favour of the PV panels (as explained in section 5.2). Overall, this process was a tremendous amount of work for a

explained in section 5.2). Overall, this process was a tremendous amount of work for a voluntary community group, and St Mary's Church's representative in particular:

> "*You'd be astonished how much work it was, there must be a thousand emails at least, to do with it"*

However, these bureaucratic difficulties in this instance may well not have curtailed the ability of the project to change expectations of energy and even behaviour. In fact, St Mary's church became something of a rallying point for Moseley, and alerted many people to the project and to sustainability issues:

> *". . .fifty, at least fifty letters in favour, including the Moseley Society and other bodies around Moseley"* Agent for St Mary's Church.

The Moseley Society is an organisation which seeks to preserve the character of Moseley, and often looks through planning applications submitted for the ward (see section 5.1). It can be quite conservative, and so the fact that it was in favour of St Mary's PV panels was significant. The process of having planning permission rejected, and having to campaign to get the decision overturned helped raise the profile of the project. The SusMo co-ordinator felt that the difficulties were helpful in raising awareness:

> *"The splash that the problems with the church, um caused means that the chattering classes at least are aware of the project"*

The agent for St Mary's Church pointed to a lot of popular support from Moseley's community for the PV (also see above);

> *"Everybody has been supportive"*

That there was so much public support for these PV panels on St Mary's church throughout the community makes it even more surprising that it took such a long time to gain the necessary permission.

5.9 Conclusion

The problem addressed by SusMo was difficult; trying to make a difference to those in fuel poverty, and trying to change ingrained energy behaviours is difficult for a small community group acting in a local area. SusMo's Green Streets project demonstrates one approach to tackling this by implementing various energy efficiency and energy generating technologies, both to help reduce beneficiaries' bills *and* to provide iconic examples of sustainable energy that help people to think more about where their energy comes from. Behaviour change with energy was a key aspect of the problem that SusMo was trying to address, and as such this project demonstrates how a number of mechanisms can be used to get people to learn about their energy use and to reduce it. SusMo also demonstrates how a community group can effect change by emphasising their credentials as a *voluntary* and local group, working to improve the lives of their neighbours. In SusMo's case, this message was appreciated by a number of their beneficiaries who did trust them. As such, SusMo's Green Streets project provides an example of how problems at the individual level and at the social level (within a neighbourhood) can be addressed.

However the project itself became incredibly complex just to deliver. Dealing with the constraints placed on the project by British Gas, and the large number of mistakes and difficulties of working with that organisation, as well as the bureaucracy involved in installing PV on St Mary's Church, placed a huge burden on SusMo. That they managed to prevail, and deliver this project despite being a small group of volunteers, is a tremendous success for SusMo itself; success at the level of that group of individuals. SusMo demonstrates that despite the difficulties of working in a national energy system and with a major multi-national corporation, it *is* possible to be successful as a community group with few resources if the members are determined enough.

SusMo were perhaps not as successful in the ways that they wanted to be, but these perceived 'failures' still demonstrate much about the nature of success. They wanted to bring about energy behaviour change in their beneficiaries, but had less impact in doing this than they wanted. Some beneficiaries were less engaged in the Green Streets project as a whole. It is possible that working with a group of beneficiaries which is perhaps not understood by the community group (i.e. social housing tenants), leads to unrealistic expectations. Again, some beneficiaries do not reduce their energy use as much as they could because their daily practices (which used a lot of energy) prevented it. SusMo's project demonstrates how issues

around cultural values sometimes inhibit change, at other times it encourage it. Nevertheless, SusMo's drive to bring about such behaviour change demonstrates a particular conception of success; of success at the level of the individual (who's behaviour is changed), which can build to success at the level of society.

Chapter 6
Discussion – Understanding the Nature of Success in Local Projects for Sustainable Energy

This research is about the nature of success in local sustainable energy projects. A critical point about the nature of success is that it is tied to perceptions or assumptions about the nature of the problem that needs solving in a local area. These assumptions are set out in the previous two chapters in the discussion of the aims of both projects (sections 4.3 and 5.3). They are further elaborated in sections 4.4 to 4.6 and 5.4 to 5.6 where the assumptions of organisers and beneficiaries about the problem they are trying to solve and how to do so when planning/getting involved in the project are set out. These sections show that (for example) fuel poverty was commonly perceived as a key problem that the projects needed to solve or address. A second important point about the nature of success is how challenging these local projects are to implement, and therefore how difficult success is to achieve. Sections 4.8 and 5.8 demonstrate this in their discussion of the wider contextual influences that were brought to bear on each project. For example, SusMo had to struggle against the local planning system in order to implement their project. Sections 4.7 and 5.7 also demonstrate this in their discussion of the various factors mediating the involvement of beneficiaries in the projects; such as the relative prevalence of PV panels (social norms) in BES.

This is an important area of research as the current literature (presented in Chapter Two) does not show the full nature of the meaning of success. It does not show how success can refer to a number of things at different levels. This is because each body of literature that is relevant to the question of local projects for sustainable energy has its own understanding of success relating to the level of the problem of that literature, and excluding all others. The theoretical stance of critical realism adopted for this research allows the use of many different disciplines notwithstanding their basis in different epistemologies; the aim is to better understand practice. Therefore, by taking an interdisciplinary stance as has been done here and mapping those different understandings of success onto each other, a more complex and multi-level understanding of the nature of success is revealed. However, the research carried out for this PhD shows that there are yet more conceptions of success that must be taken into account.

The reason for these many conceptions of success is that local projects for sustainable energy will address perceptions of local problems in some way, and therefore some conceptions of success will be related to those particular perceptions of problems. In Birmingham as a whole, key local problems are economic deprivation and fuel poverty, as understood by both the BES organisers and beneficiaries. In Moseley, *some* SusMo members perceived the problem to be one of 'wrong' energy behaviours that needed changing, (see section 5.4), whereas all the project beneficiaries perceived the problem as one of fuel poverty (see section 5.6). Therefore conceptions of success and failure within these projects forcibly relate to those particular problems. This will be the case *wherever* such local projects are carried out; Manchester, Oxford, Liverpool, London or Totness. Those problems may not be about deprivation, but there will be local issues which colour the local understanding of success.

The language used in the findings chapters was the language used by the research participants; the language used in the projects on a daily basis. This chapter now returns to more abstract terms (both from the bodies of literature introduced in Chapter Two, and new explanatory terms) as the data is used to understand the meaning and nature of success in a general context.

This chapter will first discuss the concept of change which occurs over time, of which local projects for sustainable energy are part, and to which they contribute. The concept of causative beliefs is then introduced in order to explain how conceptions of the problem (at whatever level that is) and conceptions of success are interlocking. This is followed by an explanatory model which demonstrates and describes the multiple perceptions of project organisers and project beneficiaries, as they prioritise different levels of the problem. The explanatory model show how these alternative prioritisations explain perceived 'failures' within local projects. It also demonstrates how ideas and actions co-evolve as the (sometimes changing) context of a project provides opportunities, constraints and challenges. The factors which mediate the outcome of the project for beneficiaries are then given in order to elaborate on these conceptions of the problem. Finally, the multiple nature of success is explored.

6.1 Time and Change

One important and yet hitherto implicit reason why success is difficult to achieve in local projects for sustainable energy is that change is difficult. This is demonstrated in both the findings and the literature (for example Verbong and Geels, 2007, Maréchal, 2009, Midgley, 2000). Success is about change, which is a hard thing both to accomplish and to demonstrate that it has been accomplished. Despite 20th Century changes in Western thinking towards a systems-understanding of the world, rationalist modes of thought still exist and often bleed into the assumptions behind interventions (Midgley, 2000). Such thought betrays itself in cause and effect assumptions about how change happens; for example that pulling particular 'levers' will have predictable results. Following from this, quantitative objectives are sought, the outcome of which can be easily measured. However change, especially in multifaceted situations with multiple levels of problems, is far more complicated as constantly changing circumstances can confound the influence of any particular intervention. Local projects also do not happen in a vacuum, but occur as single events in the on-going narrative of cultural and even personal change. It is therefore difficult to attribute change to a particular project. Interventions within a system have unpredictable consequences for good or ill. It is therefore more sensible to talk of system transition rather than cause and effect, and to accept that it is impossible to truly control change. All that can be done is to capitalise on the seeds of change that exist within society. Projects which contribute to moving things in the 'right direction' (howsoever defined) are nevertheless valuable.

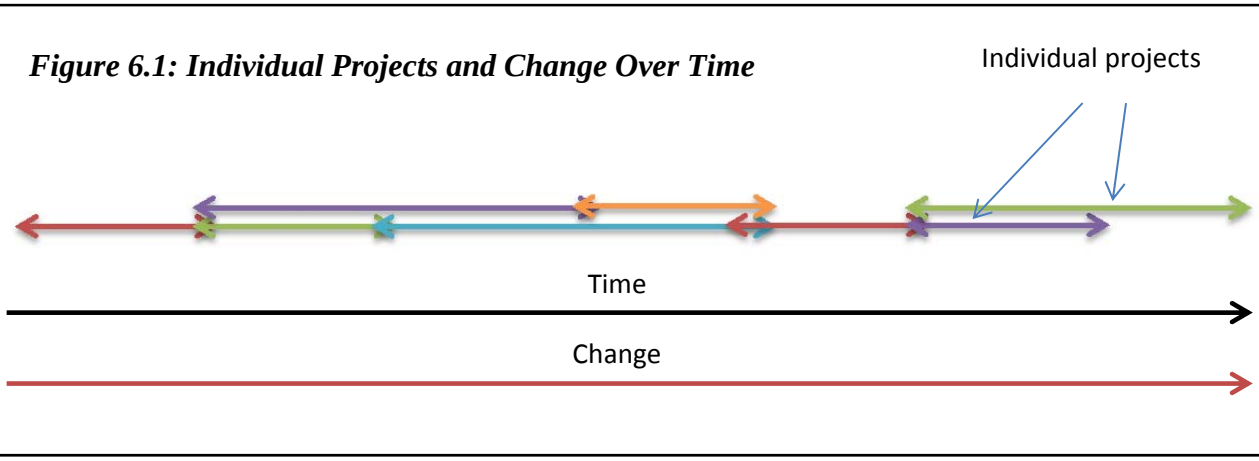
Related to the above point is the issue of time. Time is of particular relevance to local projects seeking to deal with problems of a similar level and nature to energy and climate change, where it takes a long time for the effects of any intervention to be felt. A sociotechnical system may change over decades, but earth systems can take millennia to change. In such circumstances it can be difficult to know if projects for sustainability are actually addressing the problem they are aimed at as the effects will only be felt by future generations. It is furthermore difficult to see the nature of the contribution of a single project to the process of change, when that project is in the midst of that trajectory. At the social and system level, the full system transitions necessary to address environmental problems can take at least a generation as in order for real change to happen infrastructure, regulations, policies, business and banking models and 'user' expectations must all undergo their own changes (Geels, 2002). According to this viewpoint, judging short projects against a threshold of

change which may take more than two decades to bring about can lead to the perception that they have failed; and their abandonment. The understanding of success can be short term.

However, at the level of the group delivering the project and the level of the individual householder, the problem exists on a shorter time frame. It took approximately three years for both SusMo's Green Streets and BES to be conceived, started and completed. Success was achieved in a matter of three years. This is part of the nature of the problem at the level of the project (a problem for a group of individuals); a project can be long running or brief. At the individual level, people's expectations of how energy was provided (as described by Nye *et al.*, 2010), their understanding of the desirability of some of these technologies (especially PV), some of their energy related behaviours and certainly their experience of fuel poverty, changed very quickly, in a matter of months or much less. For individual householders, the nature of the problem that they experience; that of budgeting a small income so that it lasts until the next payment, is on the timescale of a few days.

It can therefore be argued that single projects *do* make a difference at some level of the wider problem, which can be built upon. Individual projects therefore *create* trajectory of change when they build on each other, and reinforce similar messages. Figure 6.1 demonstrates this. Individual projects (represented by the coloured arrows at the top of the diagram) may only last for a short period of time. However if a short term project is followed up with another short term project of a similar aim (and so on) real change can happen over the necessarily longer time period.

Figure 6.1: Individual Projects and Change Over Time

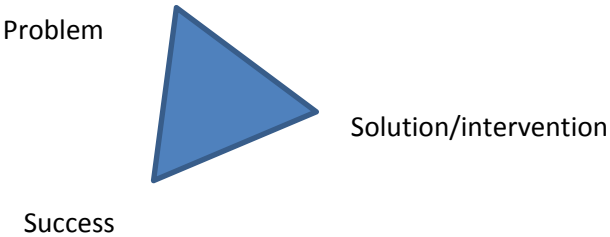


6.2 Causative Beliefs

One of the reasons why the nature of success is so complex is that different people involved in organising the intervention have different causative beliefs. The abstract concept of "causative beliefs" is grounded in the 'assumptions about the problem' and the 'assumptions about the solution' held by the project organisers and beneficiaries that were discussed in the findings chapters. The concept is also a key building block of the explanatory model that will be explained in section 6.3. Causative beliefs relate to what the problem actually is, to what the solution would therefore be and what mechanisms would be appropriate to carry that out, and therefore what success would be; i.e. the resolution of that problem. The 'mechanisms' themselves can be a number of things, related to the nature of the problem as each individual perceives it. It could be the installation of energy efficiency measures to reduce the problem of fuel poverty, or it could be the installation of technologies to raise awareness of energy use, to help people learn about and therefore reduce their energy use.

These three elements are three parts of the same mental construct; they are a triplet or triangle, as demonstrated in Figure 6.2. They can be shown separately, but they are one and the same; the nature of the problem and the nature of success are inherently linked. When talking about projects to bring about change success is often the focus of the discussion; whether or not a project has been successful colours how people feel about those projects. However, 'success' can mean a number of different things because success is part of this triangle of causative beliefs. What is successful is fundamentally linked with beliefs about the problem and how to solve it. This construct is presented in Figure 6.2 as a triangle. The triangle is presented at a slant to avoid the impression that one point of the triangle, being at its apex, is the most important.

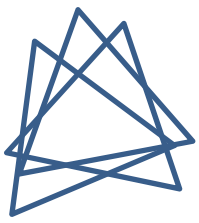
Figure 6.2: The Triangle of Causative Beliefs



The nature of intervention is made more complex by the fact of the prioritisation of different triangles of causative beliefs. Within this research, the project organisers have been asked to explicitly talk about the social system level of the problem, as well as the level of the problem that they deal with on a daily basis; i.e. delivering their project. For some people working on a local project for sustainable energy, their particular role or motivation might lead them to think about problems at this more abstract social system level in any case. Individuals, whether delivering a project for sustainable energy or seeking to benefit from one, will approach the problem from different levels, perhaps the level of individual problems. Emphasising one particular problem at one particular level will emphasise a whole triangle; that problem's solution and therefore the nature of success.

Individuals, however, do have an understanding of multiple levels of the problem, and hence will see multiple triangles. Project beneficiaries will perhaps always emphasise the individual level, as that is where most of their emotional energy is spent. Project organisers certainly see other triangles; other problems at different levels and their solutions. Each individual *prioritises* particular triangles of causative beliefs at any one moment. This prioritisation is renegotiated according to different circumstances. Within an intervention, these triangles of causative beliefs are constantly negotiated organisationally and socially, with different triangles being emphasised at different points, again according to different circumstances. The BES programme manager's explanation of his setting up a "tension" on the BES board between social, economic and environmental benefits (see page 120) is a classic example of this constant negotiation. This is represented diagrammatically in Figure 6.3. Unfortunately, in a printed document, this diagram is forced to remain static, when in reality it ought to be constantly dynamic (with triangles shifting forwards and others falling back), as is the reality which it represents.

Figure 6.3: The Negotiation of Triangles of Causative Beliefs



This research was originally concerned with behaviour change as a necessary solution to the problem of resource overconsumption, and a necessary factor in energy regime change, given that it is structured by and structures the regime. However the problems as perceived by the intervention organisers and beneficiaries cover more than just behaviour change, and include problems at many levels. Behaviour change was only to a greater or lesser extent part of the solution for those problems, and rarely an indication of success in its own right. The main causative beliefs found in this research, and the level of the problem they represent are given below:

Figure 6.4: Table of Causative Beliefs.

Key Individual level Group level Social level

Problem	**Solution**	**Success**
Fuel Poverty	Energy saving measures and behaviour change	Reduced bills Alleviation from fuel poverty
Too much energy is used (either environmentally	Reduce the energy being used through physical measures, behaviour change, or price changes.	Reduced energy consumption
or economically unsustainable)		
Undesirable energy behaviours	Help people to understand their energy use through technologies (smart meters/iMeasure) or information	Behaviour change
Environmentally unsustainable lifestyles	Increase awareness through physical measures or information, behaviour change	'Conversion' to environmental sustainability and advocacy
Difficulty of delivering projects	Manage anxiety, bring the right people together, multiple aims for multiple stakeholders, create tension to get the best decisions	Delivery of major project/delivery of project entirely by volunteers
The energy system needs changing	Capitalise on the 'seeds of change'	Movement in the 'right direction'
Few jobs	Regenerate the city's economy (through construction for energy	More jobs
	efficiency) and offer opportunities for	

	individuals to gain relevant skills	
Home needs to be kept up to date	Refurbishment/new technology	New technology in house

These causative beliefs have implications for the nature of success. Many of the causative beliefs about success could be viewed as quantitative in some way. Success is often something which can be measured, to which targets can be assigned. If the problems is perceived as one of 'the numbers of people in fuel poverty is too great', then a large number of PV panels might be seen as a 'success' as it was in BES. Perhaps as understandings of success quantitative measures are reassuring; the 'results' can be pointed to; 'something has been done'. However some understandings of success are more qualitative, and relate to a deeper and perhaps more significant change at the individual level, or the beginning of change within society. These latter two are difficult to measure and 'prove', but certainly some individuals involved in the local projects studied believe they are necessary. These beliefs also relate to the nature of the project that is carried out. For most of the solutions, technology and/or people are key mechanisms for change. Either the right people must be brought together to deliver an appropriate project, or individuals themselves must be made to change. In some instances this is brought about by technology, in other understandings of success, technology is an end in itself.

6.3 Explanatory Model for the Overall Process of a Local Project for Sustainable Energy

This section introduces an explanatory model of the process of local projects for sustainable energy. Figure 6.5 shows the overall process, while Figures 6.6 and 6.7 demonstrate the detail of that process from the point of view of the organisers (Figure 6.6) and of the beneficiaries (Figure 6.7). These latter two diagrams also suggest ways in which a project might *possibly* influence wider society. This explanatory model is also illuminating as it explains perceived failures. Perceived failures are the result of different triangles of causative beliefs conflicting with each other; different aspects of the problem being prioritised so that particular conceptions of the problem fall by the wayside during delivery, and are not 'solved'. This is explained in more detail below.

Please see next page for figure 6.5.

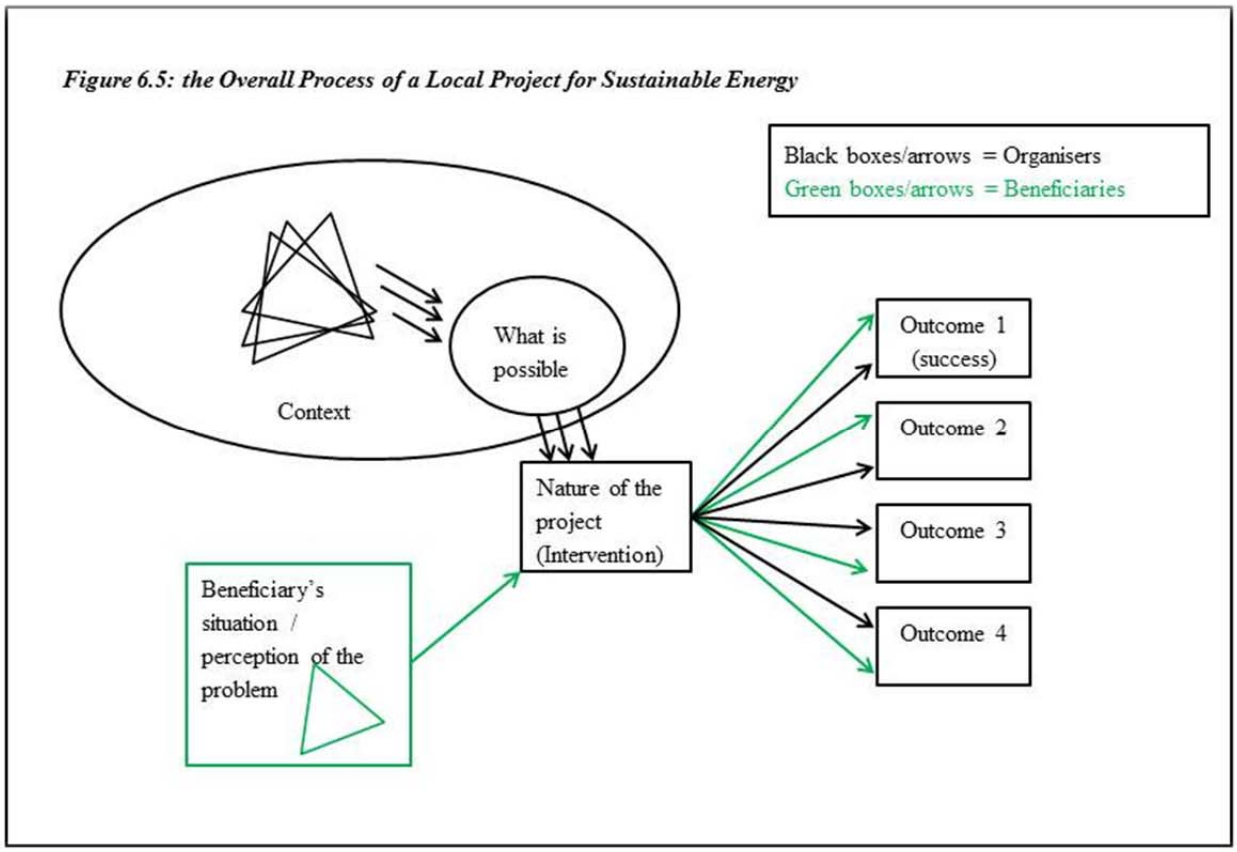


Figure 6.5 demonstrates that a local project for sustainable energy is a complex interaction between a number of people involved in its organisation, the people who take advantage of the project or intervention, and the wider context. The organisers of the intervention (represented by the black part of the diagram) are influenced by their causative beliefs, as already explained. An important additional point here is that causative beliefs are in part influenced by the individuals' particular context; their organisational situation, local and national policy (for example, the possibility of taking advantage of the recently introduced FIT in in BCC led to the causative belief that PV could be used as a mechanism/solution to fuel poverty), the capacity they have access to, and the past experiences they bring to bear on the problem.

The wider context also has great influence on the nature of the project. The context can include the organisation in which the project deliverers are working (in this instance, voluntary vs public authority, with all the differences in professional resources that this implies, see Derkzen and Bock, 2007), as well as local and national policy, and cultural

expectations and assumptions. The role and position of the organisers themselves partly defines the sorts of projects they may do under certain conditions, despite the fact that they as individuals might prefer to do something very different. For instance it would have been difficult for BES to install so many PV panels on private properties, even if it was perceived that this was needed, as they did not have the same level of access. The context also mediates the nature of the project as it progresses in time through shifting circumstances; new complications or new opportunities arise and must be dealt with or taken advantage of (such as the faulty sim cards in BES, see 'Technology requirements' in section 4.8). These factors, coupled with the causative beliefs, play their part in defining the nature of the project; the mechanisms that are used to bring about change, where the intervention is carried out, at what scale, for whose benefit, and so on. Since there are multiple causative beliefs within a group of individuals working together on a project, related to the multiple aspects (and levels) of the problem, there are multiple mechanisms that are mobilised to bring about change. The intervention is then expected to lead to the outcomes anticipated by those different causative beliefs about what success constitutes.

However the intervention does *not* always lead to the outcomes expected by the organisers. The beneficiaries' own situations complicate the picture. They have their own problems at an individual level, or perceptions which motivate them to take advantage of an intervention in different ways and for different purposes. They have their own energy behaviours and perceptions of incentives to change that behaviour which are quite separate (and often different) from the interventionists' assumptions about them. They take advantage of the intervention on their own terms, and according to their own conception of the 'problem'. As a result, the project has a range of outcomes. Some of these outcomes may look like, and may even be in truth the outcomes expected for by the interventionists, but some may not. These latter however, may be perfectly satisfactory outcomes as far as the beneficiaries are concerned.

6.3.1 Organising a Local Sustainable Energy Project

Having discussed the overall process of a local project, and the causative beliefs of those involved, it is now possible to explore in more detail the process of the project from the point of view of the organisers. Figure 6.6 relates to the 'black part' of the diagram in Figure 6.5

and gives more detail on how causative beliefs and context influence the nature of the project, insofar as the kind of project that is actually carried out.

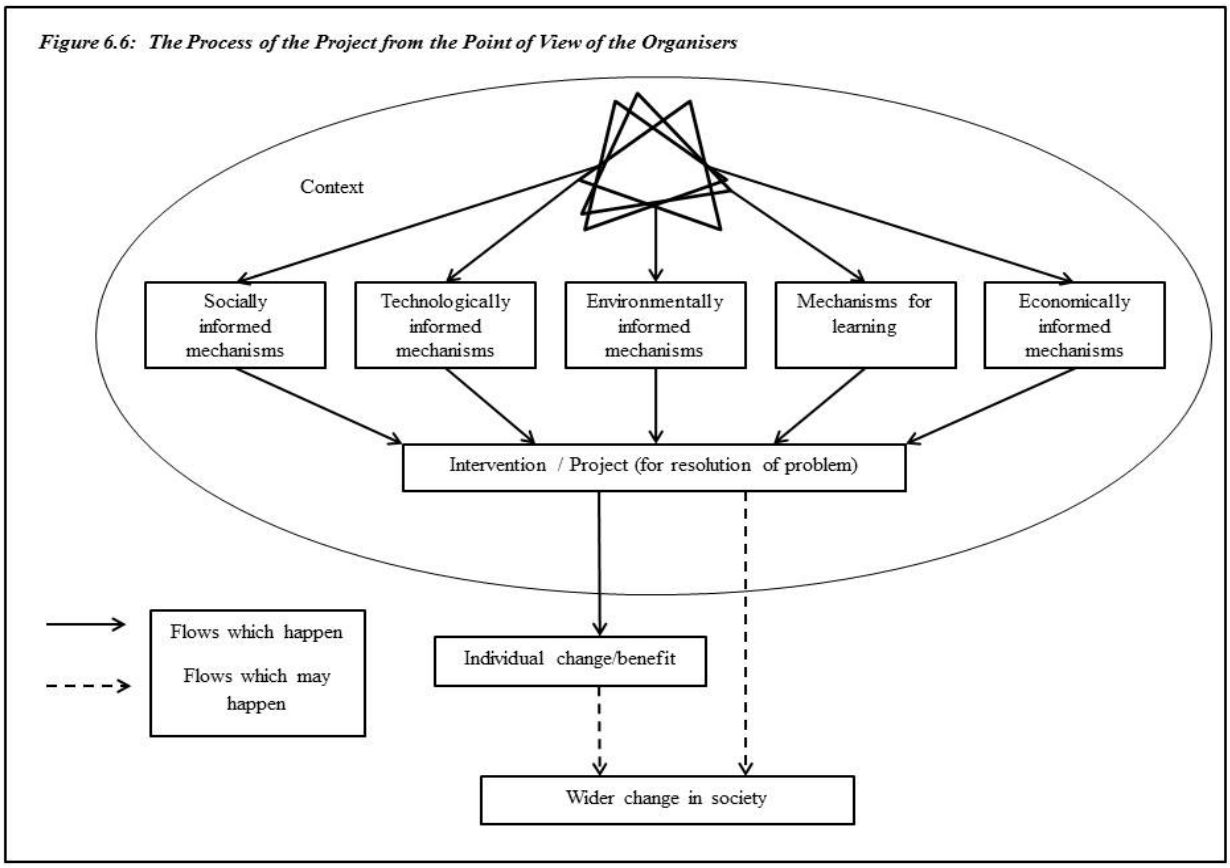


Figure 6.6 shows that within an intervention, people's beliefs cause them to select particular information (and theories) to attend to, when they think about how to effect change. Different causative beliefs are prioritised and reprioritised through the interaction between the individuals planning an intervention. Thereafter, the mechanisms for change that are chosen, and how they are implemented is affected by the context of the project. The organisers of the intervention are also influenced as to their causative beliefs by their context. This includes their work situation, local and national policy and their own past experiences. As demonstrated in Figure 6.4, individuals within a project will have their own perspective on the problem. What is considered a minor issue to one individual is a key issue for another. An example of one type of perspective is given by one of the BES organisers: *"Something that's always been one of my flagship causes is fuel poverty"*. This individual's past experience working on technical operations within the Housing Department of BCC brought him up against fuel poverty issues, leading to its alleviation becoming a priority for him, and how he

defines success. As previously stated, causative beliefs are also held about the mechanisms for change, not merely 'fuel poverty must be solved' but '*how* fuel poverty is to be solved'. Being a grassroots, voluntary group, it is perhaps unsurprising that SusMo saw people power, or social norms, as important mechanisms for change, as the SusMo Chair explained; *"I'm a great believer in the 'people like me effect' . . . it's about showing that this is not just something that belongs to one type of person, it's not rich people, it's not eco-activists, it's about saying that this is really normal"*.

Beyond shaping causative beliefs, the context also influences the nature of the project by setting parameters for what is possible, for example a large or small project. The role of a particular individual within the context, be that strategic or operational, working in a large well-resourced organisation, or in a small voluntary group, partly defines the sorts of things they may do in a program for change. As the BES programme manager explained, working within BCC gave him great scope; *"we are obviously the largest local authority in Europe, we can command resources in borrowing, I mean particularly this is a project which relies on borrowing, and I can go and get … seventy-five million pounds worth of borrowing as easily as most authorities can get a hundred pounds worth of borrowing"*. This is in contrast to SusMo, who had to run their project on an entirely voluntary basis, because "*there was no money for phone calls, postage, transport, no money for that"*, and hence could do far less. Furthermore, events may arise which can be construed as opportunities and changing circumstances may place constraints on action. The Feed-in Tariff provided an opportunity for both projects here; its sudden reduction was an unexpected problem.

All of these factors (context and causative beliefs) play their part in defining the nature of the intervention; whether that be installing technology or giving advice and guidance, or focusing on some other method of bringing about change, where the intervention is carried out, at what scale, by whom, and so on. Causative beliefs are embedded in the mechanisms of the project – the precise nature of those mechanisms being mediated by context as just described. Since there are multiple causative beliefs, relating to the multiple problems and levels of problems that the project seeks to address, there are multiple mechanisms that are mobilised within the project which interact with each other. The project is then expected to lead to the outcomes anticipated according to the particular triangles of causative beliefs held by each individual. The outcome may mean a direct change in the life of a beneficiary. This may lead to wider

change in society, or it may lead to wider societal change directly. This is beyond the scope of the individual project, as suggestion in section 6.1 on time and change, as constantly changing circumstances can confound the influence of any one project. Furthermore, the outcome is already complicated by the constantly renegotiated prioritisation of those causative beliefs, and the interaction of the mechanisms that follow from them, and the interaction of all of these with the wider context The exact outcomes; the type of success, is very difficult to predict.

Previous research (Stern *et al.*, 1999, Stern *et al.*, 1995) discusses the role of beliefs in the Value Belief Norm (VBN) theory, whereby peoples' values explain their beliefs about (for example) the environment, and their willingness to take action in response to them. This literature has some relevance to the causative beliefs given here. However the present research shows that VBN theory ties belief too strongly to values. For some individuals involved in organising interventions, the beliefs they have *do* come from their values – they are organising an intervention *because* of their values. This was the case particularly for SusMo; *"Climate change isn't going to [go away] unless peoples' behaviour changes"* and so they worked together to change this; *"that's what SusMo's all about, it's little changes locally … what can we immediately on our doorstep"*. For others however, their beliefs are more practical; based on past experience of what has worked, such as the proved efficacy of working with community leaders as one of the BES project team described; "*we found in projects in the past … if you can get local community groups … it makes it easier to engage … certainly if you can get some of the key religious groups involved"*. For some individuals, involvement in a project to bring about change is based more on *"luck than judgement"* (BES organiser) as they are moved around an organisation, rather than an initial commitment to the values of that project. Therefore, this concept of causative beliefs is more appropriate here than VBN theory.

6.3.2 Responding to a Local Sustainable Energy Project

As previously stated, another of the reasons why the outcome is difficult to predict is the beneficiaries themselves. Each person taking advantage of the intervention is in a different situation, with their own context and their own causative beliefs about the problems they perceive they have, and how to solve them. Many other factors also mediate the way in

which these individuals respond to the intervention, and indeed, whether or not they even choose to take advantage of it. Figure 6.7 demonstrates this, and in so doing provides the detail of the 'green part' of the diagram in Figure 6.5.

Please see the next page for figure 6.7

Figure 6.7: Benefitting from a Local Project for Energy Sustainability

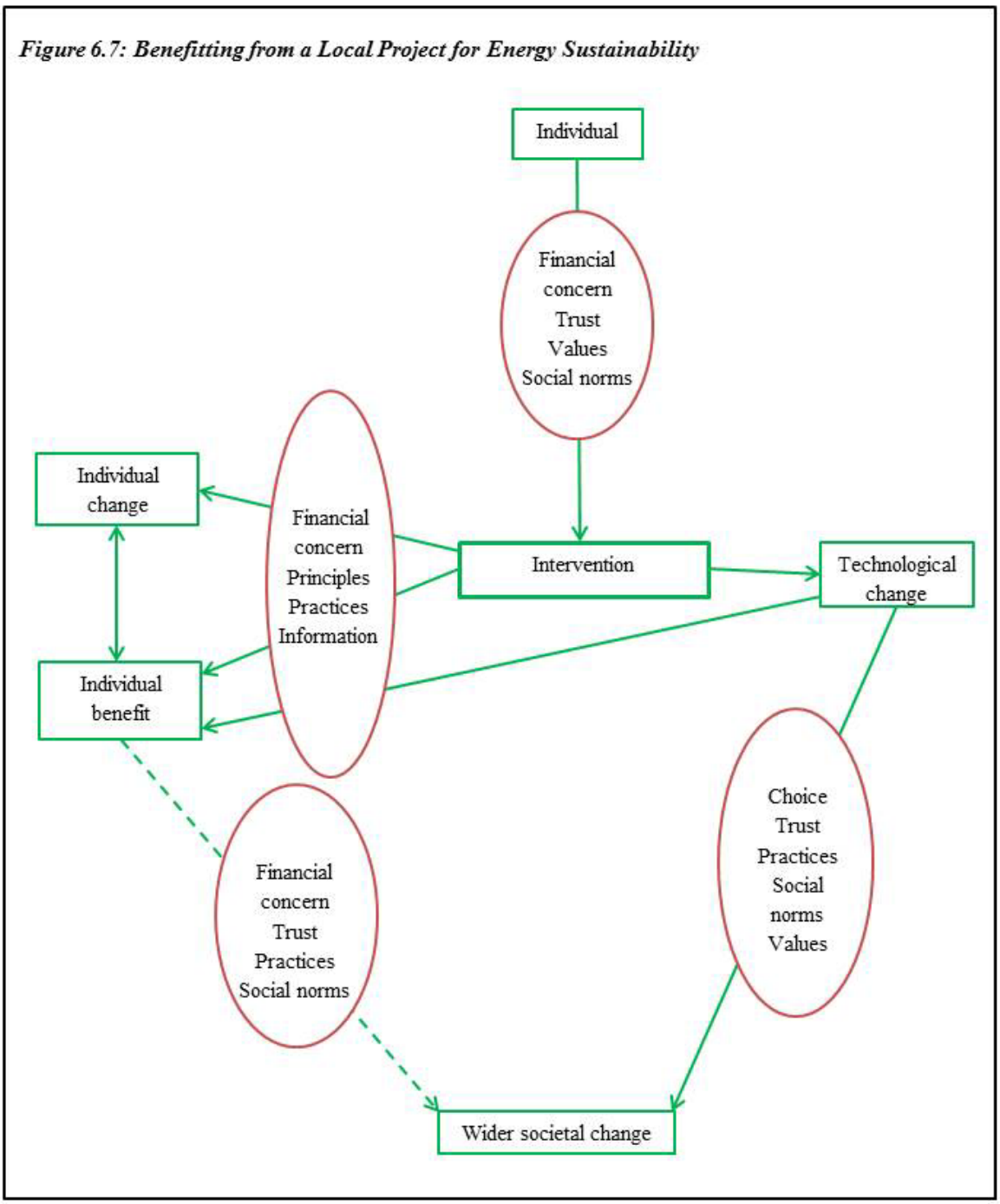


Figure 6.7 shows that before deciding whether or not to take advantage of a project or intervention, issues of financial concerns, trust, values and social norms play a part. The BES case shows that people were initially suspicious of the technology and hence the BES project as a whole, but this changed as the dissemination of PV panels showed that more and more people were participating in the project; as a norm was created. Both projects showed the importance of trust in the project organisers, either because they were a voluntary group or because as the local council they had a duty of care to citizens.

The intervention may lead to change for that individual, but that is itself mediated by the individual's own situation again; their own energy practices, the quality of information they may receive as part of the intervention about how to change, their values (as part of their original motivation in deciding to participate in the project) and the issue of financial concerns. SusMo's beneficiaries did not find iMeasure to be very helpful or convenient to them, for example, and so lost the chance to benefit from the learning opportunity it would have provided. That individual change can lead to individual benefit, for example if their more energy conscious behaviour leads to reduced bills. Interventions which use technology as a mechanism for change add another loop, for instance if a PV panel facilitates a change in energy behaviour (as shown by Dobbyn and Thomas, 2005, Keirstead, 2007), which can also lead to lower bills on top of the savings made by the technology. Again, this is mediated by the above listed factors. However, technological change may not lead to individual (behavioural) change, but it may lead directly to individual benefit, if energy efficiency technologies do *not* prompt a change in behaviour (Collins, 2012).

Benefits at the individual level can lead to wider societal change as individuals tell their friends, or others become aware of their participation in a local project (the 'PV envy' in the BES case study is an example of this), again mediated through the issues of choice, trust, and practices of other individuals in society. This wider change is facilitated by the creation of large social norms, themselves facilitated by large scale projects and the passing of time, which gives more opportunities to see the benefit others are getting from the project or intervention. Technology, especially where its use is easily seen, can also lead directly to wider societal change through the same mechanisms. Again, however, this wider change is beyond the scope of the individual project, as constantly changing circumstances can confound the influence of any one project.

Local authority-led vs Community-led

Before going into further detail about the factors mediating the eventual outcomes for the beneficiaries, it is useful to take stock of the lessons learned from the comparison of a local authority-led with a community-led project. Essentially there was no major difference in the way the two local projects explored in this research were carried out. Both projects were essentially a question of project management; beneficiaries needed to be found, to legally agree with the terms and conditions, whereupon the installation of the various technologies had to be arranged. As the SusMo co-ordinator pointed out, the Green Streets project had to be competed for. She noted a general trend in funding for community projects having to be gained by competitive tender; *"all these different community groups competing against each other, to win a prize … it's appalling"*. For good or for ill, this requires a lot of skills and effort on the part of community groups, and pushes them to become increasingly professional in their dealings. In this way, there are fewer differences in the way they operate in their projects between them and more professional organisations.

There was also no real difference in the level of success between the two projects. Both projects were actually delivered as planned, and both can be said to have created social norms and raised awareness in some way. For SusMo this was through installing PV on high profile community buildings such as St Mary's Church and Hamza Mosque; for BES this was through the sheer ubiquity of PV panels in lower income neighbourhoods. Both, in their own way, however, did not have as high a level of engagement, or energy behaviour change or impact on values as they could have. For BES beneficiaries; their experience of the project was brief, and there were no further opportunities to reinforce messages of energy sustainability. SusMo beneficiaries seemed to be limited by their own wish to stay 'uninvolved', or perhaps by a lack of time and resource on the part of SusMo members to more fully involve them.

What difference there was lay in the *expectations* the project organisers had of their beneficiaries, which was related to the way the organisers viewed the problem. Susmo's first priority in the Green Streets project was to change behaviour in a meaningful way. They talked of wanting their beneficiaries to understand their energy efficiency technologies, they

talked of wanting their beneficiaries to become inspired by the project and tell their friends and neighbours. In other words they wanted behaviour change born of a change in *values*, to a 'self-transcendent' set (Stern *et al.*, 1993) compatible with environmentalism. They were hoping this change in values would then spread outwards from the project beneficiaries, to include more people. In this way they viewed a particular problem at the level of the individual, but also at the level of society. Birmingham Energy Savers, however, had no such expectations of their beneficiaries. BES wanted to alleviate the particular social deprivation of fuel poverty, and they wanted to work towards alleviating some of the economic problems of the city. They perceived and prioritised a different individual level problem, and a different social level problem. The beneficiaries of both projects, for the most part, viewed the problem as the very immediate individual-level one of not being able to pay their bills. As a result, they took the help they needed from these projects to solve that problem, and no more. In SusMo's project, there was a clash of expectation, and hence some feeling amongst SusMo members that some of their project aims had failed. In BES, there was no clash; expectations were met and BES organisers did not overemphasise as too much of a problem the lack of beneficiary engagement and behaviour change. For the beneficiaries of both projects, this made no difference either way. This difference in expectations of the beneficiaries demonstrates the multiple understandings of success, and hence its complex and multi-level nature.

Having discussed this difference between the two projects, the discussion returns to the factors mediating the outcomes of the project for the beneficiaries. These mediating factors are; financial concerns and the wider issue of 'choice' that this leads to, trust, social norms, values, practices and information.

Fuel Poverty, Financial Concerns and the Question of Choice

Not all individuals have the same set of choices available to them when faced with the possibility of participating in an intervention. Individuals on higher incomes have the opportunity to think about whether or not a project agrees with their values, whatever those may be. They can discuss the project with their friends and neighbours, and take the time to see what others are doing. Higher-income individuals have the liberty to be influenced by social norms, or in other language to have the innovation 'diffuse' to them, (until such a time

as a tipping point is reached, and the majority of people take advantage of the intervention; Gladwell, 2000), and different sorts of messages relating to different value sets can help make that choice more appealing. The choice to refuse to participate in the intervention is still very much available. St Mary's Church was unable to nominate five beneficiaries; they instead only nominated three leaving Hamza mosque to nominate an extra two. St Mary's Church has a wealthier congregation than the mosque; it is possible that many members of the congregation did indeed choose not to participate.

However the situation is different with people on lower incomes. When financial circumstances are difficult, individuals can find themselves living more day to day, more concerned with the immediate financial stresses of life than about world problems, upon which they feel they can have very little influence. In such situations, if confronted with a project which is *framed as a way of saving money,* and alleviating those immediate stresses in some way, individuals may feel they have little choice but to accept the intervention. They must participate; the project is a means of helping them survive. This is even more the case when 'survival' here relates to energy as a way of providing warmth and sanitation; basic, pressing physical needs. These individuals do not have a choice in the same way as individuals who are better off. The key message here is very much an economic one. As this intervention is *offered* to them, this is not a question of perceived behavioural control, as defined by Ajzen's Theory of Planned Behaviour (Ajzen, 1991). This research shows what happens when a perceived lack of control over behaviour is removed through the offer of participation in a project. The question becomes one of choice over whether to accept, and in most cases, *having* to accept. These sorts of projects for low-income households are not examples of 'cool' rational decision making in the way Ajzen describes; they can become quite simply a life-line. Attitudes and subjective expectations of approval are neither here nor there; in times of economic hardship people must do what they can to survive.

Norms and tipping points may also have relevance in lower-income households but it may have more to do with the perceived fairness of the distribution of services. If a householder perceives their situation to be as difficult as that of someone who *has* been provided with help from their shared landlord or local authority, they will want to know why they have not. This is perhaps something that is not always realised by civic-minded community groups who perhaps are financially better off and therefore have time and energy to devote to community

work. A local-authority, as landlord to many low-income households, may be in a better position to realise this. This is discussed further in the next mediating factor; trust.

Trust

Having some insight into the different situations of beneficiaries, and being perceived as trustworthy by them, is an important mediating factor throughout the beneficiaries' experience of an intervention. It is often supposed that interventions or projects that spring from the grass roots – that come from within a community – are inherently more acceptable (McLaren Loring, 2007). However this is not always the case. As community groups increasingly professionalise, in order to better compete for funding, they can be perceived as an agency or organisation like any other. Some of Purcell's work (Born and Purcell, 2006, Purcell, 2006) warns of the local trap in many areas of sociological literature; the idea that the local is inherently 'better' than any other scale. They argue that it is wrong to make assumptions about any scalar level, and local is not to be conflated with more democratic, or more sensitive to local needs. Portney (2005) in his work on US sustainable cities finds no evidence that a more participatory approach better overcomes the major difficulties of unsustainable values.

Much research considering these aspects of trust exists within the literature on energy, especially major energy technology installations (McLaren Loring, 2007, Cass *et al.*, 2010). This research can contribute towards an energy behaviour change example for this literature, stating that it is wrong to assume that an intervention for behaviour change which is run by the local inhabitants of a given locality will be more engaging and bring about more change, *by virtue of it being run by local inhabitants*. The social housing tenants in this research did not feel as though 'experts' or 'authorities' had imposed their own solutions on them; the authority was their landlord and as they were happy for the help. As one said *"I think it's brilliant. You know it's . . . actually giving us something instead of taking"*.

Communities, (their interests, priorities, resources and capacities to act) are not homogenous. Neighbours can live side by side, and yet have little understanding of each-other's lives. A group of one set of neighbours is not necessarily representative of the rest, and may not always be as able or as willing to view life from the point of view of others (Cowell *et al.*,

2011). Individuals can sometimes feel that an intervention is being 'done to them' as much when done by a local community group as by a non-grass roots organisation. Larger or 'expert' organisations may well be better placed to understand the needs and situations of beneficiaries if it has a long standing relationship with them as a service provider of some sort, and hence to recruit them to projects and bring about change.

Social Norms

These have an important influence on whether an individual decides to take advantage of an intervention or not. As mentioned above in the issue of choice, reassurance from friends, neighbours and family is important to everyone. The visibility of an intervention provides more opportunities for social norms to have influence; as people are more aware just how many others have participated, and hence how 'normal' it is. Interventions involving the installation of a visible technology thereby normalise that technology, in the same way that double glazing has become normal and even expected as it has been (visibly) adopted by more and more people. However there is more to this issue. Within the social landscape there are many different cultures or communities, each with their own set of social norms, and their own set of conditions and values. If an intervention does not speak to the priorities and norms of a given community, then it may well be rejected by that community.

Communities of faith are one such community. These communities can be large and carry weight; they can build a community of opposition if they feel their needs are not met – creating a norm of non-participation. This was not lost on SusMo who sought to specifically include both major religious buildings in their neighbourhood for precisely that reason. Also, through regular (and sometimes very frequent) worship, connections with other members of the community can be built, and large numbers of people can become well known to each other, allowing new behaviours to spread more easily. As explained in section 5.5, putting radiator panels behind radiators in the mosque showed the hundreds of people in the congregation their benefits. As many of the congregation knew the Community Liaison Officer, and knew he could give them these panels, many were able to adopt this measure; "*it*

must have been about . . . a hundred people who actually put them in" (Hamza Mosque Community Liaison Officer).

As mentioned in Chapter Two, social norms need social capital to take hold – people must know what others are doing (Miller and Buys, 2008, Miller *et al.*, 2006). Within communities of faith local projects for sustainable energy and other projects for change can be discussed amongst a wider group of people, and given the increased depth of the relationships; social norms can have more weight. In all communities where ties are particularly strong, and where significant members of the community are persuaded that the intervention meets the community's needs, social norms can have a very strong influence on whether an individual decides to take advantage of an intervention, and whether more individuals follow that example.

Time and the scale of an intervention are also important here. If a project is very large, it is much more likely that a social norm of participation and change will take hold. If the project happens over a long time period, people have more opportunity to be influenced by social norms, and to have enough time to act on that influence.

Values

These are important as individuals will respond to an intervention in different ways depending on their value sets. If an individual has a 'self-enhancement', or economically focussed value set (they may well have to place a higher priority on such a value set if they are on such low incomes that they are struggling) then they will be more interested in an intervention if it is presented in a way that answers those values. If an individual has more self-transcendent values, they may be more engaged by an intervention presenting itself in such a light; perhaps as one which helps to protect the collective good of the environment. The way in which the individual then responds to the intervention, perhaps by changing their behaviour, or merely deriving the benefit of the intervention without change on their own part, again is mediated by their values, about what was really important to them when they decided to take advantage of the intervention.

However values differ across cultures, making some interventions more possible in some societies than others. For example, Kollmuss and Agyeman (2002) reference the high cultural value of forests in Germany as contributing to Germany's different response to acid rain to the UK. Oreg and Katz-Gerro (2006) demonstrate that cultures with higher post-materialist values are more concerned about the environment. In culturally diverse cities, the response to an intervention may differ widely as people view it through their own cultural lenses. Conversations with SusMo organisers as well as interviews with their beneficiaries suggested that some immigrant Birmingham residents who had previously lived low-impact lives in their countries of origin growing food, walking everywhere and being *compelled* to be careful with resources (through enforced power cuts), viewed that lifestyle as a privation that they had sought to leave behind when coming to the UK. This value set may make them view interventions differently.

Given this background of some of the project beneficiaries in this research, and the more difficult economic situation that many of the beneficiaries were under, it can be said that the value-set of most of the beneficiaries was necessarily one of self-enhancement. Their value-sets spurred them to participate in these projects for individualist reasons; to give themselves more economic security. Their attention is focused on individual-level problems. BES organisers realised this, and presented their project in this way. SusMo tried to present their project as an environmentally beneficial project which also helped households to save money, but it was this latter message which was most responded to by beneficiaries. The beneficiaries for both projects were predominantly on low-incomes, As discussed in Chapter Two (section 2.3.2) the levels at the base of Malsow's hierarchy of human needs (Maslow, 1987) must be met before one is able to satisfy self-actualization needs, which may be akin to more 'transcendental' value-sets.

Practices

One of the most important ways in which an individual taking advantage of an intervention can 'confound' the organisers' expected outcomes of the intervention is the way in which that individual incorporates the intervention into their own lives. Daily practices implicate energy through comfort, cleanliness, communication and convenience, which are almost unconscious

aspects of people's lives. People's habits and way of running their homes and lives may be incompatible with the scenarios required by the local project.

Projects which do not make explicit this aspect of the nature of the problem; the habitual and structurally embedded nature of energy behaviour, miss the chance to implement mechanisms to address them. Both of the projects studied for this research were primarily about installing technologies. However these technologies did not 'disrupt' behaviour enough to change these habits or practices. Installing a solar panel did nothing to change the fact that some families in these projects had children generating a lot of laundry and no appropriate outside space in which to hang it to dry. Practices include objects as much as performed behaviours, and so daily practices like these combined with structural difficulties such as a lack of outdoor drying space, prevent some beneficiaries from changing their behaviour.

Projects can act in isolation, and take place over a limited timescale, and often only address one key problem at a time. Within one project, cheaper energy is provided, but the conditions which drive people to use so much energy, and to therefore need it to be affordable, are not addressed. This is understandable, changing such conditions is a vast undertaking, and outside the scope of local projects (Keirstead and Schulz, 2010, see section 3.2.3). However, as a result, the outcome of the project is very much mediated and changed.

Information

Feedback is important in a system, and adding an information flow into a system where none was before can have a powerful effect (Meadows, 1997). Information and feedback is important to learning (Thaler and Sunstein, 2008), which is necessary for individual change. However this information must be accessible. This was perhaps the problem with iMeasure; to use it required too much commitment to go to the computer, to log into the site and upload their meter readings (themselves possibly obtained by standing on a chair or moving furniture to access out-of-the-way meter cupboards) in order to be able to learn anything about their energy use. Most of the SusMo beneficiaries were older people, not 'computer savvy' and not the owners of iPhones, which might have made such a tool more accessible. However, current hopes for the use of smartphones in monitoring energy use (for example EDFEnergy,

2013) perhaps show too much optimism in the belief that monitoring the gas bill is what people are actually interested in doing with their evenings (Hargreaves *et al.*, 2013).

Furthermore, many technologies important in modern life are not intuitive and are difficult to understand, as are solar panels. To actually get the most out of a PV panel requires the complex balancing of electricity loads. The information provided by the generation meter (when such information was provided at all) was perhaps meaningless without knowing how much energy is used by electrical appliances.

Finally, again, individuals on low-incomes, stressed and worn down by financial struggle, often do not have the spare cognitive capacity to deal with this information (Mani *et al.*, 2013). Poverty-related concerns consume mental resources, leaving less available for other tasks, such as learning about exactly how much money can be saved on bills, and learning how to use the technologies that can explain this.

6.4 The Success of Local Sustainable Energy Projects

Having explored these two case studies and preliminarily discussed the nature of their success, it is prudent to recall how success is viewed in the three bodies of literature that were discussed in Chapter Two. This section will then go on to fully describe the nature of success as understood by this research (based on the different causative beliefs of those involved in the local projects), and demonstrate how previous literature does not account for this.

Within the sociotechnical systems literature, success is perceived as the accomplishment of a transition from an unsustainable sociotechnical regime, to a sustainable one. To reiterate, a sociotechnical regime is an interconnected system of technology, institutions, relevant education, businesses, regulations, regulatory bodies and cultural expectations, which provides some societal function. Such a system is often national (as the societal functions they provide are national) if not larger, therefore a transition of that system, (and therefore such a success) often takes place at the national level (Geels, 2006, Witkamp *et al.*, 2011, Musiolik *et al.*, 2012). Success is also, to a lesser extent, perceived as the achievement of new technologies which are fitting to a sustainable regime. Success is defined in these ways

because the nature and level of the problem as perceived by this discipline is one of the social system. Success; the resolution of this high level problem, is therefore equally high level.

Within the behaviour change literature, success is perceived as the achievement of a change in behaviour to more desirable behaviours. Behaviours are something that *individuals* perform, whether because they rationally decide to do so (for example Fishbein and Ajzen, 2010), or because they feel compelled to do so by social or personal norms (for example Schultz *et al.*, 2007), or because they act unconsciously (Chatterton, 2011). Within this literature, the nature of the problem is conceived of as one of the individual. Success is therefore also at the individual level.

Within the planning literature reviewed here, success is the achievement of delivering a project which is acceptable to the local community. This is because the nature of the problem as conceived by this body of literature surrounds the difficulty of actually delivering local projects. There may be conflicting opinions about what best to do (for example Wolsink, 2007b), and navigating bureaucracy can be very challenging (Bomberg and McEwen, 2012). Delivery must be done while negotiating difficult issues of representation and participation (Leighninger, 2006, Groves *et al.*, 2013) and different forms of knowledge (Phillimore *et al.*, 2010), as the resulting project must be sensitive to the needs of local people. Furthermore, local projects can often be limited in terms of how *much* they can actually deliver; if there are few resources available (Walker *et al.*, 2007). Success is therefore the resolution of these issues, essentially by those individuals the project. The conception of the problem is one at the level of the group of individuals, as they navigate their way through these issues while trying to deliver their project.

Local projects for sustainable energy are real-world problems, and hence are interdisciplinary. Therefore bringing the insights of multiple disciplines to bear on them are helpful. All three conceptions of the problem as given by these disciplines were found to be relevant to the case studies presented here. Therefore, the nature of the success of these projects includes something from all of them. (This is perhaps less the case for the sociotechnical systems literature – the insight is certainly helpful in illuminating the nature of the problem, but it is hard for a local project to achieve success in the way it describes; success is too long term and too high level.) However, these bodies of literature do not include *all* of the conceptions of

success that were found in this research, and thus were insufficient in explaining reality. The nature of success *as well as* including the successful delivery of a project, the installation of technology and the achievement of behaviour change *also* included the alleviation of fuel poverty, the creation of jobs, the visibility of technology and changing values.

Alleviating Fuel Poverty through Installing Technology

As mentioned previously, some potential beneficiaries on lower incomes just need help with their bills. They may not be concerned about changing behaviour; they may not have the space in their lives to engage deeply with a project in a way that changes their values. For organisers in both projects, but BES especially, the problem was conceived of as one of fuel poverty, and low incomes; an individual-level problem. This is an important problem in Birmingham and the West Midlands, where approximately a fifth of households are in fuel poverty (Poverty.org, 2011). This was a key factor in the context of both of these projects, the organisers of which felt they had to address within their activities. Therefore, the installation of technologies which simply save these people money, and help them with a problem that they also perceive as critical, can be said to be successful. If no other change happens, these people will not struggle so much, which in itself is a success worth achieving.

The installation of technology alone is sometimes considered a 'success'. This is partly because technology is believed to have an influence on behaviour; if one installs the technology then behaviour change will follow. If one assumes this is the case, then the installation of technology will address this aspect of the problem, and can be understood as success. However, despite the negative opinion of Dobbyn and Thomas (2005), achieving a reduction in fuel poverty without at the same time achieving behaviour change *per se* is still success. This is an important addition to the literature.

Economic Regeneration and Job Creation

Another major conception of success in both of the projects explored here was the potential to create much needed local jobs. This was a key aim of Birmingham Energy Savers, without which it is doubtful the project would have gone ahead. Unemployment and the poor economy are key problems for Birmingham which coloured these local projects for

sustainable energy. The fact that SusMo were prevented by British Gas from working to create local jobs was considered a disappointment, and therefore can be said to be part of SusMo's understanding of what success could have been for their project.

This understanding of success in local sustainable energy projects, of working towards local economic goals while meeting broader environmental ones, is not addressed in the literature. Smith (2007a) provides an example of this oversight. He shows how the former South West Regional Development Agency contributed to a £15million project to establish a 'Wave Hub' off the North Cornish Coast. This was used as an example of the power of the region in managing to achieve central government support for the Wave Hub, and the establishment of the Marine Demonstration Programme. This is a success for Smith. However, he goes on to lament the fact that central Government is missing the opportunity to tap into regional knowledge and regional success with renewable energy, which could be used in a national transition. He replaces success back at the level of the national social system. However, two Cornish companies have very recently won a multi-million pound bid to develop a floating wind turbine over the next eight to ten years at the Wave Hub (WaveHub, 2013). Regardless of whether this will contribute to a national energy system transition in the future, this is already a success for Cornwall, in terms of the support to the local economy it is likely to generate.

Bomberg and McEwen (2012), although not discussing the nature of *success* in local energy projects, point out examples of monetary independence in local projects for sustainable energy. Several of their Scottish case study participants point out that earning money from their renewable energy installations means "[they] don't need to go to the council for money" (2012, page 442). They point out how drawing an income from their renewable energy installations was really "what all this was about … I've seen schools close, declining children, people shipping out of the island, and it's hell" (2012 page 441). The economic benefit of their projects is clearly as much a success as the environmental benefit. For the North Harris Trust in the Western Isles of Scotland, the installation of Trust-owned wind power is important to alleviating the economic crisis here and to the sustainable future of the community living there.

The sociotechnical systems literature contributes to the understanding of the nature of the problem faced by local sustainable energy projects, but does not take account of specific local problems in given areas. In many localities, these local problems are economic problems. That these specific problems can be, and often are addressed in local sustainable energy projects is an important contribution to the literature.

Visibility of Technology

The visibility of a technology is an important 'success' because it is itself indicative of or a contributing factor to multiple 'successes'; many different manifestations of different understandings of success, at many different levels.

If a technology which has been installed as part of an intervention is very visible, then this is sometimes considered a success. Any intervention, the evidence for which is so widespread or iconic as to be visible, is a large scale or otherwise ambitious project, and by that alone is considered successful. This is for a number of reasons. One of these is that it clearly shows that a large number of individuals have chosen to take advantage of the intervention; it was popular, it was not a 'hard sell' to get people to participate. This was the case with these projects where participation was not enforced, but was the choice of the householder. Also, large scale projects are more difficult to deliver logistically and organisationally (of which more later), and so their delivery, as signified by their visibility, is an indication of success at the level of the group of individuals organising the project. The visibility of a technology is also indicative of success because of the role that visibility goes on to play in displaying and forming social norms. The visibility of a technology can be self-reinforcing as its increased presence normalises it, and thereby encourages people to accept that technology, and adopt it themselves, thereby making the technology yet more visible. The importance of the visibility of social norms has been discussed in previous research (Nomura *et al.*, 2011, Handgraaf *et al.*, 2013, Göckeritz *et al.*, 2010), but this research provides the first example of how powerful social norms can be in the field of domestic renewable energy technologies. The sheer prevalence of PV in Birmingham led to 'PV envy' and to more and more individuals signing up for their own arrays; success at a social level. However this research also highlights the difficulty of using technology which is not visible – such as cavity or loft insulation. If technology is not visible then the opportunity to create social norms is not so easily won.

People must find their technology interesting enough to talk about with friends and families, for a norm to have a chance to spread. People unknown to the householder will never have the opportunity to have the norm spread to them.

The visibility of a technology can also be indicative of success when viewed through the sociotechnical systems literature. Seeing technologies which are not normally part of the sociotechnical regime for providing that societal function can change the expectations of 'users', giving them more choices about how to fulfil their needs within the regime (Nye *et al.*, 2010). Again, the spread of 'PV envy' demonstrates that change of expectation within Birmingham; again, another success at the social level. People *may* also learn to adapt their practices around the new technology and change accordingly, another understanding of success which is indicated by the visibility of a technology.

The visibility of an intervention is important as it does more than just give information to people about how they can change their behaviour. It is argued (Owens, 2000, Owens and Driffill, 2008, Hargreaves *et al.*, 2013) that it is not enough to inform people how to change their behaviour; physical, social, cultural and institutional contexts constrain behaviour (as is well understood in the sociotechnical systems literature) even in the unlikely event of individuals' having perfect information. This research demonstrates the crucial influence of daily practices on behaviour even *with* new technology. However further than that, this research demonstrates how information is not enough to help people on lower incomes to make important changes in their lives to reduce their fuel bills. If success within a project is taken to mean 'alleviation from fuel poverty', information alone will not make the level of energy savings that technologies can make. If success is taken to mean 'creating jobs' the installation of technology will provide far more jobs than the delivery of an information campaign. The visibility of technology is therefore indicative of success in these areas; 1300 PV arrays is a lot of people lifted from fuel poverty, and a lot of jobs created.

Delivery of a Project

The nature of delivery is often so complex that simply managing to complete a project can be considered a success in itself. The context, and what is considered possible (See diagrams 6.5 and 6.6) can be hugely important constraints. Given the fact of anxiety about unknowns, or

locked-in patterns of thought about how certain societal functions are delivered, and organisational acceptance of certain ways of doing things, even getting a project started can be considered successful. Systems theory is useful here in explaining why this is so difficult, and in explaining how the anticipation of these difficulties can lead to the success of delivery. Systems theory would argue that in order to intervene in a system, the boundaries of that system must be sensibly delineated. They must be drawn widely enough to 'sweep in' potentially obstructive stakeholders (Midgley, 2000). This is important in local projects, as local politics are likely to be more contentious than at the national level. BCC was no different from many local authorities in the fact that they had a hung Cabinet at the time of the BES programme; this is much more common in local government than it has been in central government (Game, 2011). Such competing and opposing stakeholders are particularly a problem in local projects; managing to deal with this is a success.

'Sweeping in' potentially obstructive stakeholders is also important in projects with an environmental element, (the 'sustainable energy' aspect) where despite the ever strengthening scientific consensus of the anthropogenic influence on climate change, (IPCC, 2007) there is still much lay opposition to the idea (Rose, 2013). Projects must somehow seek acceptability by meeting many important concerns for society, thereby becoming all things to all people. This in itself makes the project more complicated. It is not enough to do 'x'; x must be done in a certain way that benefits 'y' and 'z'. This may create a huge amount of organisational and logistical complexity. The capacity to manage this complexity, and see the project through to successful completion therefore has to be indicative of success.

Delivery is also difficult because the world constantly changes. Opportunities arise and must be seized, and those particular opportunities may greatly colour the nature of the intervention, and what is done. As a result of this, the particular intervention may not be intuitively the best way to address the perceived problem (PV panels in a cloudy country is a case in point). However the delivery of such an intervention may still be considered a success as it creates a stepping stone towards greater change. A convoluted path may be picked out towards the necessary change, but often that path was the only path that could have been taken. This ever changing complexity of the world often throws up problems, and the organisers of the interventions rarely have the perfect information necessary to come up with the best solution. At any one time, those organisers must make decisions based on the information that they

have; they must act and deliver. On occasion, those decisions may turn out to have been the wrong ones, but the success of the intervention lies in the organisers having the courage to act, in the face of the constant risk of making mistakes. The issue of the placement of generation meters in the second phase of BES is an example of this.

The difficulty of delivery also colours the sorts of things which are chosen as explicit objectives or 'key performance indicators' of the project. In a world where real change is difficult to identify, attribute and measure, interventions set as their objectives things which can be seen and counted. Often objectives are coloured by funding streams, which themselves often emphasise capital funding over revenue funding. Therefore the installation of technology is proposed as an objective, with targets as to the numbers of installations. Therefore again, the bigger the intervention, the more successful it is. All this implies the necessity of expertise and financial resources for delivery. It is difficult to measure things like behaviour change, and would require huge amounts of revenue funding for projects around teaching, learning and reinforcement – all with little chance of really *proving* success. It is for this reason that 'behaviour change', although often implicit in the organisers' causative beliefs about the solutions to their perceived problems, is rarely stated as an overt objective with related activities and targets, as was the case for BES. The indication for success is that measurable or simply 'countable' key performance indicators are chosen, and meeting those KPIs is success.

Delivery is finally, increasingly difficult because it is increasingly done by smaller non-for-profit or even entirely voluntary community agencies. The current energy regime is a complicated thing for such a group to navigate, let alone change (Bomberg and McEwen, 2012), and questions of energy touch on deeply held values (Warren and Birnie, 2009, Ince, 2013). Realising even a small project, given a regime member (utility company) for a project partner, a planning system which is more used to receiving applications from householders for extensions and loft conversions and cultural apathy, is a great achievement. Just getting something done, whether by a voluntary or professional group of individuals, is indicative of success at that group level.

Behaviour Change

The predominant view is that the way people behave with energy *must* change if the UK is to move towards a more sustainable energy system based on renewable sources. People will likely need to use less energy in such a regime, and use it cleverly; matching demand to supply. Perhaps some of this can be done with technology, but people will need to make a conscious effort to curtail any wasteful behaviour. Furthermore, behaviour change is also important if people are struggling with energy costs and can save themselves money by reducing their usage. As discussed, there are many ways in which behaviour might be changed (information, the introduction of technology, social norms, personal values etc.), but howsoever it is achieved, it resolves a number of different individual level problems, and thus is success.

Engaging People and Changing Environmental Values

For some, the understanding of success is more qualitative, and hence more demanding to show. It is a change of values to a more pro-environmental value set which would lead to behaviour change not just in energy, or whatever area of life a given intervention addresses, but in all areas of life with an environmental impact. Success is understood as an internalisation of those norms which are apparently on display with visible technology. For some, the *semblance* of success is not enough, an intervention must help people to reflect upon their behaviour and change it knowingly. Nothing less than a 'conversion' on the part of beneficiaries is enough; they must become sustainability ambassadors, taking the message to friends, family and neighbours and becoming active in environmental movements. In this view, an intervention is not successful if it is a stand-alone experience (if technologies are fitted and forgotten) which does not lead to a deeper change in values, attitudes and all behaviours. As Devine-Wright argued in 2006, we need 'energy citizens'. A more active role for energy users is required; disrupting their unsustainable behaviour and giving them the opportunity to begin structuring the energy regime in new ways (Nye *et al.*, 2010).

Values can change, but this takes a long time (CommonCause, 2013, Dietz, 2013). However as has been argued (Crompton, 2013, Phillips and Hazell, 2012), values can be changed by living through projects or policy interventions which operate on the basis of 'transcendental' values. Engaging their beneficiaries and changing their values in this way was something that SusMo hoped to do, and were disappointed that they did not. However, their project

beneficiaries and many other residents of Moseley are at this moment living through the experience of residing in a neighbourhood where PV panels are on major public buildings as a result of community effort. This may act as a step towards changing their values, not least if further projects sending similar messages are carried out in future. The unfortunate nature of project delivery forces organisers to evaluate their projects in a short time frame; concluding failure when it is too early to tell. Values change is an important *long-term* aspect of the success of local projects. Values can lead to behaviour change, and important individual level success, and also to social-level success, if people begin to demand further change to the energy system in line with more environmental values.

The Nature of Success of Local Energy Projects; a Contribution to Knowledge

'Success' for a local project for sustainable energy is multi-faceted and multi-level. Such projects confront real-world problems and so must be viewed through the lenses of multiple disciplines at once, in order to fully understand their nature. Such interdisciplinary study does highlight the multi-level nature of the problem that such projects face.

Literature on behaviour and behaviour change explores the roles that values, norms (social or otherwise), beliefs, perceived control, habits and rationalism (for example) play in individual behaviour. However, in focusing on this micro level of behaviour change, it neglects the role of wider society, particularly technology and the non-human part of society, in influencing behaviour. Furthermore, in research looking at interventions for behaviour change, little attention is given to the individuals involved in organising and delivering that intervention, and in the dynamics involved in planning it. Within this literature, the intervention itself is almost a black box; what is interesting is how the process of the intervention (the way it was done, the way energy users responded to it) affects the behaviour of the individuals it is aimed at.

Sociotechnical systems theory, however, takes into account the strong influence that technology and the regime within which it is embedded influences behaviour. Furthermore, in theories of intervention informed by sociotechnical systems theory, the interventions themselves are less of a black box in opposition to the 'users' of technologies. The literature on Transition Management (TM) is an example of this. It advocates a particular type of

governance to manage transitions involving scenario planning, stimulating knowledge and technological change, involving and co-ordinating multiple actors from within and without the regime, and facilitating the correct conditions for innovation and change over the long term (Loorbach and Rotmans, 2010, Smith *et al.*, 2005). However, these models do not well describe the case studies presented here; the methods of TM were not used, and the organisers of the interventions were focused on delivering stand-alone interventions, not creating governance conditions for change. Furthermore, given the prominence of the multi-level perspective in such theories (Rip and Kemp, 1998), TM explanations of interventions for change are too high level to demonstrate the dynamics of a single localised intervention *within* the trajectory of change over time. There is increasingly literature looking at regional level policies, and how they can contribute to energy system transition (Essletzbichler, 2010, Smith, 2007a), but the picture of smaller level, city and neighbourhood interventions and their complex workings are still missing.

The literature reviewed here on planning and local projects look in great detail at the machinations of projects and at many of the difficulties faced, not least the disagreements between those organising a project, and those who have to live with it (Derkzen and Bock, 2007). This body of theory gives insight into the potential difficulties of both local authority-led and community-led projects, but tend to point towards an ideal of a high level of community participation (Healey, 1992). This research demonstrates that 'success' might not involve such participation, especially when a project is aimed at lower-income groups who may prefer *not* to participate, and who might not have the emotional energy and time to do so. This literature also does not greatly cover the particular difficulties of delivering local projects *for sustainable energy*, with all the difficulties fighting the incumbent regime that entails, and the necessarily longer time frame over which the project hopes to effect change.

Taken together, these bodies of literature illuminate the problem faced by local projects for sustainable energy, but taken together they all miss what *other* conceptions of success there might be, and as such do not explain the full reality of the projects in this research. Success here *also* meant alleviating people from fuel poverty. It also meant creating jobs and economic regeneration generally. It also meant engaging people and changing values. Success in these projects meant success according to a number of different conceptions of the problem, at a number of different levels. Critically, the problem was a *local* problem as much

as a more general, national problem. Within Birmingham, there were *particular* problems that demanded to be considered and addressed within these sustainable energy projects. Causative beliefs about these problems brought their attendant beliefs about success, as part of a triangle of causative beliefs. All local projects for sustainable energy will face particular local conditions and problems, which will in turn colour the understandings of success. Much of the literature reviewed here which does not critically explore the nature of success in *local* energy projects, does not see the practice of these projects, and therefore the particular problems that they face and the connection of those problems to the nature of success. Therefore this localising of the concept of success is a contribution to the literature.

Importantly, projects which create some sort of positive outcome can lead to further change through further projects building on that success. Individual projects contribute to long term change in this manner. Therefore projects which are explicit about their multiple understandings of success are more likely to make a bigger contribution. For example, it is possible that SusMo will not build upon their work further, since they found the Green Streets project so exhausting, and did not get the outcome that *some* of them were hoping for. BES, phases 1 and 2 of which were perceived as successful, especially in terms of the scale of the project achieved within the short timeframe available, is already being built upon with the Green Deal phase.

6.5 Conclusion

This chapter has explained the role of time and change within local projects for sustainable energy, as essential background issues. It has presented an explanatory model of the process of local sustainable energy projects to demonstrate the way in which success is conceived by the project organisers and the project beneficiaries. This model also sought to demonstrate the different levels of success that a local project achieves, based on the different levels of the problem that it seeks to address. Having discussed this explanatory model and shown its appropriateness to the findings of this research, the multiple understandings of success were laid out, and comparisons were made to the literature to demonstrate where the research has contributed to gaps there within.

Essentially, it is only through looking at local projects for sustainable energy in detail that the full nature of success can be understood. Local sustainable energy projects must work to change the current energy system or regime, and the behaviours that are part of that regime, as well as face the difficulties inherent in delivering projects at the local level. These are problems at a number of levels; the social or systemic level, the level of the group of individuals delivering the project, and the level of the individual; usually the individual benefitting from the project. However, each locality will also have its own specific problems which will demand to be addressed in the project; the nature of success is tied to the particular local nature of the problem. The nature of success therefore shifts and changes from locality to locality as the project in question addresses these particular issues; doing what it can in the time frames addressed by each level. It is through exploring local projects as they happen; as they deal with the problems of sustainable energy projects as perceived in their locality, that the shifting, multiple and ultimately holistic nature of success can be understood.

Chapter 7
Conclusion

This thesis explored the nature of success in local projects for sustainable energy through a study of two projects: one a formal local authority-led project, and one a community-led project with negotiated control through many individuals. This chapter will summarise the main findings and implications of the research, with reference to the research aim and objectives framed in Chapter One and through literature laid out in Chapter Two. The limitations of this study will be considered in order to present future directions for research, and recommendations for practitioners.

7.1 The Success of Local Projects for Sustainable Energy.

The study used three literature fields to expose the complex reality of the situations surrounding local projects to bring about a greater utilisation of sustainable energy. This required an explicit interdisciplinary perspective and as such identified the problematic nature of the topic. The thesis focused on the concept of success (as it was perceived) to encompass both the practical difficulties of projects and the importance of the different individual perspectives surrounding the projects, set within the wider political and economic context. This sets several levels for analysis and provides the themes that give the understanding required. Universal 'success' is difficult to achieve because energy is provided through an embedded sociotechnical system at a high level which being inert is resistant to change; because energy behaviour is complex and hard to alter, and because local projects are difficult to implement both practically and technically. This research demonstrated that within local projects for sustainable energy, success is therefore far more complex and multiple than first believed.

It is helpful then to understand success at a number of different levels; individual, group or social. Any given conception of success is (often) indicative of success at multiple levels *at once*, and so the below summary unpacks the main conceptions of success found in the research (taken from section 6.4) and demonstrates the different levels of that success. Those main conceptions are; the achievement of the delivery of a project, installing (visible)

sustainable energy technologies, changing behaviour and values, and economic regeneration and the creation of jobs.

Delivering a local project is one conception of success that can be understood at many levels at once. Managing to deliver a sustainable energy project in a locality against the backdrop of an unsustainable national energy system is a feat in itself, addressing as it does a social and systemic issue in one small area. However despite the environmental importance of such a transition (as laid out in Chapters One and Two), many laypeople do not accept the fact of anthropogenic climate change (Rose, 2013, Ratter *et al.*, 2012). Therefore such projects often have to deliver sustainable energy while *also* addressing other social issues. To actually carry this out with few resources; either because the project team is small or because the project team is made up of time-poor volunteers is indicative of success at the level of the group of individuals delivering this project.

Installing sustainable energy technologies is also indicative of success at many levels. Installing such a technology makes an instant difference at the individual level of the household, especially if it lifts the householder from fuel poverty. Such a technology *may* in time lead to a change in behaviour, if it makes the householder more aware of their behaviour or compels them to use energy differently. If installed in great numbers, such technologies make a local area less reliant on fossil fuels and potentially the current unsustainable energy system as a whole. This is a success at the social level. Furthermore if these sustainable energy technologies are visible, they can show people that others have chosen to use energy more sustainably, thereby potentially affecting their own behaviour. These technologies can begin to change expectations about how energy can be sourced, and what technologies are required as a normal part of a house. These successes are at both the social and the individual level.

Changing behaviour is indicative of success. It is most likely that energy behaviours must eventually change in order to complement an energy system based on sustainable energy sources; where energy is likely to be both far less plentiful *and* intermittent. They must also change in the short term simply to reduce the amount of energy being used and hence the cost and the greenhouse gases being emitted. Any behaviour change which leads to less energy being used is successful both for the impact this will have on carbon emissions and for the

impact it will have on the individual's own income. Changing values is also indicative of success. People's values concern what they hold most precious, and colour how they view the world and how they deal with the information they have access to. If people's values change to become more proenvironmental, behaviour change and support for energy regime change is more likely to follow. Creating 'energy citizens' with environmental values is a success which can occur at the individual level; as individual beneficiaries reflect upon their values and behaviours as a result of the project. However if many individual beneficiaries are involved, this could create a social movement leading to change (and hence success) at the social level.

Finally, this research finds that local projects for sustainable energy are considered successful if they create jobs or alleviate economic hardship; success is economic and quantifiable. This is a social issue that can be addressed at the same time as sustainable energy in a local project. In some areas, where economic deprivation is high (such as Birmingham, but also many other UK cities outside the Southeast), an ambitious project will not go ahead unless it includes some element of economic regeneration or social benefit. Again, this is success at both the individual level (for the person who gets a job or who is lifted from fuel poverty) and at the social level, as the local economy begins to improve.

All of these understandings of success interact as the problem is a 'real-world' problem, making success complex and not addressed by a single discipline. To help navigate these many understandings of success throughout a project, an explanatory model was devised (see figure 6.1) which acknowledges that there are multiple potential outcomes of a project, which are determined by the multiple causative beliefs of the different partners about what problem the project is to solve (and the mechanisms that can solve it). Some outcomes may be considered failures by some, but only because their causative beliefs relate to different conceptions of the problems that the project 'should' solve. The nature of success is therefore complex, holistic and multi-dimensional.

Meeting the Aims and Objectives

The research met the objectives set out in Chapter One in the following ways; each objective is taken separately. The aim of the research was to explore the nature of success in local

projects for sustainable energy to better understand their role in bringing about change in energy systems.

- Objective 1: Critically review theories of change in society, in individuals and in communities in the context of sustainability with regard to the understanding of success.

Three different bodies of literature were explored to better understand the problem faced by local projects for sustainable energy, i.e. local projects for change. By bringing these literatures together, a fuller understanding of the problem was gained, which could be used to better understand the findings.

- Objective 2: Explore the conceptions of problems of different people involved in local projects, and the mechanisms they use to resolve those problems.

This was explored in the interviews. The 'problem' was variously conceived as one of fuel poverty, one of wasteful energy behaviours (either economically or environmentally unsustainable), one of a poor local economy, one of environmentally unsustainable lifestyles, and one of an unsustainable energy system. The mechanisms that were used to resolve these problems were the installation of technology; the operation of social norms; and learning and feedback.

- Objective 3: Determine what factors lead to project success.

Essentially this research found that the resolution of these problems is indicative of success. Therefore many factors lead to 'success' as many mechanisms are put in place to resolve a number of different problems. The installation of technology leads to success (specifically through a project led by a trustworthy organisation), as does bringing the right people together to create tension within a project (in order to get the most balanced outcomes environmentally, socially and economically), as does providing information. Values which are 'helpful' to the project aims (i.e. supportive of sustainable energy or pro-environmental) also lead to success. All of these factors address many different problems at different levels – the individual, the group level and the social level.

- Objective 4: Identify key factors which facilitate sustainable energy behaviours.

During the research process, themes other than energy behaviour emerged as more important. As a result, the direction of the research changed away from energy behaviour, to focus instead on the concept of success.

- Objective 5: Develop an explanatory model of projects that addresses the complexities of the interaction between different conceptions of success and different project outcomes.

The explanatory framework, (see figure 6.1) showed that the meaning of success is a contested subject. Within a project for sustainable energy (which may include attention to energy behaviour, or fuel poverty, or economic regeneration), organisers plan a project according to the negotiated outcome of their causative beliefs about problems, the solutions to those problems, and the mechanisms to solve those problems. Both the causative beliefs and the wider context affect the design and implementation of this project. The project will lead to a number of outcomes according to the (multiple) problems it sought to address. Further to this, project beneficiaries have their *own* problems at their individual level and their own contexts which come into play when they are confronted with the opportunity to participate in a local sustainable energy project. If they perceive that this project will help resolve their problem, they will participate. However given that the problem that they wish to solve may be different to the problem that the organisers wished to solve, this may lead to a different outcome to that expected by the organisers. For example, a group of individuals may organise a sustainable energy project where energy behaviour is addressed, in order to mitigate the problem of environmentally damaging resource overconsumption. If behaviour change does not occur the organisers may see the project as having failed. However if the project beneficiary faced a problem of being in fuel poverty, and wanted to participate in order to receive a new and efficient boiler to help resolve that problem with cheaper bills, they will see the project as a success. Both are correct; success is the resolution of a problem, as defined by those engaging in the project.

The different level of success; individual, group or social intensifies this complexity. Success for the beneficiaries means improvement in individual circumstances. Success for project organisers could mean the resolution of problems at the individual, group *and* social level.

The perception of success depends on who is being asked and what level of problem is being discussed. This difficulty is inherent in sustainable energy projects, as it is in any sustainability project, as they address complex, holistic and interdisciplinary real-life problems.

7.2 Implications of Understanding Success

Understanding perceptions of success is important for accepting that those perceptions vary. BES and SusMo's Green Streets were complex multi-stakeholder projects. Different stakeholders will always have differing agendas, therefore a broad and locally relevant understanding of success is necessary for that project to proceed, and be beneficial; the understanding requires both 'soft' and 'hard' measures and outcomes. There is often a difficulty with projects themselves and the agencies that facilitate them (usually through funding or other resources) having too narrow an understanding of success and too narrow a set of targets. If a project does not meet these narrow targets it might be deemed a failure when in fact it may have had many other benefits. Funding for local projects for sustainable energy then runs the risk of being abandoned.

However, as explained in section 6.1, systemic change takes time. Projects for sustainable energy must build on each other *over time* to create a trajectory of change. In order to build on each other, these projects must share the same general direction, with no contradiction or reversal. Broad understandings of success facilitate this as there is always a potential 'good news story' to tell. If a project can sell itself as having been successful in some way, it has more chance of being extended to build on that success, and being 'allowed' to do so, or being followed by similar new projects. This was the case with BES, which owing to its success with Phases 1 and 2, was allowed to progress to Phase 3. This was also the case with SusMo; owing to their success project managing the installation of several renewable energy technologies, they felt confident enough to form CORE 50 to install more significant renewerable energy technologies. This was also the case with the beneficiary organisations of the Low Carbon Communities Challenge mentioned in Chapter One, most of whom had won funding because they had successfully carried out previous projects. Finally, it could be argued that the Community Energy Strategy 'builds on' the success of the Low Carbon Communities Challenge, the Local Energy Assessment Fund, and other work in this area.

Perceived success allows other, similar projects and initiatives to proceed and build on that success, creating a trajectory of change. If a project has a multiple, interdisciplinary and locally relevant (therefore tangible) understanding of success, it is easier for this to happen.

This is an important lesson for the replication of local projects developing sustainable energy use in order to scale up the developments, especially in light of the recent Community Energy Strategy. Local sustainable energy projects must embrace broad and multiple understandings of success, both in order to make maximum impact but also so that such projects can be talked about positively in their local area. The organisers of such projects must celebrate the successes they *have* had, and not see any one aspect of 'failure' as meaning total failure. Projects must also offer benefits to the locality to win tangible support. For example, installing sustainable energy measures is useful, especially because individual 'success' (i.e. the reduction of burdensome energy bills for local people) requires such measures. However these measures, when applied through multiple projects can begin to change the infrastructure of the energy system locally or even nationally; heralding a success at the social level. The installation of these measures may also provide jobs and opportunities locally; another important local perception of success. Such infrastructural changes may also lead to softer outcomes such as a change in expectations, norms and values around energy. Any project therefore has available *all* of these three 'levels' of success to be used as good news stories to promote and support other projects. An example of this is the EVALOC project which is supporting six community energy projects to jointly promote change in a multi-disciplinary way (EVALOC, 2012). The EVALOC project is helping those community energy groups to explore the multiple changes (i.e. successes) that their efforts are bringing about, and helping them to communicate these good news stories widely.

A further important lesson for the development of community energy is to accept the long term nature of change, and so of some aspects of success. The full system transitions necessary to address unsustainable energy use can take a generation as infrastructure, regulations, policies and business and banking models must undergo their own changes. Cultural expectations, values and norms may take many more years to change. Therefore, judging projects of less than five years duration against a threshold of change which may take decades to bring about can lead to the perception that they have failed, and their abandonment. This study shows this needs to be avoided. It is also important for government

to take a long term and stable approach with work it does to facilitate community energy under the Community Energy Strategy. The groups that won funding under the LCCC all stated that the short timescales had been an incredibly difficult hurdle for them to overcome (DECC 2012c). Instead of changing their funding practices, DECC's later Local Energy Assessment Fund required groups to work to *even shorter* timescales (DECC 2014). The Feed-In Tariff, while it may well have been defensible to reduce it, was cut too quickly, too steeply and with too little notice. If local projects for sustainable energy are to play their part in bringing about change in energy systems, this short-termism at the level of national government must stop.

Nevertheless, the priorities of governments are by necessity ever changing. As previously mentioned, if climate change is less 'fashionable' a concern as perhaps it once was (Ratter *et al.*, 2012) projects which meet a purely environmental understanding of success *and no others* might be at risk in times of economic hardship when environmental concerns are seen as a luxury. If the energy system is unsustainable and needs changing, such stalling is extremely unhelpful. However, if sustainable energy projects are *also* seen as socially and economically successful, and provide real benefits for local people, they will not be seen as representing a choice between economic wellbeing and environmental concerns, and so work to change the unsustainable energy system can continue. If local projects for sustainable energy were encouraged to encompass broad, multiple, and certainly locally important understandings of success, then they would be better insulated from the machinations of politics and central/local Government, and fickle public opinion.

Practical Implications for Understanding Success within Local Projects for Change – Using the Explanatory Model

This understanding of success of multiple and interdisciplinary also provides an approach for setting up and managing projects. Multi-agenda projects which more overtly address the complexity of a given problem have more opportunities to achieve some form of success. However there is also a positive message for smaller projects which, perhaps by virtue of being run by volunteers, cannot be quite as ambitious. If success according to at least one understanding or level can be met, then the project can be sold to others as successful.

The explanatory model developed here will be helpful to practitioners running a number of projects (or interventions) for a number of different ends, not just sustainable energy. The benefit of the model is that it helps explain how different individuals concerned with problems at different levels approach a project. All real-world projects deal with real-life problems and are as such interdisciplinary in nature, and this is reflected in the myriad ways that project organisers and beneficiaries frame the problem that the project will try to 'solve'. Thus the model helps to explain the confusion that sometimes arises concerning whether or not a project has actually been successful. The insight of this model would help practitioners to understand their projects, and structure discussions about precisely what aspects of the problem are priorities and therefore what mechanisms are required to solve them; hence what interventions are appropriate. Such a structured discussion will help practitioners to 'put their cards on the table', and openly understand the full complexity of the problem they face, and plan their activities in better knowledge, and more efficiently.

For example, this model could be of use in a project dealing with obesity. Here there might be a causative belief that fatty foods are the reason for obesity; therefore an appropriate intervention might be diet advice or regulation of fatty foods. There might also be a causative belief that a lack of an interactive and pro-active food culture is the reason for obesity; therefore appropriate mechanisms to solve this problem might be teaching people to cook and appreciate local produce, and emphasising the importance to eat together. There might also be a causative belief that town planning is the reason for increased obesity; therefore an appropriate intervention would be improving facilities for walking and cycling so people can live less sedentary lives. Working to alleviate obesity, like working to bring about sustainable energy, addresses a complex and holistic problem; all of the above causative beliefs could be said to be correct. Using the explanatory model to explore the different causative beliefs held (perhaps unconsciously) from the beginning of the project could help to manage expectations about what the project can and should achieve. It could also help to manage resources more efficiently if specific causative beliefs are openly agreed upon early, and the most appropriate mechanisms then used from the beginning of project delivery. This insight would also help practitioners to better understand and promote the success of their, as they have a fuller understanding of the concept.

Finally, it is hoped that the model will also provide reassurance to organisations delivering projects. In life "we are all merely coping" (David Boyd, personal communication, 7th August 2013), and the perceived failure of a project according to one's own criteria can be exceptionally disheartening, especially for voluntary community groups as this research shows. A single project for sustainable energy will not solve the problem of the current unsustainable energy system in all its interdisciplinary complexity. A single project can only *contribute* towards a future of truly sustainable energy; it must be built upon and followed up with more action. This model can demonstrate that projects *are* successful at making such a contribution, and successful in a real and meaningful way, even if the organisers' own understanding of success was not met. If successful projects are to be built on, the organisers themselves need to perceive the projects as successful in order to have the enthusiasm and the courage to carry on.

7.3 Contributions to Literature

The importance of interdisciplinarity in real-world, sustainability problems has long been discussed and emphasised (for example, see Shove, 2011, Whitmarsh *et al.*, 2011, OECD, 1982). By bringing together three bodies of literature from three different disciplines, constituted by different paradigms, and so causative beliefs enables us to better understand the nature of success of projects. Some disciplines perceive the problem of sustainable energy to be at the level of the system or of society. Others perceive the problem to be at the level of the individual. Yet others perceive the problem to be at the level of a small group of individuals. In fact the problem is complex, and facets of it exist at all of these levels. This thesis presents a way of looking at complexity, through the lens of success, itself multiple but representing a trajectory of change.

The three bodies of literature used struggle to address understandings of success that fall outside of their boundaries. Sociotechnical systems theory defines success as a national level transition, often through the spread of technology. By defining the problem in this way, sociotechnical systems theory is blind to other understandings of success such as the more immediate benefits that accrue to the *locality* as a result of a local sustainable energy project, such as economic regeneration and the reduction of fuel poverty. Behaviour change literature by its very nature conceives of success as identifiable and measurable behaviour change

within a (relatively) short time frame. Other understandings of success that may result from a project which may have included behaviour change elements lie outside of this literature's area of concern. It is postulated that these individual literatures are not sufficiently interdisciplinary to interpret success in local projects studied here and that a broader approach is needed. As such these two bodies of literature were drawn together with a third body looking at projects, which sees that the delivery of a project itself (for any end) as success. In the UK context, where funding and resources for local councils and community groups is falling (Bhati and Heywood, 2013, LGA, 2012) and sustainable energy appears to be a decreasing priority for government (Macalister and Harvey, 2013, Harvey and Walker, 2013), managing to deliver a project for sustainable energy must be seen as successful. Bringing these three bodies of literature together gives a more holistic understanding that would be lost if these literatures alone were used for analysis. This in itself is a valuable finding and adds to knowledge.

This research also makes a contribution to the planning and projects literature itself. It corroborates studies by Portney (Portney, 2005, Portney and Berry, 2010) and Purcell (Born and Purcell, 2006, Purcell, 2006, Purcell and Brown, 2005) that interventions led by community groups are not necessarily more effective than those by public authorities. Certainly a professional public authority could deliver an intervention with greater impact, given its relatively larger capacity and resources. Beyond that, this research showed that the response of the beneficiaries to both projects and the organisers themselves was broadly similar.

This research also makes a contribution to literature concerning interventions for change of any type. The explanatory model given in figure 6.1 can be used to explain the process of an intervention for any social change; for example in healthy eating, in transport, or in waste management. This model would provide a good structure to research the different ways the problem is defined by different people from different contexts (for example a Council budget holder trying to reduce waste going to landfill to reduce charges, versus a Friends of the Earth campaigner trying to reduce the environmental impact of waste). It would therefore help to make sense of the different motivations for participating in a project; i.e. the resolution of the problem as they define it, and hence the different conceptions of success.

In the same analystical level, an important contribution to the literature comes from understanding these projects' place within a trajectory of change. The nature of success of local projects for sustainable energy includes all of the above understandings of success. This is important as if a project is considered a success (in some way) it is more likely to be built upon with further projects. Projects which encompass multiple understandings of success are therefore more likely to make a bigger contribution as they begin a trajectory towards a more sustainable energy system.

Finally, this research makes a contribution to the emerging literature on community energy. The UK has seen over 5,000 community energy groups active since 2008 (DECC 2014). This research provides examples of another two projects with a detailed explanation of the challenges they went through, and the different forms of success that they perceived they had. Ultimately, this research provides an understanding of what success can mean in community energy and how that success can be used to go on to deliver further work – a message that can be used by future community energy projects. Secondly, previous research has shown that the majority of community energy is based in rural areas (Seyfang *et al*. 2013). This research contributes two urban examples; demonstrating important gains that can be made despite this more restricted environment. Thirdly, this research demonstrates the strong role that can be played by a municipal body; something more lacking in the UK literature but stronger internationally (DECC 2014). Finally, this research builds on national and international work in community energy by again stressing the importance of *local* action for change (DECC 2014).

7.4 Summary of Methodological Position

For this research the approach of critical realism was taken. CR assumes an external reality which is separate to our knowledge about it, but that some knowledge corresponds more closely to that reality than others (Wynn and Williams 2012). This research aimed to understand what happens in the practice of dealing with the real-world problem of local sustainable energy projects, and a CR framework allowed the use of many different disciplines (and with them, different epistemologies) in order to best explain that practice. CR also assumes the existence of generative mechanisms; the world is as it is because it is made so by these mechanisms. Given that this research also aimed to *improve* practice, a CR

framework allowed the discussion of the causal mechanisms which make the practice of local sustainable energy projects difficult, so they can be critiqued and challenged. Finally, within a CR framework the researcher is part of the problem she studies, which requires her to be critically reflexive, in order to deal with her position and the demands of the research process, and to remain robust throughout.

Part of the study used grounded theory to build theory systematically from the data (Glaser and Strauss 1967). This was chosen because it complements the CR approach in that it is interested in generative or explanatory mechanisms; allows for multiple perspectives and is critical and reflective. Following this approach, a number of qualitative methods were chosen in order to collect data. Case studies were chosen as they allow the in-depth study of contemporary phenomena in context; were appropriate for studying 'how' and 'why' questions of behaviour change and intervention design, and given their focus on natural events and the lack of researcher manipulation, were useful for studying questions of practice. For each case study, interviews were carried out with both project beneficiaries and project organisers at two time points, in order to give them the opportunity to demonstrate their own perspectives on the world, and on the sustainable energy projects they were part of, and how this changed over the course of those projects. Observation of project meetings was carried out, in order to allow the researcher to understand the events of each project as they unfolded, without removing herself from the 'flow' of every day life. Finally, documents were used to build an understanding of each of the case studies.

The Researcher as a Research Tool

Research is a personal journey. It is embarked upon often for reasons of taste, personal values or personal experiences. These tend to influence the research, both in terms of the questions that are researched and the methods used. Holden (2008) describes Rorty's work on pragmatism; an abandonment of the ability of pure reason to guide our capacity for judgement, to be replaced by a 'literary culture', where the processes and products of intellect and reason instead make contributions to richer narratives, more complete stories and better rhetorical guides to human life. The surest way to make a judgement about how to act is through "making the acquaintance of as great a variety of human beings as possible" (Rorty,

2004:8) This research provides another perspective which is very much 'of' the researcher, to add to that narrative, and to how the process of change is understood.

As an echo of section 3.3 in the methodology chapter, this paragraph (alone) shall be in the first person. Research changes the researcher (Kvale, 2008), and I have changed very much since the beginning of the PhD process. I am now more aware of how my own politics and experiences influence the way I view the world and with that my research practice. As a result of this awareness, I am now better able to put my experiences to one side and see them for what they are; a position within a debate, and focus on the story my evidence is telling. I have also changed personally. As a result of observing the efforts of others in my research, I now feel more compelled than ever to act for change in the world and as a result of my research I feel more capable of doing so. As a direct result of the changes my research has wraught in me, I have taken on voluntary work as a Director in the renewable energy co-operative CORE 50.

7.5 Limitations of the Present Study

"Any attempt at bounding and analysing complex, emergent socio-technical systems will necessarily be partial, situated and temporary" (Smith *et al.*, 2010:444). As true as this is for analysing sociotechnical systems, the same could be said for all research. This particular study took place at a particular time period when certain things were possible, things which may have now changed. Not everyone who benefitted from the projects under study was interviewed – they may have had different views to those that were (although saturation was reached in terms of the information coming from the interviewees).

A major limitation of the research presented here is that the methods adopted in the study were purely qualitative. It is acknowledged that people can perceive that they are changing their behaviour when in fact they are not. As such this study would have been improved if a mixed-methods approach that included quantitative data collection had been adopted, so participants' perceptions of behaviour change could have been verified with actual meter readings. Sadly, the researcher could not get access to these. At least a year's worth of meter readings would have been necessary *before* the installation of any measures in order to make a proper comparison (i.e Spring 2010 for BES beneficiaries, and as early as Summer 2009 for

some SusMo beneficiaries), but the researcher began the research long after this, and did not have permission to access any project beneficiaries until Spring 2011. This was a disadvantage of using case studies that were live projects – they were underway when the research began, meaning there was little time for quantitative base-line data gathering.

A second, limitation of the research is the position of the researcher as minute taker at project meetings. It is accepted that there *is* a potential loss of rigour in taking such a position, even if, as argued in Chapter Three, this is not as great as if action research had been carried out. This is because despite using the role of minute taker to gain an accepted position within the groups and better understand their perspectives, distance was still maintained between the researcher and the research participants. In action research, distance is not maintained – the researcher is fully immersed in the project they are researching and are responsible for part of its delivery.

This thesis presents two very in-depth longitudinal case studies, during which data was collected for two years. Great insight can be gained from this research. The presentation of this model at conferences and seminars has prompted other academics to welcome its explanatory power for projects for change that they have been involved in (Cham Athwal, personal communication, 26th March 2013). However, a final limitation of the research is that its conclusions are based on only two case studies. A third or even fourth case study would provide more support for the explanatory model. However, for the period of study, a further case study of similar depth and breadth was beyond the resources of the researcher.

7.6 Future Direction of Research

Future research on sustainable energy projects could follow a number of different avenues, for teaching, research and practice. These are laid out below in no particular order.

Research: A Third Way of Delivery and Success in Multi-agenda Projects

This research looked at two different methods of delivering a sustainable energy project; one which was local authority-led and one which was community group-led. Sadly, at the time of commencing the research, there were no opportunities to study live projects which

represented a true partnership approach between a community group and a local authority, or other facilitative agency. This remains a gap in knowledge which needs to be filled by future research. Such an example would explore whether such groups can be more 'successful' as local authenticity is boulstered by the extra resources and skills of the authority or agency. It would also be an excellent opportunity to explore how definitions of the problem, and hence of success, are negotiated by the different parties working together on the same project, and how this plays out.

Secondly, this thesis can be said to have explored projects with 'multiple agendas'. The importance of multiple agendas in projects could be further explored by looking at other major multi-agenda projects. A comparative analysis of such projects would confirm whether such projects are more often viewed or sold as successful, and if they are indeed built upon. The PV phase of Birmingham Energy Savers provided the foundations for the Green Deal aspect as previously explained. Since completing the Green Streets project, SusMo have gone on to set up a renewable energy company with members of other environmental community groups in South Birmingham. This suggests support for the idea that multiple conceptions of success make a project more likely to be perceived as successful and more likely to therefore be built upon, but this point needs further clarification.

Social value – the wider non-financial impacts of organisations and their activities or projects (Robson, 2013) is increasingly an area of interest, particularly in housing associations. Projects which aim for social value in their work, or high 'social impact', are inherently multi-agenda projects. As a fledgling area of practice, this would be a fascinating area of future research where social value projects do sustainable energy activities.

It would also be interesting to explore if, in such multi-agenda projects, particular facets of the problem fall to one side. With so many different problems to solve in one project, it is possible that those voiced by less powerful actors might not be addressed. One can easily imagine a scenario in which a 'sustainable energy' project also seeking to create jobs and alleviate fuel poverty, might end up choosing solutions which might not be as sustainable as they could be. How this could happen, the role of power in the eventual project outcome, and whether the project would still be viewed as a success are all questions that could be explored.

Furthermore, it would be interesting to follow up on some of the more specific questions from this research. The potentially increasing professionalization of community groups is an interesting area to explore. Would projects run by such professionalised groups become indistinguishable from projects run by local authorities or other professional (even private) organisations? This is a question of growing importance as many public services are cut and community groups are invited to take over service provision (PublicLibrariesNess, 2013).

Finally, it would also be interesting to assess the wider impact of both BES and SusMo's Green Streets. As mentioned in Chapter Three (Section 3.2) the people who were interviewed as part of this research were actually taking part in the case study projects, and so knew about them. No one who was not personally involved in the projects (either as beneficiary or organiser) was interviewed. It would be interesting to interview or survey others within the neighbourhoods studied to see if they had heard of the project, and how it had influenced them, if at all. This has been done on a very small scale for SusMo, as part of British Gas's national Green Streets evaluation (Platt *et al.*, 2011), but more could be done, and certainly for BES.

Teaching – Providing Insight to Future Academics and Practitioners

The projects studied in this research provide very useful case studies for both undergraduate and postgraduate students trying to understand the complexities of sustainable practice. Embedding these insights into teaching can demonstrate how more successful projects take account of local problems and issues. It can also demonstrate how sustainability problems need to be viewed by academics and practitioners alike; as multidisciplinary 'wicked' problems with many different facets, with implications at many different levels. An appreciation of this will make students and future practitioners more aware of the complexity of the problems that they will face, and how to approach them positively.

7.7 Final Summary

It was only through looking at local projects for sustainable energy in detail that the full nature of success can be understood. Local sustainable energy projects must work to change the current energy system or regime, and the behaviours that are part of that regime, as well as

to face the difficulties inherent in delivering projects at the local level. However, each locality will have its own specific problems which will colour the project. The nature of success therefore shifts and changes as it addresses these particular issues. Some of these issues are at the level of society, as seen through the lens of the local area; some issues are at the level of groups of individuals, and can be long or medium term. Some issues are at the level of the individual, and can potentially be dealt with quickly. It is only through looking at local projects as they happen; as they deal the problems of sustainable energy projects as perceived in their locality, that the shifting, multiple and ultimately holistic nature of success can be understood, and used to build a trajectory of activity towards a sustainable energy future.

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APPENDIX A: Data Sources Excluding Interviews

A1: Table of Meetings/Opportunities for Observation Attended

Meetings Attended – BES		**Meetings Attended - SusMo**	
15	Board meetings	19	Board meetings
1	Study visits	6	Additional meetings
12	Phase 3 procurement meetings/events		
10	Additional meetings		
38	**Total**	25	**Total**
63	**Total Meetings Attended**		

Appendix A2 Minutes and Documents from BES

Birmingham Energy Savers Board Meeting – 9th March 2011

Present:

JG (Chair)	JH	*Beck Collins BCU*
DA	NH	
JN	CH	
AJ	KB	

Apologies:
RS, AJJ.

Matters Arising

- DA had the necessary discussion with Insource and will be continuing past March as Project Manager. As he is now on a long term project, Insource have reduced his rate.
- DA has put some thought towards the WNF evaluation report. **ACTION: DA to ask AM Associates if they can do the evaluation.**
- Legal wording of phase 3 plan was corrected.

Phase 1 Update

- All the improved properties have been registered with British Gas (one of only two suppliers who will register properties who are not their customers for FIT). DA to invoice in April. JG keen to have an idea of the income.
- WNF underspend is no longer a concern given the invoices yet to be paid and the 73 houses to be improved in Phase 2 interim. (See Phase 1 status report for finance breakdown.)
- Legal agreements need to be replaced – the schedule has changed. Still waiting for this new agreement to be signed off. **ACTION: AJ to sort out exactly what the issue is.** It is the legal side of this project which gives BCC leadership amongst other local authorities.
- DA wanted West Midlands Special Needs Transport to be a demonstrator project under phase 1, and since this was funded by a grant, it did not matter if the finances didn't stack up. DA needs to look again to see if they can be done under Phase 2.

Phase 2 Update

- Interim customer engagement – 83 households are currently signed up to the programme, with 15 programmed for install and 17 installations completed. There were still some problems with access in Neechalls, but having telephone numbers has been really helpful. Now starting to build up a reserve list. Need a target of 90, but have agreed with Urban Design that this figure could fluctuate by =/-10%. Could therefore possibly do 99 houses by Easter, move on to borrowing money after WNF is spent. (See Phase 2 Interim status report for further details)
- Phase 2 Procurement – Clarification meetings have been held with the management company front runner, we are now in a position to be able to ask for approval for this company. There are still some legal issues to be worked out. **ACTION: DA to amend documents with the help of Legal, in order to be able to deal with these.** Components contracts are nearly there and should be done by the end of the week. Need clarity on dropping some of the weaker tenders.
- AIMHIGH – The ERDF bid has been submitted to AWM for their comments – we are hoping to submit it by the end of the week if it is fit for purpose. The bid is to set up test beds and innovative projects using council properties.
- Buy for Good – The company is formed and prepared to act as the phase 2 procurement body, and the board have approved the role of the supply chain manager. The company will have an

SLA with BES which will need to be drafted soon. Once the recruitment of this manager is done, the first step should be to review and refresh the PV supply framework, so lessons learnt in Phase 1 can be applied.

Phase 3 Update

- Finance are finally satisfied with the business case. Official sign off must be by 12 noon next Thursday, before which time it must be signed by MB, Councillor H and the Deputy Leader. This document approves the procurement process, and approves in principle the prudential borrowing of £75m. We will go back with a full business case in April 2012. If approved on 4th April we need to draft the procurement documentation quickly so the OJEU notice can be issued as soon as possible. Tender documents wont go out until September now.
- ELENA will cover start up costs, including marketing, supply chain management etc, and can be used to fund activities which will prepare the ground for Phase 3. It cannot cover costs incurred before it is improved, however.

Third Sector Engagement

- Need to brief the third sector so that they can act as champions of BES in their neighbourhoods. There will be an event on Saturday 26th March to do this, speaking to co-ops, activists, interest groups etc.
- Concern that some professional third sector organisations would like to participate, but given they are struggling for survival in the current climate, they may need some reimbursement. It is also possible that voluntary organisations, although less affected by said climate, will want expenses covered. This issue will inform later conversations with companies tendering for the OpCo.

Supply Chain Development

- A notice has been drafted that could go on Find It In Birmingham. **ACTION: DA to circulate.** This needs to be discussed, previous conversations have focused almost exclusively on the procurement process. In the 18 months leading up to Phase 3, jobs, supply chain and a customer base need to be developed.

Project Management/Staffing Issues

- MB would like some indication of the management structure, as well as procurement. DA needs to spend time thinking about how to ensure there are enough resources to carry on delivering. There are issues concerning which directorate Phase 2 roles would be employed by, whether there would be an SLA between staff in different directorates and the BES Project Manager. Currently, the three strong BES project team are extremely flexible and help with whatever the major task of the moment is. Would this continue with if staff worked on the project under an SLA. An interim arrangement is really needed.
- The board agree that it would be sensible to extend the contracts of the BES project staff for three months, to be reviewed at the next meeting. (**ACTION: Review at next meeting.**)

Marketing and Promotion

- The BES leaflet is ready, for the board's comments. Currently marketing is targeted to avoid frustrating people who would like to be involved but are not eligible. BES banners will be put on scaffolding to advertise in streets where one household has agreed to be a Birmingham Energy Saver.

- Need to get BES into the national frame. **ACTION: JG to work on this.** BEP are also working on Green Comms.

Jobs and Skills

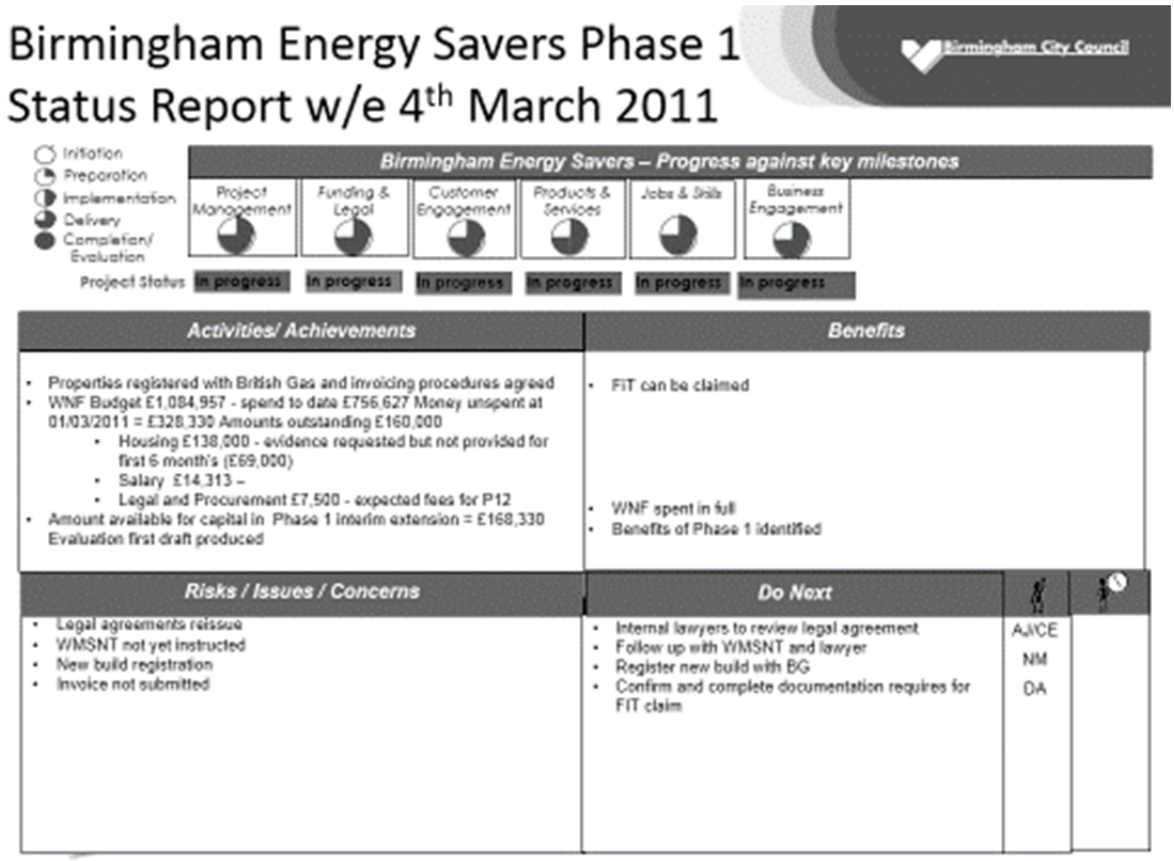
- See Jobs and Skills workstream update provided by Jane Newman.

AOB

- BEP will be going to the development directorate, and increasing their theme areas from 4 to 6.

Date of Next Meeting

DA to arrange for a Tuesday or Wednesday in early April.



Birmingham Energy Savers Phase 1 Status Report w/e 4th March 2011

Birmingham City Council

Initiation
Preparation
Implementation
Delivery
Completion/ Evaluation

Birmingham Energy Savers – Progress against key milestones

Project Management	Funding & Legal	Customer Engagement	Products & Services	Jobs & Skills	Business Engagement
Project Status: In progress	In progress	In progress	In progress	In progress	In progress

Activities/ Achievements	Benefits

• Properties registered with British Gas and invoicing procedures agreed
• WNF Budget £1,084,957 - spend to date £756,627 Money unspent at 01/03/2011 = £328,330 Amounts outstanding £160,000
  • Housing £138,000 - evidence requested but not provided for first 6 month's (£69,000)
  • Salary £14,313 –
  • Legal and Procurement £7,500 - expected fees for P12
• Amount available for capital in Phase 1 interim extension = £168,330 Evaluation first draft produced
	• FIT can be claimed
	• WNF spent in full
	• Benefits of Phase 1 identified

Risks / Issues / Concerns	Do Next	
• Legal agreements reissue • WMSNT not yet instructed • New build registration • Invoice not submitted	• Internal lawyers to review legal agreement • Follow up with WMSNT and lawyer • Register new build with BG • Confirm and complete documentation requires for FIT claim	AJ/CE NM DA

Birmingham Energy Savers Phase 2
Status Report w/e 4th March 2011

Birmingham City Council

Initiation
Preparation
Implementation
Delivery
Completion/ Evaluation
Project Status

Birmingham Energy Savers – Progress against key milestones

Project Management	Funding & Legal	Customer Engagement	Products & Services	Jobs & Skills	Business Development
In progress	In progress	In progress	In progress	In progress	In progress

Activities/ Achievements	Benefits
• Phase 2 managing contractor tender evaluation complete. • Clarifications meeting held with managing contractor. • Preferred managing contractor selected. • Phase 2 solar PV components tender evaluation in progress. • Approval for BES to use the framework contracts. • Buy for Good established and recruitment process for procurement manager initiated. • Widespread interest in using frameworks from other Local Authorities and Housing Associations. • Sanctuary Housing have confirmed that they wish to use the Phase 2 contracts.	• Positive response from market place to both tenders. • Clarity gained on managing contractor costs and delivery methods. • Positive clarification meetings supported evaluation conclusions and have resulted in a high level of confidence in the preferred managing contractor. • Clarity gained re. procurement vehicle to deliver Phase 2. • Buy for Good gives a clear mechanism for third party access. • Sanctuary Housing usage of contracts will result in a further £50m being put through the Phase 2 contracts.

Risks / Issues / Concerns	Do Next		
• Phase 2 team needs to be established	• Team proposal to Mark Barrow	DA	11/03
• Gain approval of preferred managing contractor.	• Gain sign off of procurement decisions from Mark Barrow.	DA	18/03
• Completion of Phase 2 goods tender evaluation.	• Complete Phase 2 components tender evaluation.	JH/ CB	11/03
• Further competition needed for PV components contract.	• Plan further competition process for PV components.	JH/ CB/ NH	18/03
• Customer data needed to feed through to appointed Managing Contractor.	• Build Phase 2 customer database	BG	18/03

Birmingham Energy Savers Phase 2
(Interim) Status Report w/e 4th March 2011

Birmingham City Council

Initiation
Preparation
Implementation
Delivery
Completion/ Evaluation
Project Status

Green New Deal – Progress against key milestones

Project Management	Funding & Legal	Customer Engagement	Products & Services	Jobs & Skills	Business Development
In progress	In progress	In progress	In progress	In progress	In progress

Activities/ Achievements	Benefits

• 577 drive by surveys completed
  • 377 sent to Family for sign up
  • 83 signed up
  • 9 awaiting tech visit
  • 45 ready to proceed (subject to asbestos management)
  • 10 programmed for install
  • 10 on site
  • 9 installations completed
  • 200 not suitable
• Woodcock Street panels ordered
	• Resolution of AIB/ACM issues has potentially released further properties for install
	• Supplying contact details allows better use of Customer Engagement Team's time – less time wasted on door knocking with no reward

Risks / Issues / Concerns	Do Next		
• Legal agreements not latest versions and incomplete	• Finalise legal agreements and reissue	BG/DA	25/03
• ACM/AIB issues now progressed towards resolution	• On street advertising to promote installations	BG	25/03
• Website does not appear to have activated – checking with Orb Creative	• Confirm website activation	BG	11/03

Birmingham Energy Savers AIMHIGH Status Report w/e 4th March 2011

Birmingham City Council

Initiation
Preparation
Implementation
Delivery
Completion/ Evaluation

Birmingham Energy Savers – Progress against key milestones

Project Management	Funding & Legal	Customer Engagement	Products & Services	Jobs & Skills	Business Development
In progress	In progress	In progress	In progress	In progress	In progress

Project Status

Activities/ Achievements	Benefits
• CESP procurement completed and British Gas identified • ERDF full application final draft submitted • Buy for Good included as partner • letters of support received from wide range of partners	• CESP match secured • Phase 2 delivery to incorporate innovative measures. • Market place is evolving to guarantee the output and therefore income form Solar PV systems.

Risks / Issues / Concerns	Do Next		
• Procurement Phase 2 still yet to be confirmed. • Need to complete full ERDF application in order to meet AWM time lines. • If successful, grant needs to be approved	• Procurement report sign off • Await feedback on final draft then finalise and submit ERDF application • Report to Cab Member for Housing to approve award and appointment of BG as CESP supplier	DA /JG DA DA / NM	11/03 14/03 21/03

Birmingham Energy Savers Phase 3 Status Report w/e 4th March 2011

Birmingham City Council

Initiation
Preparation
Implementation
Delivery
Completion/Evaluation

Birmingham Energy Savers – Progress against key milestones

Project Management	Funding & Legal	Customer Engagement	Products & Services	Jobs & Skills
In progress	In progress	In progress	In progress	Not started

Project Status

Activities/ Achievements	Benefits
• Phase 3 PDD revised and approved by Finance • Presentation of funding model to BCC stakeholders • Successful Market Testing Event • Cabinet Report for Phase 3 on Forward Plan • Procurement plan drafted and possible team identified • ELENA application approved by DL • ELENA application finalised • BCC engagement with national policy makers	• Phase 3 Full Business Case can be progressed. • Growing understanding of Phase 3 possibilities and challenges. • Largely positive response from third parties. • Ensures no loss of momentum and early action for Phase 3 • Procurement documents available as soon as report is approved • ELENA application can be submitted • Policy risks minimised

Risks / Issues / Concerns	Do Next		
• Demanding timescales for Business case development • Procurement of external support • Customer Engagement Strategy needs to be drafted and delivery procured • Supply Chain development strategy needs to be drafted and delivery procured • Schools and businesses	• Identify possible development support • Prepare tender documentation • Customer engagement event and discuss at next workstream • Meet with Jane and send out notice on FFIIB • Finalise report • Resource needed to pursue ancillary developments		

Birmingham Energy Savers Board Meeting – 18th October 2011

Present:

JG (Chair)	NH	JJ
BG	BB	JM
CV	AJ	RS
DA	DT – BEP	RD
Beck Collins - BCU	AC – FHA	

Apologies:

ST, JN, JH

Notes of Last Meeting and Actions Arising

Minutes confirmed as correct

Actions from last meeting

- JM has included FIT registration details on status reports.
- BG has updated status slides as requested.
- BG/JJ – rate of installations; covered in the extraordinary item

AC mentions here that FHA are part of the supply chain for one company's bid to BES Phase 3, and is concerned about a potential conflict of interest. AC is thanked for bringing this to the board's attention, and it is agreed he will leave if anything of a commercially sensitive nature is discussed.

- DA – this is covered in the extraordinary item.

1. Extraordinary Item

The Minister of State has changed the Feed In Tariff. If a PV panel is installed after the 12th December, it will gain the current FIT rate until the end of the financial year, whereupon it will drop to 21p per kW/h.

Energy efficiency should be linked, homes with an Energy Performance Certificate of D or less will have to be brought up to a C to qualify for that rate. (However, installing a PV panel adds about 7 points to a building's SAP rating, so many houses will be brought up to a C by the mere addition of the panel itself.)

There will be a multi-installation tariff (about 80% of the new tariff) which may affect BCC. However, the Minister is interested in a community tariff, which might allow multiple installations at a higher rate. BCC will respond to this during the consultation. If an installation is for social benefit, etc, then a community tariff would apply. BCC will argue that as an installer working for social benefit, they ought to receive a higher tariff, as they will not get the additional return of the energy savings – the tenants will.

Therefore, BCC needs to respond to the government's consultation. There is a meeting of the cabinet committee for climate change and sustainability on 15th December; it would be good to get a document to that meeting for their consideration. This document should comment on the rate itself, and the possible bringing together of FIT, RHI and Green Deal, which form a rather incoherent package at present.

JG – although the numbers completed so far are very good, we need to know if the rate of installs per week is high enough for the target of 1200 houses to be completed by the end of the financial year. BG explains that there is a bottleneck at the DNO. They have now passed a large number of applications, so G Purchase can start installations in Woodgate Valley. G Purchase are predicting that by w/c 24th, they will move up to 30 installs a week, the week after increasing to 35, and by w/c 7th November, they will be installing 40 a week as needed, with the possibility of moving up to a rate of 60 a week later. **ACTION: BG to show this information (the rate of installs) on the next status update.**

BB is keen to ratchet up the rate of installs faster, since a balloon in March would be undesirable. Also, if the weather is as bad as it was in November last year, work may have to stop completely for a few weeks quite soon. BB offers support from contract management to BG to help with this. JJ points out that the weekly contract meeting is the right place to address this. **ACTION: BG/JJ to address this through the appropriate channels.**

There is still some difficulty with British Gas registering properties for FIT payments. British Gas want to know if FIT households are British Gas customers, and if not, if they are customers of one of the other Big Six. This is purely a problem registering Phase 2 beneficiaries, all Phase 1 households are signed up. British Gas have been given a list of 76 properties to register, and are refusing to accept any more addresses until they've had this information. This hold-up is a **serious** issue that is throwing out previous financial modelling. **ACTION: JM to send email to British Gas to give information, while members of the board take this up with British Gas.**

2. Operations Sub-Committee

AIMHIGH – see hand-out. We are in the process of working out management structures and processes to a level that will satisfy ERDF, and have a meeting with the CLG representative for the area on Friday 21st October.

JG would have liked to have seen advertising hoardings on the scaffolding used by G Purchase in the installation of the solar panels for Phase 2. BG points out that they have been issued with some A boards for marketing, but JG feels this is not enough. CV says that quotations from satisfied customers could also be displayed on these hoardings. JG would also like them to advertise how many jobs BES is creating.

3. BES Phase 2 on Council Buildings

See hand-out. Schools are very interested, expressions of interest have been received from 16 schools. It would be especially good to see PV on Woodgate Valley Junior and Infants School, if BES phase 2 is about to move into the area, it would certainly be good publicity.

JG would like to know if this is a 'pressure point' for the BES team. DA – it most certainly is, the team are managing at the moment, but ideally BES Phase 2 on council buildings requires a dedicated programme manager.

4. BES Phase 3 Procurement

80+ expressions of interest were made against the initial advert. A briefing session for PQQ evaluation teams has been held. The Task Group leads for the ISOS have been briefed, and initial meetings have been held by most task groups. 12 organisations have submitted PQQs, and completeness checks are nearly finished. CJ and DS have evaluated the PQQs to see if

they have passed or failed, and 'pass' PQQs will be distributed to evaluators by 20th October. The ISOS work is ongoing, and is scheduled to be completed by 14th November.

Resources in task groups may be stretched as people juggle their ordinary work with the PQQs and ISOS work. However there will be some efficiencies here, since it will trigger more questions when reviewing PQQs that it will be important not to miss.

It is really important to hold a cross-task group meeting because of the overlaps between workstreams.

CJ – three organisations have failed the finance check (does the organisation have an annual turnover of at least £375mn – it is predicted that the turnover for BES Phase 3 will be £125mn, so it is recommended that the managing company/consortium have a turnover at least three times that). This leaves 9 organisations, of which we want 8, which raises some questions.

State Aid – This is allowable under certain circumstances, BCC needs to enter into a dialogue with the EU commission. DA met with the DECC and the Department for Business, Innovation and Skills (BIS) this morning to discuss this. DECC are currently realising that the whole of Green Deal might fall into State Aid, especially if it involves funding companies from the Green Investment Bank. DECC are dragging their feet somewhat, since putting in a notification to the EU of this requires admitting market failure. However, BIS feel that the process should not be done piecemeal, i.e. BCC, Newcastle council and DECC should go forward together. By the end of November, a decision will be made on whether an application that includes the aggregator or not will be made. For BCC, saying nothing about this potential issue to the EU commission is not an option.

5. <u>Any Other Business</u>

JG - We need to know the financial data for this project thus far, so that decisions can be made about whether extra resources can be afforded, to deliver all elements. JG is offering Rob Pace's time to update the finance model so that these decisions can be made. BB – we need a mini business-plan, and to concentrate on it at the next board meeting. **ACTION: JM to add this to next month's agenda.**

JG feels the website is missing out a lot of information about phase 3, and that it really needs an update. DA points out that Birmingham Environmental Partnership once had a pledging website, which might be useful for Phase 3, since it could identify future customers by their pledges. Since there is little resource within the BES team at the moment to update the website, could BEP help? CJ points out that there was going to be an article by Marketing Birmingham, but that it never happened. **ACTION: JG to chase this up.** JN – we need to communicate this project at many different levels.

Date of Next Meeting

Thursday 17th November, 4.30-6.00pm in Room G01B, Ground Floor, Lancaster Circus

Birmingham Energy Savers Board Meeting – 18th January 2012

Present:

JG (Chair)	NH	JJ
BG	BB	JM
ST	AJJ	RS – Birmingham Chamber
DA	RD	Beck Collins - BCU

Apologies:

AC, CV, JH.

Notes of Last Meeting and Actions Arising

Minutes confirmed as correct

Actions from last meeting

- The government's decision to amend the FIT prior to the end of consultation was successfully challenged, DECC are now appealing this challenge, but the judges cannot yet decide and will deliberate for another two weeks. Therefore, DA has been unable to draft a report for cabinet to explain the different possible ways forward for Phase 2. Cabinet have agreed that BES phase 2 can continue minimally until this is clarified. However, even after the clarification of this matter, the outcome of the consultation as a whole still won't be known – especially the key issues of the multiple-installation tariff and the community tariff. It would be nice to get a report to the cabinet meeting on 5th March, but the board still may not have the information necessary by then.
  DA – a mini competition has been launched to see if the price of panels and inverters has come down. JG believes that the cost per kilowatt is now 40p (instead of over £1 as previously) as a result of a conversation with JH – so the price *does* appear to be falling.
  NH – install price may well be falling as well.
  ACTION: DA to remodel Phase 2 with this new information, and share with AJJ, BB and JG, to see if Phase 2 installs can be ramped up again – brief cabinet leader.

1. Phase 2

Phase 1 and 2 performance is now covered on one sheet, Phase 2 *activity* on another.
See status report.

DA – we're moving into CESP areas, to double up on benefits from projects run by British Gas and E-On. If other roofing work is going on through housing programmes, we will look to put solar PV.

Are ward members being informed as Phase 2 moves into their ward? **ACTION: DA & JJ will liaise to update them.**

Hoardings – JG feels they could be bigger?

The average saving figure on the status report is based on the performance of panels, and doesn't take into account outside temperatures. BG reports that tenants are still seeing a significant reduction in their bills *despite* fuel prices going up by 15 to 20%.

2. Green Deal and ECO Consultation

The secondary legislation consultation ends today.
The role of the assessor seems clearer, but sadly it seems to be a desk top role, rather than looking at the customer's behaviour and bills.
There remain questions about the assessor's independence, if they are paid by the provider.
There will be strong pressure to set up a special purpose vehicle to separate out the issue of the GD provider being a co-signatory with the householder, which would lead to balance sheet and warranty issues.
As it stands three quotations will be required for works over £10K, although DA feels that if the provider has been publically procured, this will be unnecessary.
Repayment is linked to fuel inflation, which DA is unconvinced by.
The Golden Rule does not stretch to covering hassle payments, which DA feels is a missed opportunity.
The householder is responsible for the disclosure to the landlord and to the next owner. The GD provider must provide insurance backed warranties, which DA fears will keep small enterprises out.
The ECO is 1.3bn a year, much higher than expected, it is hoped that 515,000 properties will be externally insulated by 2015, which is an enormous amount. BG – currently the insulation industry as a whole does 30K properties a year, they may not be able to cope with going up to 100K+ properties a year.
Over bureaucratic safeguards for consumers might discourage potential providers.

Please see a full summary DA's responses to the consultation attached.

3. BES Engagement Events

February engagement events are planned and invites have been sent.
6th Feb and 7th Feb: community and transition groups.
6th Feb: referral and support officers
8th Feb: employment and training agencies
9th Feb: supply chain members
10th Feb: landlords
29th Feb: Other authorities.
The first six events are planned in such a way as to feed into the ISDS.

Marketing – JG has spoken to Marketing Birmingham, who have not followed up anything from that meeting. JG will chase. There will be a piece in the Local Authority Chronicle, and Inside Housing might want to do a piece too.

Website – BG met with Orb Creative to find out what could be done, they said nothing, since they had followed the original brief for a static website. BG will look at creating a brand new website, which BCC can control, working with NH. DA is concerned about the lack of budget for this. AJJ waiting for written confirmation from legal about whether or not FIT money can be spent on something like a website, instead of being paid straight back to HRA, whereupon a budget can be drawn up, and the website built. **ACTION: AJJ to report back on this matter.**

4. Operations Subcommittee

See status report. There is some confusion over who's responsibility it is to do the supply chain engagement for Tranche 2. The operations subcommittee will be present at the event on 9th February. RS – Buy4Good is meant to have a role in engagement too.
ACTION: DA to meet with JJ and explain the responsibilities in engagement – it is a confusing issue as a result of the conditions AWM put on BES for their ERDF bid.

5. Phase 2 Council Buildings

See status report.

6. Phase 3

[R Shariat declares interest – the Chamber of Commerce is part of the consortium for EON's bid to BES Phase 3, and leaves the room]

We are still awaiting the outcome of the consultation, so the ISDS will proceed in two phases.

A state Aid notification cannot be done until March 2012, meaning that confirmation will probably not be received before March 2013. Therefore a possible lack of low cost finance may lead utilities to cherry pick ECO eligible houses, which may lead them away from Birmingham. To mitigate this risk, BES can work on state aid exempt houses, identify early adopters who don't need GD finance, and work on non-domestic properties. See h/o

7. **AOB**

JG has it on good authority that DECC have allocated 193mn to their FIT budget because they don't expect to win their appeal.

ELENA – still waiting to hear. The bid now says that they will only support BES post short-listing. DA has also requested funding for an implementation unit – an external body to oversee the BCC element of setting up a joint venture.

Date of Next Meeting

Wednesday 15th Feburary, 12:15– 13:45 in Room 101/1, First Floor, Lancaster Circus

Birmingham Energy Savers Board Meeting – 15th February 2012

Present:

JG (Chair)	JH	JN
BG	BB	JM
ST	SW	DT
DA	FA	Beck Collins - BCU

Apologies:

AJJ, NH, RD, JJ

Notes of Last Meeting and Actions Arising

Minutes confirmed as correct

Actions from last meeting

- DA has remodelled Phase 2 and given it to Jason Lowther.
- DA has received installation costs.
- DA – we are identifying wards going forwards, and will be writing to ward members as we go. We have done so in Bartley Green and attended their ward committee.
- BG – G Purchase are proposing rigid boards of 8ft by 2ft to put on the top rail of their scaffold, and are looking into getting even bigger signs, by printing on fabric. Again, JG would like to see enormous hoardings, but is happy to go with G Purchase's final recommendation as to what is safest with their particular scaffold solution.
  ACTION: BG to update the board on this.
- JG has met with Tim Manson of Marketing Birmingham, but still hasn't gotten to the bottom of the matter.
  ACTION: JG to continue to chase Marketing Birmingham
- JH believes that an article about BES has indeed been run in Inside Housing.
- BG has met with Ice Blue about designing a new website.
- DA and AJJ are still chasing Legal for written confirmation that PV is a fitting and not a fixture, so that the money from the FIT can be transferred from the Housing Revenue Account to General Fund, and pay for BES activities. The time delay is worrying, and may cause problems at financial year end. JG: we need to send an email to David Talow, copied to Andrew James and Rob Pace to say that this is serious, so it can be dealt with before year end. DA has sent an email about this as he needs to do the BES budgeting.
  ACTION: Email to be sent, this matter is URGENT
- DA – the matter of who is responsible for Aim High procurement, and who is responsible for business assists has been resolved.

1. Phases 1 & 2

See status report.
The mini competitions have led to considerable savings. On Lot 1 (modules), the competition has led to a saving of £39 per module, a total of £99,840. On Lot 2 (inverters) £276 per inverter has been saved, a total of £88,258. This improves the financial modelling of what BES does in future, and of what has already been done, since it was originally assumed that the inverters would have to be replaced every ten years, by which time newly available inverters will have a longer life span, and will not need replacing again before the end of the 25year life span.

Feed In Tariff. This will be 21p as of the 3rd of March. The legal challenge that the timing of the FIT rate reduction was illegal was upheld; the Government lost its appeal. Government is minded to exercise its right to appeal at the Supreme Court, since the challenge called into question a principle of ministerial powers. So it is unlikely that the rate of FIT between 12th December 2011 and 3rd March 2012 will be clarified before September. This creates interesting questions of how this will be handled by British Gas, who currently pay BCC the FIT. JG: Lawyers are already betting that the government will lose its appeal. DA: PV buyers appear to be assuming the same, and buying PV.

Community Tariff. The consultation was split into Phase 2a (PV) and 2b (all other renewables). 2a confirms there will be a multi-installation tariff for over 25 installations at a time. 2b (inexplicably, since it doesn't officially cover PV) splits that multi-installation tariff into 9p/kWh for *commercial companies*, and 16.5p for *social landlords*. Local authorities are not mentioned except as social landlords, so it is unclear what BCC would receive if it put PV onto a school or CAB. BCC must respond to the consultation, although this part of the legislation will not come into force for a while so there is a potential opportunity to get on with schools quickly. However overall, this legislation pushes BES back towards domestic buildings.

Current Rate of Installation. Since 16th January, G Purchase have done 40/53/36/20 installations a week. However, this increase in installations since the December drop off has thrown the District Network Operator off-track, and they are now taking up to 6 weeks to register the systems. Planning permission is not needed for sheltered housing, so BES should press ahead there. Happily, sheltered housing is pepper-potted throughout the city and not clustered together, so the problem of overloading local substations is avoided. 15 schools have also been looked at for PV.

CESP and Continuing PV Installations. After 1st April, where BCC have received an application to have CESP measures done in a CESP area, if BCC have offered to put solar panels in that same area, the cost of the installation of insulation has been driven down, eg E-ON are now insulating some properties in Northfield for free. As a result of this, DA things that BCC should continue to install PV post April 1st. DA will hopefully be able to demonstrate this at the end of the week upon completion of the financial modelling, but it appears that it is possible to continue installing PV and break even. BB: 27% of Birmingham's housing stock is non-traditionally built, and hence extremely difficult to heat. If BCC refuses to do PV after April, and so fails to drawn down that investment, then those properties get nothing! DA is going to ask for some agenda space on the finance meeting next week to discuss this. The predicted surplus will still be within 10% of the original plan, so BES does not need to go back to cabinet, it just needs to inform the cabinet member for finance what has changed and why.

2. Phase 3

See status report.
BES needs to plan how to bring in ECO where the energy companies are now doing CESP as it will help establish a baseline. The delivery partner will be in a difficult position when it begins work in Birmingham since little finance will be available (since BCC won't be able to use its own finance without a state aid notice, which won't go through until DECC is ready to submit their state aid notice for the Green Deal Finance Company notice alongside it). However, the delivery partner will be able to use BCC finance on BCC properties, properties of the sick and disabled, etc. BES will invite bidders to talk about what they can do between November 2012 and March 2013.

BES will soon be informing which four of the five current bidders have been shortlisted, and will then have a dialogue about how to continue. One of the four to be shortlisted is rather far behind the other three. They will be told so, so they have the opportunity to bow out of the process if they feel, given the situation, that it is no longer worth the investment of their resources.

W/C 6th March; consultation events were held which 350 people attended. All bidders came to observe. There were a lot of offers from community groups to help make the Green Deal happen in their area. JN: There was lots of positive feedback from employment agencies as well; at later consultations Work Programme providers should be invited. DA: there was a split of opinion amongst private landlords; some felt the programme was an excellent opportunity to improve their assets at no upfront cost to themselves (and little cost thereafter, provided their properties do not remain void for any length of time), whereas others were worried that the surcharge would turn away potential tenants. Positive landlords have promised to help arrange a meeting with Birmingham University Students' Guild.

BCC have had a visit from the Director General of DECC to talk about the City Deal, who was disappointed to find that BES did not feature in it. DA has since written a document about how BES can be involved in the programme, which is now included. This document has suggested a district energy scheme, using the City Deal capital to cover the initial outlay.

3. <u>BES Aim High</u>

See hand out in JJ's absence.

4. <u>AOB</u>

ST: there will be a visit from the cascade project next week, with a peer review feedback session next Friday.
SW: solar panels for sign lights? DA: Amey are running a scheme to replace all street lights with more efficient ones, and use renewables where appropriate, however since storage technology is quite poor at the moment this is not currently an option. ST: Lights vs reflective signs.
DA: ELENA bid has come back, going to try and send it off today, it should therefore be taken to commission by the end of the week, so BCC might have its answer by March.

Date of Next Meeting

Tuesday 13th March, 13:00– 14:30 in Room 101/1, First Floor, Lancaster Circus

Birmingham Energy Savers Board Meeting – 22nd May 2012

Present:

Jack Glonek (Chair)	Linda Aston	Jane Newman
Bill Goodfellow	Janice Morrison	Paul McGrath
Neil Hopkins	Michael O'Conner	Derek Taylor
Dave Allport	Farooz Ali	Beck Collins – BCU
Mark Young	Roger Dunthorne	

Apologies:

Alison Jarrett, Andrew James

Notes of Last Meeting and Actions Arising

Minutes confirmed as correct

Actions from last meeting

- Still no progress on Marketing Birmingham, this shall be dropped, BES should be marketing itself.
- Website has been rolled up into the overall communications plan, which will be reported on when fully developed. In the meanwhile, a short term communications plan is needed to generate customers for the Green Deal and engage with the supply chain and community groups. **ACTION: DA will report back on this at the next meeting.**
- BG – Feed in Tariff figures – projected income of £950,000.
- Paul McGrath – 2 preplanning applications have been submitted, and the BES team has been advised that a full planning application will need to be submitted for external solid wall insulation, rather than classing it as permitted development. Julie Thomlinson from Planning Development is leading on this. Ultimately, this needs to go to Mark Barrow. **ACTION: DA is writing a paper for Mark Barrow that he and JG can pitch together.**
- JG has not yet arranged his meeting with Peter Jones. **ACTION: JG to arrange meeting with Peter Jones. ACTION: DA to meet with Chris Morris.**
- **ACTION: JN to think about how to capture information on how many jobs are being created. PM and JN to share forms they've seen/developed with each other.**
- **ACTION: Jobs and skills to be a standardised agenda item on contract meeting agendas.**

1. Phases 2

See status report.

No domestic PV has been installed since 1st April. Instead PV has been installed on sheltered housing, and will be installed in CESP areas. EPCs are to be accounted for, many houses are a high E, adding a PV panel will push them up to a D, so the FIT can be claimed.
Schools. Applications of interest have been received from 47 schools. Many don't have an EPC of D; G Purchase Ltd have been instructed to go ahead on those schools which do. The BES team are speaking to the DNO about 14 schools that have a high rating, hopefully they will agree to the installations going ahead.

2. AIM HIGH

See status reports and report.
In order to procure anything from the programme and claim match funding back, BCC needs to adopt Schedule 5 to be compliant, if any further procurement is done outside of G Purchase.
DECISION: JG accepts recommendation of report and signs it.

3. BES Pathfinder Procurement

Social return on investment – see attached report on Social Value Act.
BES has asked bidders how they will include social value. The Council also needs to review its own corporate processes. It needs to be funded, and possibly developed at the same time as the bidders develop theirs, so when the bidders submit work the Council can know what constitutes a good or bad answer, although ideally this would form part of the dialogue (although with the ISDS due 16th July, there are time constraints). However, the future DP will be contracted to work with BES once appointed on a set of individual indicators for social value, so why go through this supplementary process as well?
ACTION: JG and NH to talk about this outside the meeting and decide how best to take it forward.
This issue will be returned to in the final dialogue with bidders in August. The benefit here is of a co-ordinated approach, rather than four bidders and Buy for Good setting up their own supply chains and giving mixed messages. BES ought to be telling suppliers what BES is about and what they should expect from their involvement.
DA – due to the lack of secondary legislation, it is difficult to be sure what those consistent messages should be. BES doesn't want to restrict the bidders. AIM HIGH is there so support the supply chain companies, Buy for Good is therefore running support workshops.
ACTION: DA and NH to meet and pin down what BES is already doing through AIM HIGH and what needs to be added.

4. Green Deal Update

DECC is still aiming to launch the Green Deal in October, therefore BES is continuing with its procurement and will give out ISDS in three weeks and receive solutions in July. At this point two bidders will be shed.

Nationally, BES is still waiting for the secondary legislation, apparently there are some arguments between DECC, the Cabinet Office, the Office of the Prime Minister and the Office of the Deputy Prime Minister. Meanwhile BES can focus on fuel poverty or carbon savings.
There are worries about the IT mechanism to put a charge on the householder's bill.
The GD investment bank is still waiting on state aid, and all other GD providers are expecting to get money from the Green Deal Finance Company (dependent on the Investment Bank) so it looks like BES will be alone until May. BES is also waiting on State Aid, and so may have to go ahead on houses for which the council has a duty of care.
Don't want to get a bad reputation for a slow planning process.

ELENA – BES are still waiting on the European Commission to give an answer.

Financial Situation – the procurement of Phase 3 has cost in excess of half a million. ELENA has not been approved, so that figure needs to be repaid over time, with non HRA money. BES could ask the bidders to include it in their overheads, but it may make progress uncompetitive.
ACTION: JM/BG Circulate risk register via email.

ACTION: DA and AJJ to meet before the next meeting to pin down the risks and present to the next meeting.

5. <u>AOB</u>
None.

Date and Time of Next Meeting
Tuesday 26th June 2012, 14.30

Birmingham Energy Savers Board Meeting – 26th June 2012

Present:

Jack Glonek (Chair)	Dave Allport	Jane Newman
Bill Goodfellow	Janice Morrison	James Jamieson
Neil Hopkins	Alison J Jarrett	Sue Watts
Sandy Taylor	Beck Collins – BCU	

Apologies:

Jenny Howarth and Mike Smith

Notes of Last Meeting and Actions Arising

Actions from last meeting

- DA wrote a paper on planning guidance which has been discussed with Mark Barrow. The next step is to meet Wahid and discuss with him why he thinks these improvements need planning permission. Mark Barrow believed this to be 'permitted development'. **ACTION: DA to update the board on this on-going issue.**
- JG has not met with Peter Jones. **ACTION: JG to meet with Peter Jones.**
- DA has met with Chris Morris – a number of industrial and commercial buildings have been identified and are in hand.
- JN has shared information and spreadsheets with Paul McGrath and Roger Dunthorne. She would like to know if they've had a conversation with contractors about this, and if anything needs rejigging. **ACTION: BES team to feed back to JN on this.** Jobs and skills are now a standardised agenda item.

1. Phases 2

See status report.

When properties become void PV has been switched off, but is this the best thing to do? Housing have been advised to leave them on, but are just in the process of working out if there are any other health and safety issues to prevent them from doing so.
G Purchase will be running a training programme for BCC staff on the PV, which should help.

BES has HRA funding to do another 300 domestic installations in order to secure CESP funding, after which they will switch their attention to non-domestic properties, especially schools. They haven't yet begun to explore the opportunity to install PV on leisure buildings and care facilties.
ACTION: change "interest payments" to "capital interest payments" on the status update report, and label the relevant columns as "HRA" and "General Fund".

We will need to discuss with the new councillor how he would like to take forward and promote BES.

2. AIM HIGH

See status reports and report.

The procurement process that appointed British Gas as the CESP partner may not have been conducted in a fully compliant way, and may be challenged if British Gas are asked to match fund the works. BCC may have to re-procure, or wait until October and use the Green Deal Delivery Partner. In order to re-procure, an advert would be placed on Find It In Birmingham, two weeks would be given for replies, and an abbreviated process would be gone through to pick a contractor, which is permissible because of the lower value of the works.

ACTION: DA and NH to decide the best way forward.

3. ELENA

BCC have been awarded 1.667million euros, and should be able to start spending next week. This money will support legal and multidisciplinary work, and will pay for an ELENA manager and programme implementation team and for feasibility studies.

ACTION: DA to email a one page summary of what ELENA will cover and give a relative breakdown.

4. Pathfinder Programme Procurement

This is going well. The Invitation to Submit Detailed Solutions was sent yesterday (25th June), bidders now have two weeks to consider their responses before going into two weeks of competitive dialogue, and then a final week to finalise their proposals, which must be submitted by 30th July. These will be evaluated by mid-August, two will then be selected and continue dialogue. These two bidders will then be invited to submit their final tender, which will be evaluated by mid-September, brought to Cabinet, and the delivery partner should be in place by 1st October.

The cabinet report to be submitted 27th June will update the outline business case to realign with the leader's policy statement.

DECC are saying that the Green Deal will start 1st October , but won't release any plans until 28th January 2013.

Cabinet are now being asked to approve an **8** year programme rather than a **3** year programme, so that the delivery partner can spread their costs over those 8 years, and hence not price out early adopters.

ACTION: DA to ensure that board meetings are aligned with the procurement process.
ACTION: DA to email round the updated PDD after 4th July.

A councillor has raised the question of the living wage. BES must find out what the average wage for this sort of work is, so that we know how difficult it might/might not be to require this of the delivery partner. Social value could be looked at under the feasibility aspect of ELENA? Question of priorities?

ACTION: This is to be discussed by the next board meeting between DA and the relevant theme leaders.

5. Green Deal Update

Legislation has now been laid before parliament. DECC has responded to the consulation, and the launch (of the capability to carry out assessments) will be in October. The City Deal, could be used as Green Deal early adopter money. ~£3mn for demonstrator projects. Any expertise that arises as a result of this grant must be shared.

6. New Admin Priorities

A new Green Commission has been set up to review what has been done and to accelerate work. This commission aims to produce a report by October. The leader's policy has a set of 8 bullet points, which include 1) The Green Fund Program 2) Accelerating BES 3) Details of a new collective energy offer to challenge the power of the Big 6 and get bulk discounts 4) An energy plan for Birmingham with energy infrastructure 5) A Green Bridge economy programme 6) Producing a smart waste plan 7) New planning policy and sustainable development guidance 8) Adopting a greener living spaces strategy.

A new role for scrutiny is envisaged which will help *shape* policy.

7. Budgets

Phase 3 programme will cost ~£1.2mn. ELENA provides about £1.2mn. The remainder of the cost is to be covered by FITs from Phase 2, with a 'rebate' or fee on Phase 2 procurement where it is used by other contracting authorities via Buy for Good, and a rebate on Phase 3 procurement if used by other contracting authorities. If there is a shortfall, costs can be recouped by adding this cost onto Green Deal measures.

Future spending of HRA 'surplus' as a result of BES (after borrowing has been repaid) is to be arranged by the cabinet member. However this money should be left alone for now; BCC don't know for definite how long the panels will last, what will be needed in terms of maintenance, etc. There will be more surplus than expected because the cost of procurement came down as a result of market uncertainty. However, this money still isn't physically in the BCC account as British Gas are six months behind their payments.
ACTION: AJJ to produce a 1 page note explaining the 'surplus' and what it covers.

We do need to be mindful that a large proportion of tenants have not benefited from PV and any surplus we do have should be ultimately reinvested so that these other tenants may also benefit.

8. AOB

ERDF may be available for BES, if there is capacity to write a bid.

Time and Date of Next Meeting
Friday 20th July at 1.00 pm in Room 101.

Birmingham City Council

Birmingham Green New Deal

Business Plan

11 November 2009

Development funding provided by:

Environment Agency

Confidential

Table of Contents

SUMMARY

Outline

The Green New Deal (GND) is a 5-year project to retrofit housing and small business premises across the city, made up of a pilot phase across four areas of the city up to March 2011, followed by up-scaling and transition to fully self-financing by March 2014.

The aim of the project is to provide the co-ordination, infrastructure and enhanced scale to ensure that investment in retrofitting of houses and businesses in Birmingham is maximised and has the greatest impact on job creation and business expansion, as well as maximising the reductions in CO_2 emissions and also tackling fuel poverty. The whole house solution approach will also include home safety, fire and benefits checks.

Once approved, the project has the potential to be able to draw in additional funding – from a mixture of existing and new schemes – of approximately £17,000,000 to further enhance the core delivery (see Appendix VI for Projected Sources of Funding). These funds are in addition to the core delivery programme and would enable residents to secure further financial benefits.

Objectives

The project will support the recruitment, training and up-skilling of unemployed or underemployed individuals, from priority areas, to work on the promotion and delivery of retrofitting existing buildings. Targeted recruitment and training will be facilitated by local delivery partners and academic institutions.

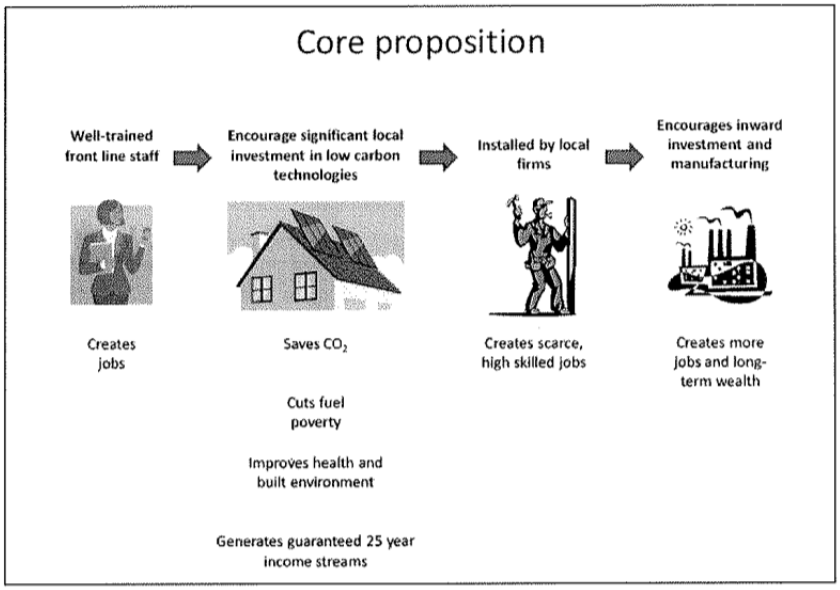
Retrofit teams will provide technical advice on energy efficiency, as well as bespoke financial support packages (see Section 2 below for the Fundamental Customer Proposition). By putting together block contracts unit costs will also be significantly reduced. The procurement process will ensure quality service provision to the householder and assist in creating local jobs and skills.

The project will reduce fuel poverty[1] by improving energy efficiency, thus reducing heating costs and improving the health of vulnerable people.

get rid of token meters and fuel poverty will decrease!

The programme will also assist in improving business competitiveness by reducing energy costs.

[1] Birmingham's affordable warmth strategy estimates that there are 200,000 at risk of fuel poverty (defined as spending more than 10% of income on fuel) in Birmingham.



Pilot

The pilot phase will target the following four areas – South Lozells, Northfield, a group of Council tower blocks (matched to funding specifications), and SME premises on selected industrial parks across the city – equating to approximately 15,000 homes and 1,300 businesses.

The scale of this operation, along with innovative approaches to procurement, will trigger the expansion of local supply chains in the fitting, maintenance, manufacturing and specification of renewables and other energy efficiency building products. This will also encourage a new wave of inward investment in Birmingham by taking advantage of a growing national market and promoting the market opportunities.

Funding requirement

£1,200,000 of Working Neighbourhoods Fund (WNF) is needed to finance the core elements of the pilot phase – including development costs of £75,000 to set up a small, dedicated implementation team and putting in place the framework for the self-financing stage of the project.

Management and development

The need for the project has been identified through discussions with the Chamber of Commerce and Industry, Homes and Communities Agency, AWM, GOWM, Urban Living, Jericho, Family

1 INTRODUCTION

If Birmingham (or Britain) is to meet its climate change targets huge amounts of expenditure[3] will be invested in retrofitting the existing building stock in Birmingham. The purpose of this project is to direct that expenditure to maximise the benefits for Birmingham by;

- **attracting additional expenditure to speed up the process,**
- **ensuring that it is aligned to maximise the job opportunities and skills development for local people,**
- **creating and expanding of local businesses**
- **ensuring the most efficient investment for carbon reduction,**
- **using existing resources to greater long term effect.**

This project is a large scale initiative to retrofit housing and small business premises across the City. It will deliver short-term jobs, reduce carbon emissions, and create long-term competitive advantage (and more jobs) for Birmingham-based supply chains in the transition to a low carbon economy.

The Green New Deal (GND) is a five year project with a pilot phase across four areas of the city up to March 2011. This is followed by scale up and a transition to full self-financing by March 2014. The project will create a legacy that lays the foundations for a 10 year programme of retrofitting the entire city, as will be necessary to meet global targets of 80% reductions in carbon emissions by 2050. It is also intended to give Birmingham a demonstrated position of global leadership in this specific field bringing more jobs and investment to the City.

The project is led by Birmingham City Council, who will use £1.181 million of Working Neighbourhood Funds (WNF) to fund the core elements of the pilot phase, including setting up a small, dedicated central team and putting in place the framework for the self-financing stage of the project.

The central team will work with local delivery partners in the four target areas to:

- Enhance the skills of existing staff to enable delivery of energy efficiency and microgeneration advice
- Train workless individuals as new front line staff
- Offer financially attractive whole house retrofit and microgeneration packages to appropriate households and small businesses (SMEs)
- Develop and train highly skilled teams of low carbon retrofit specialists who are able to deliver projects to the standard necessary to achieve 50% plus carbon emission reductions. This approach will also cut individual project costs by eliminating duplication and decanting costs.

[3] The Energy Savings Trust has estimated that just over £3bn is required to be invested in the existing West Midlands housing stock on improved energy efficiency alone. (Quoted in Low Carbon Housing 2009 AWM and West Midlands Regional Assembly). Fitting renewables to all dwellings would add approximately £8bn to the total. We are not aware of any figures in relation to industrial and commercial premises but they would be an additional several billion.

Additional finance of £7.1 million to support this activity through to March 2011 will be secured from a mix of existing schemes, including the new UK feed in tariffs[4] (FiTs) which will be available from April 2010. We have provisionally identified £6.5 million of these funds, with the balance of £0.6 million provisionally expected to be financed by a mix of private funding, regulated carbon reduction investment from utilities, and through borrowing against predictable future revenue streams. Additional financing of just under £2.5 million is required to sustain the project from 2011 through to 2014 when it becomes self-financing. A number of sources of substantial funding that could be used to fill the gaps have been identified.[5] However in some cases negotiations are still ongoing about the amounts, timing and how the money could be used, while in other cases an invitation to bid for funding has been issued but the bid still needs to be made. While it seems fairly certain that the overall level of additional funding attracted will greatly exceed the shortfalls identified in this business plan it is less certain that the funding can be used to fill all the gaps but may instead result in an expanded programme of retrofitting. In these circumstances and if no other additional sources of funding can be identified it may be necessary to undertake some short term borrowing against future income streams to cover these gaps. A breakdown of anticipated funding sources is provided in appendix VI.

has this happened?

As soon as there is clarity about the other funding sources the finances will be remodelled to reflect their impact on the business plan.

Feed in tariffs (FiTs) for locally-generated electricity enable innovative financing mechanisms to be established. These provide guaranteed long-term income streams to capital funders. By using scale and public backing to procure cheaper capital, one or more special purpose vehicles (SPV) will be created which will enable the scheme to become self-funding. [6]

By linking project activity to local supply chain development, directed strategically in association with Science City and others, the project will aim to attract over £20 million of low carbon manufacturing investment to the city in the next five years and create a minimum of 122 skilled jobs. It will save over 2764 tonnes of CO_2 emissions a year from this pilot phase alone.

This document summarises the financial projections for the project, followed by an explanation of the core proposition and key operational assumptions, organisation, and an analysis of sensitivities and risks. More details of the underlying assumptions are contained in Appendices I - VII

[4] Feed in tariffs were introduced in the 2008 Climate Change Act. They come into effect for electricity generators (eg photo voltaics, wind turbines, heat pumps) from April 2010, and for solar panels the following year. Under this regime when an effective renewables energy generator is fitted to a building the energy companies have to pay the owner a guaranteed fee per kWh for 25 years. This will be worth between a 5% and 7% rate of return on the investment cost. Photovoltaics (PV) will be the most widely suitable technology. With the efficiencies of this programme the rates of return will be at the higher end. In this project the Council or a special-purpose vehicle which can borrow at less than those rates (unlike individuals) provides the PV for free or at much reduced cost in return for having the feed in tariff assigned to them. The owner of the property will then receive savings due to reduced energy usage and if the property did produce a surplus they will then receive further payment for selling this back to the grid (see appendix VI for an illustration).

[5] See appendix VI for more details.

[6] This role could be taken on by the Council internally, through a new special purpose vehicle or through the expansion of one or more of a number of existing suitable organisations,

2 CUSTOMER PROPOSITION AND OPERATIONAL MODEL

Fundamental customer proposition

The basic proposition to property owners or tenants is that if they allow carefully-targeted improvements to be made to their home, their combined monthly cash outgoings on rent or mortgage, finance and energy bills will fall.

Everybody wins:

- **the occupant saves money and becomes less exposed to fuel price rises**
- **the community gain jobs and skills**
- **the home becomes more comfortable and healthy**
- **the city and country see carbon emissions falling**

This works because for many properties investments in energy efficiency and microgeneration measures will now reduce fuel bills by more than the cost of the measures (plus finance charges) over the life time of the improvements. This enables new financial funding mechanisms to be used, such as "Pay as you save" or PAYS schemes, where the occupiers do not pay capital costs up front but progressively over the lifetime of the equipment.

For example, by investing £12000 on a property (see section 3 below) annual fuel bills fall by up to £660 per year and feed in tariff (plus export) revenue of £307 is secured for 25 years. This £967 income is partly used to repay the £12000, plus interest, over 25 years, and partly used to increase the occupier's income. After 25 years the occupier has fully paid for the improvements, is £9328 better off, still saving half their fuel bills per year, and the lender has their money back plus 6% annual interest[7].

For many properties in Birmingham, 50% or more capital subsidies will apply (CERT, Warm Front and CESP) which will make this example even more attractive. These are funded by the utility companies who are required to pay the subsidies by the regulator. In the same example with 50% capital subsidy, after 25 years the occupier is £30600 better off and would be able to repay the debt within 10 years.

Historically, there have been three main barriers to realising these benefits.

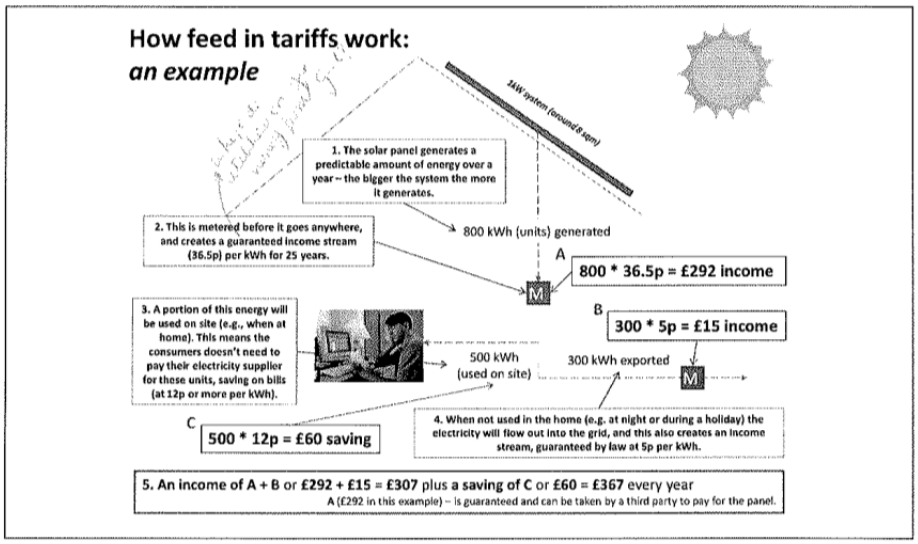
1. Lack of skilled staff on the front line capable of identifying suitable homes and opportunities. Technical expertise is required – generic energy advice is not sufficient.
2. Lack of guaranteed income streams which give financial institutions the confidence to lend against future savings.
3. Relatively low fuel prices

The second and third of these barriers have now gone with sustained high fuel prices with little prospect of falling, and the introduction of feed in tariffs. This Green New Deal Project eliminates the first barrier in Birmingham.

[7] Assumes average fuel inflation of 3% per year. Higher fuel inflation increases the value of the savings. Domestic fuel inflation has in practice exceeded 10% per year since 2007.

New incentive schemes provide significant capital subsidies for many home occupiers (especially the elderly, workless, or people living in deprived areas). In addition, feed in tariffs (see below) provide government guaranteed revenue streams for certain types of installation which enable larger bodies (such as this project) to fund the initial capital improvements against guaranteed future payments (which can be collected directly from the utilities).

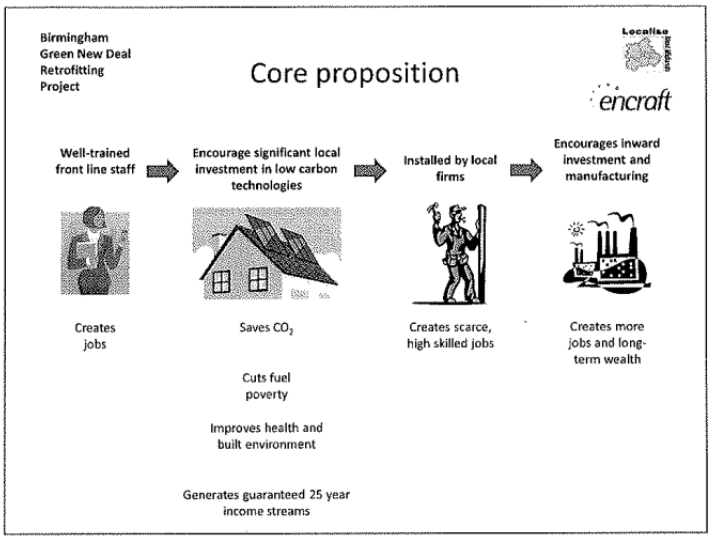
The way a feed in tariff works is illustrated below (this example shows the possible income/savings generated by a 1kW solar PV installation only and no other retrofitting measures).



The guaranteed nature of these financial flows makes it possible to borrow money to fund these systems and enables mixed models such as the Green New Deal Project to be developed, where part of the capital may come from the occupier and part from a local community project or central city fund – in both cases at no cost to the Council. The 36.5p and 5p in the example above are fixed for 25 years and guaranteed by law.

How this will be delivered

The operational model is to equip front-line staff (in defined areas of the City) with the skills to identify buildings with high energy saving potential and signpost the property owners both to existing sources of support and appropriate technology suppliers. This will make it possible to accelerate retrofit investment sufficiently to stimulate strategically significant economic development locally. This approach is illustrated schematically below.



At the same time as identifying potential energy improvements to properties, front line staff will also be able to offer support and advice on benefits, funding opportunities, training and jobs. They will also carry out home safety, fire and benefits checks.

Optimised energy efficiency improvements on domestic and small business properties can reduce annual fuel bills by 50% or more, with an average investment of around £8000 (see table below). The 10-15 year payback on these kinds of measures can be difficult for homeowners to contemplate, but this may be mitigated by using loans, grants and feed in tariffs.

Such support is justified because the savings will continue to accrue to future occupants well beyond the initial payback period; because there are significant CO_2 emission savings associated with these projects (around 1-3 tonnes per house per year); and because a significant element of the economic activity to carry out the retrofits is localised, and hence creates local jobs and wealth locally.

The technologies to achieve such savings are generally mature and available, but market penetration has been held back by lack of scale demand in the UK market; by lack of the high quality fitting and maintenance skills required to secure real and long-term savings, by lack of easy to access and trusted systems to help individuals manage the specification and fitting of quality projects to their property and by high transaction costs that make it difficult for small businesses in particular to access the market.

For this project we have based the capital costings for whole house and solar PV retrofits on the budget figures shown below three "generic" options at individual property level. **We anticipate significant variability around average costs depending on house sizes and configurations, but the average figures budgeted for the project as a whole (£240 average savings per house per year[8], plus £292 fixed feed in revenue per year for houses with PV) are conservative**. These figures are

[8] This allows for lots of PV systems which save £60 per year (excluding feed in tariffs) and a smaller number of whole house retrofits saving £600 per year.

based on current market prices and quotations. We believe significant economies can be realised through taking a whole house approach employing single multi-skilled local contractors and avoiding multiple mobilisation, scaffolding, management and overhead costs; and eliminating sales and marketing costs completely as these are already covered by the front-line staff activity.

Technology[9]	Fully installed cost[10]	Annual fuel bill savings	Annual CO_2 emission savings	Local person hours employment[11]
Solid wall insulation	£4-7000	£150-£250	0.4-2.1 t	
Extra loft insulation	£250-£600	£100-£180	0.3-0.5 t	
Solar thermal (4 sqm)	£1200-£2000	£60-£150	0.1-0.4 t	
Controls and draughtproofing	£150-£800	£50-£250	0.1-0.6 t	
Budget for whole house retrofit package	**£8000**	**£600[12]**	**1.326 t**	**134**
1kW solar PV[13]	£3800-£4200	£60 onsite savings £292 FiT revenue £15 export payments	0.45 t	
Budget for 1kW solar PV system	**£4075**	**£60 onsite savings** **£292 FiT revenue[14]**	**0.45 t**	**30.75**
Both of the above combined	£5404-£14600	£660 onsite savings £292 FiT revenue £15 export payments	1.35 t – 4.05t	
Budget for combined PV and retrofit	**£12 000**	£660 onsite savings £292 FiT revenue £15 export payments	**1.776 t**	**164.75**

Local knowledge has significant value in this market because CO_2 savings and financial returns are only secured from high quality installations with a high degree of attention to detail and adaptation to site circumstances, as well as on-going maintenance. For example, a significant proportion of energy savings in well-built new homes compared to older stock is due to airtight construction and effective management of ventilation: this can only be achieved by significant craftsmanship and attention to detail by installers.

[9] Retrofit technologies are not intended to be exclusive: heat pumps and other technologies may also be deployed. The above list is indicative for budgeting purposes only.
[10] Current prices for 1000 installations. The project budget allows for both inflation and some technology cost reductions due to learning and development over the five years of the project.
[11] Includes all local installation jobs and associated overheads but excludes sales and marketing. Based on Encraft activity-based microgeneration supply chain model.
[12] Fuel costs and savings are assumed to increase at 5% per annum on average over the next five years.
[13] See "How feed in tariffs work: an example" diagram earlier in this section.
[14] The project financial model includes allowance for 7% FiT tariff degression throughout the project.

Thus improved levels of skills and training for existing construction workers to meet the standards demanded in relation to retrofit will be a key part of the programme.[15]

Significant national low carbon R&D effort to date has focused largely on product development and prototyping, and substantial economic value remains to be secured through development of efficient mass market manufacturing and logistics processes, and well-engineered deployment techniques.

There is strategic opportunity for Birmingham because the global market for green construction alone is expected to double to £100 billion within the next four years[16], and the global market for green energy technology is expected to exceed £350 billion by 2020[17]. UK attention has focused on fundamental R&D investment, and nowhere has market scale been sufficient to encourage the manufacturing process improvement and the development of good quality deployment skills that will be necessary to realise the bulk of this value.

Birmingham has a historical track record of achievement in these fields, and knows how to work bottom up, starting from local workshops and manufacturing facilities, to grow industrial infrastructure with the market to achieve positions of international leadership. Because it is so accessible to local skills and small businesses, the low carbon building technology market provides a golden opportunity to deploy this collective expertise effectively.

The model will become self-sustaining because carbon saving is rapidly moving in economic terms from a social good, funded by direct public subsidy, to a properly priced economic good, funded through market pricing. Feed in tariffs are a first step in this direction, and rising fossil fuel prices are another important element. What this means in practice is that front-line staff might start by advising property owners on grants that are available, but they will rapidly move to suggesting loans and financial mechanisms that make it attractive for occupants to invest in green technologies, and within a few years the economics will be sufficient to support the costs of the front-line staff themselves.

We anticipate the specific initial offers to the relevant stakeholders to be as follows:

The offer to householders

The project will deliver a competent support service that will advise them on the types of retrofit solutions that are available and appropriate for their home, and how they can save energy. This includes technical support in surveying the property and setting up a contact with a competent installer. Free renewables may be provided as part of a whole house package of retrofitting in return for assigning the feed in tariff to the new financial vehicle. For some occupiers the package would include advice on and access to grants if they are eligible for Warm Front and for others access to loan packages (eg via Kick Start).

They will also be offered some technical supervision of the work and a follow up advice visit on how to get the best from their newly energy efficient home.

[15] While there is interest from Birmingham colleges in developing appropriate courses Accord Housing is about to start the first UK course (in Walsall)designed to improve the skills of exsiting construction workers to those needed for retrofitting.

[16] McGraw Hill Construction 2009 Outlook Report.

[17] Morgan Stanley, Green Market Penetration, October 2007.

The scheme will be sold on an area basis with block contracts to do the work. This can provide cost savings of up to 40% (see breakdown above).

The offer to social landlords.
In general it makes more sense for social landlords to set up their own finance vehicle and retain tariffs. However where they have isolated dwellings where others are due for block treatment it makes sense for them to participate in the wider scheme.

A number of RSLs are also keen to promote training and employment opportunities through retrofitting work. There activities can be linked into the employment creation element of this work and boost the number of training places and local people recruited into work.

The offer to the unemployed.
For those with low skills the offer of supported employment with long-term skills development and higher paid work.

For those with existing heating, plumbing or electrician qualifications the offer of topping up skills for renewables fitting, gaining work placement experience and potential long term employment.

The offer for businesses in the target areas.
Advice on how to make their property more energy efficient and very low cost (free) provision of renewables in return for assigning the feed in tariff.

The offer for emerging green businesses.
The development of a locally large and significant retrofitting market and skilled workforce to encourage investment in various aspects of the market and expansion. Preliminary supply chain modelling suggests that £20-£30 million of inward investment could be attracted to Birmingham by this project within a five year horizon.

Overall, the project aims to lay the foundations for Birmingham to become a leader in the low carbon economy. Specifically, the skilled jobs created by this project (and supporting training programmes) will create a tangible legacy on which larger scale retrofitting and economic development can build. A ten year or longer programme of activity is likely to be required to reduce Birmingham's CO_2 emissions significantly: the learning and lessons from this project will lay the foundations for much larger scale success.

> Other pilot areas with lack of skills + knowledge are major hurdles

3 FINANCIAL SUMMARY

The tables below shows the gross revenue and capital funding required for the project respectively.

PROJECT COST BREAKDOWN All figures £000	2009/10	2010/11	2011/12	2012/13	2013/14
Revenue					
Staff	261.1	1601.8	1641.2	1667.0	1691.8
Training	90.0	625.2	28.8	28.8	28.8
Marketing, start up and central costs	145.8	248.8	237.3	237.3	237.3
Development costs	75.0				
TOTAL REVENUE FUNDING REQUIRED	571.9	2475.8	1907.3	1933.1	1958.9
Capital					
Whole building retrofits	-	1879.4	2513.5	2522.6	2531.7
Solar PV installations	-	3117.6	3747.5	3738.4	3729.3
TOTAL CAPITAL FUNDING REQUIRED	-	4 997.0	6 261.0	6 261.0	6 261.0

We have identified a range of sources for this funding. These are summarised in appendix VI and the tables below (revenue and capital separately).

REVENUE FUNDING BREAKDOWN All figures £000	2009/10	2010/11	2011/12	2012/13	2013/14
TOTAL REVENUE FUNDING REQUIRED (from above)	571.9	2475.8	1907.3	1933.1	1958.9
Training subsidies and grants	90.0	291.6	0	0	0
Regional funds (TD&D Forum/SME grants)[18]	35.0	286.0	283.5	283.5	283.5
Contributions from existing area-based activities[19]	23.6	1 037.4	1 053.6	1053.6	1053.6
FiT revenue	-	102.7	358.7	596.5	812.8
GAP: Net revenue funding required	423.4	758.1	211.5	(0.5)	(191.0)

Current bid to WNF (sum of revenue gaps 2009-11)	1 181.4

[18] An advisory team of technical experts to support the development and delivery of the programme. For more details see section 3.

[19] These figures are based on areas funding 100% of related front-line staff from existing schemes

CAPITAL FUNDING BREAKDOWN						
All figures £000	2009/10	2010/11	2011/12	2012/13	2013/14
TOTAL CAPITAL FUNDING REQUIRED (from above)	-	4 997.0	6 261.0	6 261.0	6 261.0
Capital grants[20]	-	302.4	403.2	403.2	403.2
Property owners' contributions (including via loans)[21]	-	4 144.4	5 124.3	5 124.3	5 124.3
GAP: Net capital funding sought	-	550.1	733.5	733.5	733.5

The immediate bid to WNF is for revenue funding for 2009/10 and 2010/11 of £1 181 440 as shown. In addition, there is a projected need to find additional revenue funding of just over£0.2 million from 2011-2014, and capital funding of approximately £2.75 million for the period 2010-14.[22]

Training subsidies and grants are training schemes such as Future Jobs Fund (until March 2011)). It is not anticipated that these will cover all staff training costs.

Capital grants are CERT and Warm Front only at this stage, although other likely sources have been identified (see appendix VI).

The projected outputs from the project are as follows:

	2009/10	2010/11	2011/12	2012/13	2013/14	Total
Jobs created	23	91	2	4	2	**122**
CO_2 emissions saved (t)	0	288	1105	1934	2764	**6091**

A proportion of these jobs are created in the target areas for the project as front-line and technical staff. The balance are long-term supply chain jobs which are intended to form the core of a skills base that will attract further green investment to the city. The breakdown of anticipated jobs is shown below[23].

Cumulative jobs	2009/10	2010/11	2011/12	2012/13	2013/14
Birmingham Urban Living Area	4	12	12	12	12
Northfield	5	16	16	16	16
Tower Blocks	0	3	3	3	3
Supply chain and centre	14	83	85	89	91
Total	**23**	**114**	**116**	**120**	**122**

[20] These are established schemes including CERT (currently guaranteed until December 2012 and Warm Front, which has run for the last ten years and is guaranteed until March 2011. Both are likely to continue in some form beyond these dates.

[21] Capital provided by individual property owners or borrowed against future revenue streams using Pay As You Save (PAYS)-type models.

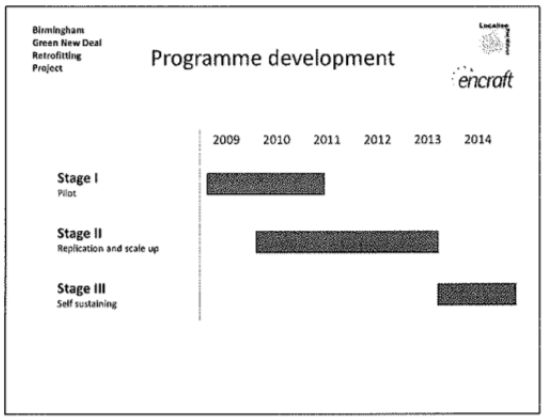
[22] Likely funding sources identified but still subject to ongoing discussions (see appendix VI)

[23] Supply chain job estimates based on Encraft supply chain model, excludes potential inward investment (local jobs only)

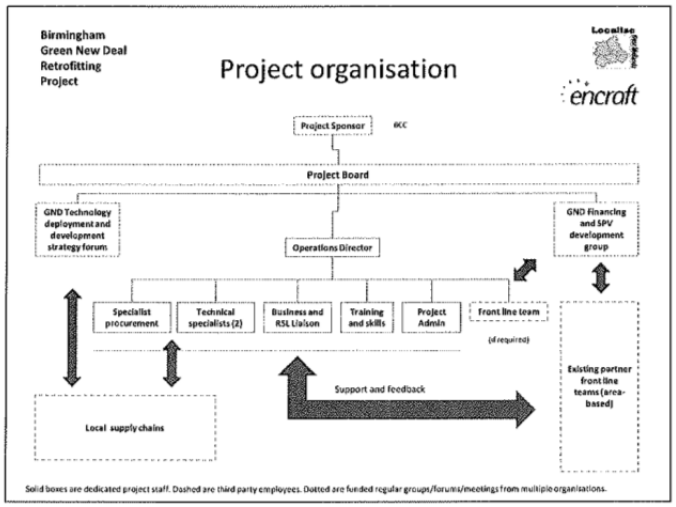
Note that the bulk of the training requirement for the pilot is in the period 2009-11. This aligns with expected guaranteed availability of significant training funds.

4 PROPOSED DELIVERY MECHANISM AND PLAN

The project will be delivered in three phases between 2009 and 2014, by when it will be self-sustaining.



For the pilot a small central team will be established to work with existing local delivery partners in four areas of the City (covering approximately 15000 homes and 1300 businesses by March 2011) as illustrated below.



The four areas of the City will be:[24]

South Lozells

Northfield

A group of Council tower blocks [to be identified][25]

SMEs and businesses on selected industrial parks across the city

Existing Family Housing and Kick Start teams will be enhanced to sell energy efficiency measures to individual owners on a block by block basis. The teams will provide technical advice on what is needed, access to tailored financial support, and would also help with recruiting people into employment.

Budgeted activity levels are to visit between 240 and 500 properties per month in each area. There are different mixes of social and private housing in each area. The budget is based on converting 2% of contacts to whole house retrofit customers and 6% to PV installations. On this basis we expect to have started 1001 projects by March 2011 and 4709 by March 2014.

Once the housing stock in the target areas has been fully covered, we anticipate the project expanding to cover additional areas, and this is likely to start after 2011.

The central team will focus on procuring training for these teams and installers through third parties such as South Birmingham College. It will also maintain up to date technical knowledge on the latest applicable technology developments and local supply chain capabilities, and manage block procurement of equipment to keep costs down. By eliminating sales and marketing costs for the supply chain locally, cutting transaction costs to a minimum, and providing guaranteed market volumes the costs to the end customers of green technologies will be reduced by between 25 and 40%[26].

The pilot project will also facilitate the establishment of one or more special purpose vehicles (which may also be area based) working through a development (task and finish) group consisting of relevant finance and legal specialists from the Council and/or partner organisations. These SPVs will aim to expand the scope of the project beyond the four pilot areas from late 2010 onwards. This will increase the scale of the project and enable a move towards complete self-financing by mid 2014.

Effective and strategic linkage to the local supply chain is ensured through the Green New Deal Technology Deployment and Development Strategy Forum (GND TD&D Forum). This is an invitation-only group of technical specialists from the local supply chain and universities tasked with identifying key deployment barriers (such as installation skills) and future deployment opportunities for relevant technologies – specifically where there are opportunities for adding value by manufacturing and logistics process improvement should companies choose to locate in Birmingham and access the GND market for retrofit technologies. We anticipate this forum can be funded by regional money, probably through the West Midlands Centre for Constructing Excellence (WMCCE) based in central Birmingham (a bid for this funding is already at the final stage of the AWM process). Increasingly

[24] The selection of areas is based on a combination of the following factors – existing projects working in the areas with front line staff that can readily be deployed to support and promote the schemes, the willingness of other agencies (Urban Living Utilities companies to provide further funding to the areas, existing levels of community interest in the approach and the appropriateness of the area in terms of property types and needs.
[25] Awaiting conclusion of ongoing discussions with Utilities around their funding.
[26] Encraft microgeneration supply chain model.

this market will be underpinned and supported by a globally-leading skills base of technicians, installation and maintenance firms, creating a virtuous circle of green inward investment.

5 MARKETING, DEVELOPMENT AND SCALE UP

The fundamental marketing model underpinning this project is direct house visits by front -line staff, equipped with the knowledge necessary to inspire trust in customers and able to provide access to a wide range of relevant council (and other) services including employment advice, loans and grants.

This model has previously been proven to be successful in engaging private homeowners in projects in Birmingham including Urban Renewal, Urban Care and Kick Start.

The table below shows the projected rate of home visits per month by area.

Area	Visits per month[27]	Social housing
Birmingham Urban Living Area	500	50%
Northfield	450	10%
Tower Blocks	240	100%

Of these visits we are budgeting for 40% of visits to result in a follow up technical survey by a specialist, and of these 5% to result in a whole house installation and 15% in a PV installation. Social housing is easier and cheaper to serve because it is centrally managed.

We anticipate that we will be able to target marketing activity effectively using segmentation data available from BCC's Customer First database, and also from the Energy Savings Trust (EST) HEED database, which they will make available to the project. The EST have also offered to use their regional call centre to direct enquiries to this project.

The project is intended to be a pilot, and capture of data and rapid learning should enable faster development than budgeted if we wish to extend the programme sooner than planned. In particular, we anticipate the development of effective financial models and SPVs will encourage higher-than budgeted take-up among social housing providers, including in areas outside the pilot ones. In the owner-occupied sector there is potential for local community schemes (i.e. whole streets being retrofitted) and marketing models specifically targeting this outcome (e.g. lower cost systems for fitting more than ten properties at once).

On the supply side, we would aim to use the scale of the project to attract inward investment into the City, ultimately aiming for the bulk of the capital spend associated with the project to be competitively delivered by Birmingham-based manufacturing and installation firms.

[27] Budgeted staffing levels to achieve these rates are based on actual performance of existing green doctor schemes and similar in Birmingham.

6 RISKS, SENSITIVITIES AND MITIGATION

The table below summarises the main risks and sensitivities associated with the project, and plans to mitigate these.

Risk	Probability	Implications	Mitigating actions
Difficulties in finding sufficient staff	Low	Cannot pursue marketing strategy	Range of training programmes in place, so we can take people with varied skill levels
Take up of retrofit and PV measures too low	Medium	Demand too low to stimulate supply chain. Medium and long term economic development benefits of the project lost.	Develop financial models that make retrofitting more attractive to owner -occupiers.
Feed in tariffs delayed or lowered	Low	Easier financial mechanisms not available.	We are keeping a close eye on developments in London. There is no indication that FiTs will be lower than expected and all parties support them.
Unable to find viable SPV financial and legal model	Low	Larger scale development of project is held back. May not be able to fully fund 2011-14	Complete SPV development by March 2010. If no viable models found plan to stop project in March 2011.
Unable to find organisations able to provide training required	Low	Cannot develop necessary skill base. Retrofits are poor quality and do not deliver CO_2 savings	We have already discussed the project with South Birmingham College, who believe they have the skills. BRE are establishing a national centre of excellence for retrofit training in Stoke. Urban Living have developed a college in Handsworth and this can be used with Family Housing. Accord have developed an appropriate course due to start with full accreditation in January 2010 in Darlaston.

Risk	Probability	Implications	Mitigating actions
Unable to raise funding to fill gaps from 2011 till becomes self financing.	Medium	Project has to stop in relation to owner occupiers.	Exploring potential with partners for medium term funding, Exploring potential of local bonds. Exploring potential with social landlords. Model will work for them without need for added subsidy in relation to their own stock. Number of RSLs interested and would provide the potential for ongoing employment and training demand for those part way through the training element of the programme and for any expanding companies in the local economy. Potential to be national pilot and attract added gap funding. Potential to borrow against future income from FIT. Invited to bid for EST funding. Potential to more closely align CERT funding to the project aims.

Because the project is heavily focused on skills training and effective deployment of front-line staff initially, the worst case risk that WNF, Be Birmingham and the City Council are being asked to underwrite is that the funding is spent creating a skills pool over 18 months and for whatever reason this cannot be effectively sustained for longer. In this scenario the minimum legacy of the project will be a group of people with skills that must become necessary and economically valuable within a few years in any case (e.g., for a major 10 year citywide retrofit initiative): the only real questions around the need for retrofitting skills are questions of timing not fundamental need.

7 CONCLUSION AND PROJECT LEGACY

The Green New Deal is a project for the moment. Green skills are skills for the future, and local green jobs will create the platform for a sustainable economic future for the people of Birmingham. The housing retrofit market is a market that has to grow, and it has to grow radically if the UK is to get anywhere near its carbon reduction targets in the next 10, 20 and 50 years.

So this project is a pilot for a strategic change to put Birmingham again at the head of a revolution in sustainable wealth creation. It builds on existing skills and traditions, and is accessible to all. The broad benefits set out in this paper are only the start, and the minimum legacy of this project must be a firmer platform for the future of Birmingham as a global city.

Appendix A3 – Minutes and Documents for SusMo

Wed 27th April 2011 – 7.00pm
Moor Green Allotments
MINUTES

1 – Attendance and Apologies	
Attendees	Apologies:
CS MF JD RH SS LS KH PB Beck Collins	SN EB HS SB DM RH

2 – Minutes of last meeting and matters arising	Actions
Correct spelling of names. 'No householders have signed up to iMeasure' (page 3) is inaccurate – LD has. Cycling is not on this month's agenda due to time constraints, but will reappear later.	
3 – Home Energy Project Update The project will continue until the end of June. The project will not hit its targets, but the funder is not concerned, this was a trial project and the targets were fairly arbitrary. SN is writing the text for the website, all are to let her know if extra things need to be added. The HEP may carry on after June in some form on a voluntary basis, with the potential opportunity for others to get involved. It may be possible to set up a worker's co-op to do this. KH to chase this with SN.	
4 – Green Streets Update	KH
• St Mary's Church The Parochial Church Council, at its meeting on 31st March voted unanimously to guarantee the money (£16,000 inc. VAT) for this work, and JD has made a statement to this effect to Solar Technologies, so the work may begin. Technical matters are all that remain. British Gas will have to notify JD in order to start the works. The church architect wants to be involved. Regarding the applications for funding for this work; Reaching Communities refused since the beneficiaries were not deprived enough. A representative from SITA interviewed JD and was very impressed. The representative will now present St Mary's case to the next board meeting at the end of May. • Madahal allotments Madahal's committee have received a letter from Adrian Stagg of Urban Design saying that they will provide £4,000 to strengthen the roof. The committee offered to contribute £1,000 of this over the course of the year, RH is still chasing a response. SusMo are hopeful that a planning committee will not have to look at this application since it is uncontentious. This led to a discussion of the lack of coherence within BCC regarding sustainability and climate change policy. Recently climate change monitoring has been under scrutiny, and unfairly criticised (the budget to monitor has been cut). SusMo wish to write a letter to express their views. CS to draft a post for discussion, to be put out after the election.	RH

• Mosque No partner update. • School No partner update. • Householder Installations The Southall's power flush has finally been done, on the day of this meeting (27th April), and they were given a stronger pump. There is some questioning of why this was necessary – was the boiler not powerful enough? Further clarification is therefore needed. MF will email Lee. Richard Beard may be able to give an informed opinion of the Southall's heating system. CS to email him. Awaiting update from SN regarding other householders. HS has not had an energy monitor. • Project Presentation SN to send out the latest presentation. The current one is in the drop box. CS to send a reminder on how to access this. Need to have a meeting to run through it. Is there a maximum number of places? Who will go? This is to be arranged via email.	CS MF CS
5 – iMeasure and small items There are no more standy savers left, but more might be available once the Home Energy Project is finished. SusMo need to think again how to get people signed up onto iMeasure. JD has written to KW of St Anne's who is trying to imaginatively involve the clergy in getting people to sign up to iMeasure, with laptop demonstrations. JD is working on this, it may take time to find the right day. Maybe have a permanent presence at the Farmer's Market, again with a laptop, and get people to bring their meter readings, and do demonstrations there? This led to a discussion of why SusMo are trying to do iMeasure in the first place. Are people just not motivated to measure their consumption? However having a day by day measure of energy use would be helpful. There was some concern that this item has been on the agenda for quite some time, but has not progressed. Others pointed out that only one method – leaflets – had been tried, perhaps a new method *would* work.	SN CS ALL.
6 – Birmingham Energy Savers BES have appointed G Purchase Construction Ltd as their operating company for Phase 2, apparently because this company have innovative scaffolding which can be erected very quickly, allowing PV to be installed in one day instead of two. This company is based in North Wales, there was therefore concern over how this will be beneficial from a sustainable procurement point of view – will local people not lose jobs? What about the people who delivered in Phase 1? There is currently a moratorium on the announcement, it is hoped that these questions will be answered in time. AM and PB are currently evaluating Phase 1.	
7 – CORE energy company project The process group met with KR on 26th April. He has produced an outline business plan, MF to put on website. SusMo need to raise about £60,000 in capital. This could come from a number of sources; CORE are in discussions with the Esme Fairburn Foundation about a revolving loan fund; Keith Richardson is going to speak to Aston Reinvestment Trust; local people could possibly contribute around £300,000 to invest in renewable energy, largely on community buildings, mainly PV, conceivably wind and anaerobic digestion to create income from FITS. SusMo has not yet resolved how to share the income from Green Streets. In the case of the SusMo Community Energy Company (CEC) it would be agreed at the start that the CEC would take the lion's share of the FIT, in order to reinvest. The CEC will look at sites for 20/40/60kW systems at the next	

meeting, and Balsall Heath is Our Planet and Kings Heath Transition Initiative will be kept in the loop. At the allotments Keith Richardson would like to monitor windspeed by hiring equipment.	
At the next SusMo meeting, SusMo will start to bottom out what will happen to the Green streets FIT income. Everyone is therefore to start thinking about this. MF will email SR, JD and RH.	MF
8 – Energy Share Funding This is a partnership between British Gas and River Cottage which is a follow-up to Green Streets. This time, British Gas will agree to fund the installation of measures which they themselves cannot provide, and allow the funding winners to choose their own suppliers. Do SusMo want to apply for this? It may be very time consuming, and previous experience with Green Streets has taught that this is impossible without full time people available to help, which is less available now (see below). Everyone is to read the terms of the Energy Share Fund (see energyshare.com) and think of potential projects or buildings that could feasibly be project managed by part time volunteers.	
9 – Events • Top Barn in Worcester, 21st May. Attendance was undecided. • Green Spring Fair, 28th May. CS to organise by email who will man the SusMo stall at this event. • Big Green Lunch, 5th June. All to publicise.	ALL MF
10 – Reorganisation of SusMo's roles Esther Boyd will no longer be the co-ordinator for SusMo. It would therefore be advantageous if meetings could be made more accessible to people who just want to dip in and out, thereby increasing membership and sharing the workload. In any case, SusMo will change as a group in the future, as it gains independence from Moseley Forum and becomes a CEC.	
11 – Moseley Farmers' Market This is the same day as the Spring Fair, so no one will be going. At most the market could be leafleted at the same time as manning the Spring Fair stall.	ALL
12 – B13 Article JD wrote an article for Moseley Chimes, and will email this to SusMo for them to use in their B13 article. MF to email editor to check deadline, there is some concern that it may have been missed.	CS ALL
13 – Any Other Business None	
12 – Date and time of next meeting 25th May at St Mary's Church (location to be confirmed).	JD

APPENDIX A: Data Sources Excluding Interviews

Wed 25th May 2011 – 7.00pm

St Mary's Church

MINUTES

1 – Attendance and Apologies	
Attendees: CS EB BG SG MF JD KH PB Beck Collins	Apologies: SN HS RB RH SS LS

	Actions
2 – Minutes of last meeting and matters arising	
Correct spelling of names. ACTION: EB to contact KG to ensure she's joined the *SusMo carbon club* on iMeasure. To clarify on last month's item 7, SusMo is likely to become a Community Interest Company (CIC), with a separate Community Energy Company (CEC).	EB
3 – Home Energy Project Update	
SN would like to carry this on voluntarily after June, KH would like to help. CS would like SusMo to be more involved if the project does carry on. SusMo could set up a worker's co-op and/or apply for funding to pay for the cascade training, once Green Streets is finished. ACTION: CS to look for appropriate funding streams. ACTION: MF to put 'SusMo' links as a permanent agenda item, so the developments of other groups can be kept up with.	CS MF
4 – Green Streets Update	
• St Mary's Church The work to install the solar panels is due to start 13th June. There is a meeting on 10th June go to over what will happen.	
• Madahal allotments, Mosque, CofE School No partner updates, but all three buildings are down for planning permission at the time of this meeting. JR is standing down as SusMo's link with the school. SusMo will therefore need to meet with - (head teacher) to look at the partnership between teh who organisations in teh future. ACTION: EB to get in touch with parents SusMo knows who are interested in green issues, to gain more support before this meeting.	EB
• Householder Installations HS is still expecting a monitor/meter. ACTION: CS/MF to check with LB about this. The S-'s pump should be strong enough to heat three floors, according to LB. A case of waiting until Winter to see if he's right.	CS/MF
73 Kingswood – contact details were mixed up, this is now been resolved. ACTION: EB to check if this has lead to an installation.	EB

63 Sandford – need to check if insulation has been installed. HK is happy with his installation. • Consumption analysis for project. Energy consumption seems to have gone up in two of the houses, it would be interesting to find out why! • Project Presentation PB is doing the technical part of the presentation, and SR and SN are doing the rest on Wednesday 1st June. Run through on Tuesday evening at 6.30 at SR's house. ACTIONS: CS will format the booklet and presentation. KH to arrange press cuttings and photos to laminate and put on the board. • Distribution of small things Will take some small things to the green fair (28th May) and sign them up to iMeasure there and then, and sign a 'mini contract' to promise to put in their meter readings when they go home. These people can also go on the email list. ACTION: CS to draw up mini contract. • Green Streets Website SusMo will explain at the presentation that they did not use this as their own SusMo website, Facebook page and Twitter accounts work much better.	CS & KH CS
5 – Community Energy Company In past meetings it was conversationally agreed with the owners of community buildings that they would commit 10% of the FIT they would get from their microgeneration technologies, to SusMo. KR (from CoRE) thought that this was too low, when SusMo last met with him. CS – obviously we cannot act like a company, but having a higher proportion of those FITs would very much help SusMo to set up a CEC. It is therefore put to the partners; would they like to sign up to giving a higher contribution of the FIT to SusMo for the first 5 years, and of course, be on the board of the CEC? EB – can we really ask this of existing partners, (really only of new partners)? JD wouldn't want to decide without consulting with the Church. The partners should discuss this amongst themselves. ACTION: CS to find a new contact from the school to pass to JD, so such a meeting can be arranged. CS thinks that KR has a good point, and wants to be seen to be taking him seriously, but would rather be in a weaker postion than ruin relationships. The logistics for signing over the original 10% will need arranging. It is freely admitted that SusMo really do need to become a constituted group, big decisions are taken for an unconstituted group. ACTION: MF to put CIC as a separate agenda item. Where to take Keith when he comes? ACTION: CS to do a list of the places suggested and plan a route.	SN CS CS MF
6 – Birmingham Energy Savers Nothing further to report, although apparently G Purchase Construction are using the term 'Green Doctor', which according to PB is Groundwork intellectual property.	CS.
7 – BCC Air Quality Consultation If anyone is interested in participating in this consultation, they can go to the Be Heard database on the BCC website.	
8 – Green Fair 28th May SusMo are going, and will take some of the materials from the British Gas presentation with them.	

9 – Moseley Farmers' Market Moseley in Bloom's stall will put a notice up to encourage people to go on to the Green Fair after enjoying the farmers' market. ACTION: EB to email a notice to SG for this purpose.	
10 – B13 Article and Birmingham Mail Blog SusMo members will take it in turns to write a weekly blog. ACTION: Rota to be decided by email.	
B13 article needs to be written by the 14th June. It is decided that it should be about the presentation to Britsh Gas. ACTION: CS and MF to write.	EB
11 – Any Other Business	
Chamberlain Awards – SusMo would like to nominate ST, the MADAHAL allotments arm of Green Streets might not have been successful without him. He went 'beyond the call of duty'. ACTION: CS to draft nomination, PB to send CS further information about Sandy Taylor's other good deeds.	ALL
Thermal Imaging – ACTION: CS to ask ST if SusMo can have BCC's areal picture. EB brings up 'Heatsavers', a company doing thermal imaging of individual houses, and then knocking doors to show residents the image of their house, and sell them insulation. Odd time of year? PB thinks they may be looking for homes that are *extremely* wasteful. BG points out that if such images are taken at midday (EB & SG believes they are) then the images appear to show the house losing more heat than it actually is (it's actually reflecting heat). Awareness!	CS/MF
Community Chest – may be helpful to pay a staff member to set up a CEC. ACTION: CS to work on an application.	CS/PB
12 – Date and time of next meeting 22nd June at allotments. ACTION: MF to email RH to check this is ok.	MF

Sus*Mo* – *S*ustainable *M*oseley

Supporting our community in reducing our CO_2 emissions

REPORT – DECEMBER 2009

BEGINNINGS

SusMo is a resident-inspired and resident-led campaign, overseen by Moseley Forum.

Our commitment to tackling climate change began at the Moseley Forum AGM in 2007, focussing on:

"Global warming – what can Moseley do?"

This was followed by a public meeting during the 2007 Moseley Festival:

"**Save money and save the planet"**

which led to the Sustainable Moseley – Cutting CO_2 campaign, known as **SusMo**. This is run by an active, self-selected, voluntary committee of residents and representatives from a wide range of local groups.

Progress began slowly due to a lack of resources, both of time and money.

GROUPS INVOLVED

There are six 'partners' working directly with SusMo:
Hamza Mosque, Moor Green Allotments, Moseley Community Development Trust, Moseley and District Churches Housing Association, Moseley CofE School and St Mary's Church.

Members of other groups attend meetings and give and receive reports:
Moseley in Bloom, Birmingham13, Moseley Society, the Moseley Councillors and the MPs serving Moseley.

ACHIEVEMENTS

The recent British Gas Green Streets award starts a new phase in SusMo's activities. At last we are helping the Moseley community to implement reductions to CO_2 emissions, after significant achievements in raising awareness about the need to tackle climate change.

Our other achievements to date include:

- working with other groups in Moseley on tackling climate change, we jointly produced and delivered a Calendar for 2008. This was the first time that nine groups in Moseley had worked together. It was also a political 'first' as it was published by Lynne Jones, Labour MP, with LibDem councillors helping with deliveries and contributing to the costs;
- joining the 'Birmingham cutting CO_2' campaign as a subgroup with a separate page on the website, where residents and businesses receive advice and encouragement

about 'cutting CO_2'. SusMo can access the (anonymous) data and monitor progress in Moseley;

- being represented at the launch of the Birmingham Climate Change Festival;
- sharing a stall with Northfield Ecocentre during the two weekends of the Festival;
- participating in seminar at the Botanical Gardens on setting up a Birmingham Climate Change Network;
- participating in two-day event about "Citizenship" at Bishop Challoner School;
- participating in the launch of the Big Green Challenge and submitting an expression of interest for an award, which resulted in press reports in the Daily Mirror, the Birmingham Post and local free papers.
- writing an article each month in Birmingham13;
- holding regular open committee meetings, minutes available on the Moseley Forum website.

JOIN US on January 21st **for a meeting at the Hamza Mosque** 88-90 Church Rd B13 9AE, at 7 p.m.

St Mary's Church Moseley

c/o [redacted]
Moseley
Birmingham [redacted]

30 July 2010

Comments on letters written in connection with the appeal by St Mary's PCC APP/P4605/A/10/2129027

I am writing in response to your invitation to comment on points raised in representations made in connection with the St Mary's photovoltaic solar panel appeal. In this note, I will comment on the letters that have been written. I have written separately on the input from the Birmingham City Council.

There are over 50 letters from a wide range of people in our diverse community, and their content speaks for itself – very strong support for the proposal, the lack of the visibility of the panels from reasonable vantage points, and the absence of any permanent damage to the fabric of the building, which leaves open the possibility of removal or replacement of the panels at a later date.

I would draw your attention especially to the letter from the Moseley Society, who actively seek to preserve the character of the neighbourhood, but have come out firmly in favour of the development and view it as a contribution to keeping the church at the heart of the community.

Perhaps equally compelling are the letters from Timothy Cuthbertson of All Saints Church, Kings Heath, and the Revd Canon John Wilkinson of Bearwood, formerly of Kings Heath who argue eloquently in favour, a view that is confirmed by Bishop Michael Whinney of Moseley and Stephen Willey (Methodist Minister) in their letters.

The letter from the Revd Jeremy Dussek, Vicar of St Mary's Moseley, and Chairman of its Parochial Church Council (PCC) might appear somewhat confusing and deserves some clarification. Firstly, it is reassuring that he is "fully supportive of the Church finding a way forward to supply sustainable energy and set and example to the community". There is however a mixing of the application for planning permission, and the application for a grant from British Gas, which are totally separate activities.

The decision to apply for planning permissionn was agreed unanimously by the St Mary's PCC in November 2008 under his chairmanship, as it is a prerequisite for an application to the Diocese for permission to carry out the work. The planning application was based on a design and quotation by Solstice Energy. Attempts to obtain advice from the City Planning Office on how to formulate the application were unsuccessful, and it was not until September 2009 that it was submitted without their help and finally accepted on October 26th 2009.

After the submission of the original planning application, St Mary's joined forces with "SusMo" (Sustainable Moseley) in a bid for funds from the British Gas Green Streets Competition. It is believed that the existence of the St Mary's project with full architect plans and costing was an important element in Moseley winning the award for the West Midlands, which was known in December. As the outcome of the planning application was then unknown, it was considered too early to approach the Diocesan Advisory Committee (DAC).

After the refusal by the City Council on February 4th, and as part of a wider consultation process, the DAC was invited to make a site visit and to view a test panel that had been placed on the church roof following a suggestion from the Victorian Society. This happened on March 15th. The DAC was

shown a revised plan for the panels by Solar Technologies, a subsidiary of British Gas. The change of supplier was to meet a condition of the award that British Gas had to carry out the work. The DAC encouraged a full "Petition for Faculty", and this was prepared after it had been decided to appeal against the Council's refusal, and submitted one month after the appeal. It is understood that the DAC will recommend the Chancellor of the Diocese not to approve the scheme, but we are also informed that he will take into account other evidence including the result of the appeal. It would be the first Anglican Church in Birmingham to receive solar panels. I will be supplying relevant material. A principal objection of the DAC is said to be the method of attaching the panels to the roof, although it is considered acceptable by the church architect and a structural engineer. This is currently being discussed with the suppliers.

The Vicar mentions the need for the plans to be "passed by the Council" as well as the Diocese. The failure of the Council to pass the plans has led to this appeal. The members of the church and the citizens of Moseley have a different opinion from that of the planning officers, and do not accept the latter's. The weakness of the Council's case is reflected in the narrow margin by which the planning committee endorsed the refusal (7 for, 5 against, with 2 abstentions), which incidentally was wrongly recorded (see Councillor Hendricks' letter) though witnessed by a sizeable number of people.

Finally, "the group behind the proposal need to listen and accept advice". The "group" is the PCC, which is always ready to accept advice should there be any. The role of SusMo has been one of support throughout the time we have worked with them. They have had no role in the preparation of the original planning application, nor the appeal, or the application for Faculty. We received advice on the appeal from two expert planning advisers who gave their time freely. The most recent role of SusMo has been to persuade British Gas to delay the plans, and the planning applications, for two of the other three community projects (Hamza Mosque and Moseley Allotments) until St Mary's is settled, assuming this is done with maximum speed.

[redacted]
Agent for St Mary's PCC

Appendix B: Interview Data

Appendix B1: Table of Interviews Conducted

Interviews Conducted – BES		**Interviews Conducted - SusMo**	
10	Beneficiaries in 2011	8	Beneficiaries in 2011
6	Organisers in 2011	5	Organisers in 2011
11	Beneficiaries in 2012	8	Beneficiaries in 2012
9	Organisers in 2012	5	Organisers in 2012
36	**Total**	26	**Total**
62	**Total Interviews**		

Appendix B2: Interview Questions

Beneficiary Questions Round 1

Why do individuals adopt renewable energy technologies?

1. How did you come to be involved in this project? Who else do you know is involved?
2. Why did you decide to agree to be involved in this project? Why do you think others agreed?

Why do they change their behaviour?

3. How much energy do you use? Are your bills very expensive? What appliances do you have? [fridge, freezer, computer, etc, A rating?]
4. How warm is your house? How warm do you like it? Do you normally wear a jumper at home?
5. What do you think about all your gadgets and appliances? [Make life easy? Part of you? A necessary nuisance?]
6. Do you leave appliances on standby? Why? Why not?
7. Do you think you use more or less energy than you have in the past? [Childhood and onwards]
8. Do you want to use less energy? Why? What made you decide you wanted to?
9. Are you concerned about the environment at all?

What does 'community' have to do with it?

10. What do you think of when someone says 'there is a sense of community here'?
11. What does 'community mean to you?
12. Who do you know in the local area? How do you know those people, what do you do with them?
13. What do other people around here do together? [neighbourhood forums/TRAs/Conservation groups/mother and toddler groups/faith groups/sports groups/shopping]
14. Do you know your neighbours?
15. Has this project affected your idea of the 'community'? How? Why?

How do individuals form communities around these technologies, if indeed they do?

16. How did you describe this project to your friends? Recall a conversation you had with a friend/sibling/parent.
17. Has this project affected your idea of your 'community'? How? Why?
18. Do you know any of the other people who are benefitting from this project locally? What do they say about the project? Did you know them before? Do you talk to them much?

Is there a sense of community regeneration? How has the community changed? What has been the impact?

19. Do you think it's in any way better around here as a result of this project? In what way? Why?

What is the role of the 'key individuals'? How do they affect the community? How do they bring about sustainable energy behaviours?

20. Are there any particular people around here that affected your decision to join this project/use less energy?
21. How did they do so?
22. Was it a positive or negative effect?
23. Have these individuals affected anyone else's decision to join this project/use less energy, that you know of? How? What happened?
24. How would you describe these particular people?

How do different interventions bring about sustainable energy behaviours? Do different interventions appeal to/use concepts of communities and individuals differently?

25. Was there anything about this particular project which made you want to sign up?
26. What do you think of the fact that it's a community group led/BCC led project?
27. Who have you told about this project? Do they want to be involved? What would have made you want to be more involved?

APPENDIX B: Interview Data

Organiser Questions Round 1

1. Please describe your project very briefly.
2. Would you describe your project (so far) to be successful? Why/Why not?
3. How did you get people involved? What worked, what didn't?
4. Did you get very many people involved? Was this more or less than you expected? Why do you think that was?

Behaviour change

5. Do you think the project will encourage people to think more about conserving energy? Why?
6. Have you done anything to encourage people to conserve energy? Do you think it has worked?
7. Do you have any evidence/idea that people are using less energy as a result of this project?
8. How do you think people react to/or feel about energy technologies?

What does 'community' have to do with it?

9. How would you describe the communities you are working in?
10. What challenges have you had in running this sort of project in these areas?
11. How have you tried to get the wider community involved or engaged in this project?
12. Do you feel there is a role for the 'community' in this project? What kind of role is that? *So the assumption here is that participation in the project is first and foremost an individual choice?*
13. What other initiatives are happening in these communities?

What is the role of key individuals?

14. Have you tried to engage any particular individuals in this project, to help spread the word?
15. Why this/these particular individuals?
16. What did they do within the project? Was it effective? Why/why not?
17. What role have you personally played in getting people to become part of this project, and/or helping them to use energy more sustainably?
18. Do you think your role was effective? Why/why not?

How do individuals form communities around these technologies?

19. Do you think people are talking together about this project? What makes you think so?
20. Which groups of people are talking together; neighbours, friends and family, or people who've never met before? What makes you think so?

Community vs council

21. What do you think your role is, as the L.A./a community group, in trying to encourage people to behave more sustainably with their energy? (Obliged?)
22. Do you think your style of project is the most effective way of getting people to behave more sustainably with their energy? Why/Why not?
23. What are the positive aspects of your style of project, and what are the negative aspects?

APPENDIX B: Interview Data

Beneficiary Questions Round 2

Behaviour Change (at individual level, but often of a social nature – so include all 'community' style questions here!

Individual Level

1. How much energy do you use? (number of appliances, lights on and off, appliances on/off standby)
2. Do you feel you're using less energy since the panels were installed?
3. Do you feel you have more control over your energy use and costs now? How so? *Energy ownership/literacy*
4. How do you feel about the fact you produce a lot of your own electricity now? Why do you feel that way?

Local Level

5. Have you ever spoken to anyone else about your panel? Please recall a conversation.
6. How do you feel about other people who have panels? Do you feel like you have something in common with them?
7. If you see something on the telly, or about town, or hear something on the radio about solar panels, do you feel part of it? *'green' community or 'thrifty' community?*
8. What do you think about people who *don't* have panels? What do you think they think of you?
9. (BES Phase 2 beneficiaries) Did you know about the earlier phases of BES?

National Level

10. How do you feel about environment issues?
11. Has this changed since you had your panel installed?

Technologies

Individual Level

12. Have you changed the way you've used electricity since the panels were installed? Tell me about that. *If not, why? Was it hard? Why?*

Local Level

13. Do you think other people with panels have changed the way they've used electricity?
14. What do you think others think about solar panels generally?

National Level

15. What do you think about these sorts of technologies generally?

Governance

Individual Level

16. Have you had any further contact with BCC/SusMo since the panel was installed? Tell me about that.

Local Level

17. How do you feel about BCC/SusMo for running this project?
18. What roles and responsibilities do you think BCC/SusMo have in this area?
19. What roles and responsibilities do you think you have?

National Level

20. What do you think should happen next?

Organiser Questions Round 2

Behaviour Change (at individual level, but often of a social nature – so include all 'community' style questions here!

Individual Level

1. Please give me an overview of the (progress of the) project, and your role in it (since I last spoke to you).
2. What do you think has motivated people to sign up to your project?
3. Do you think people are using less energy as a result of having a PV panel?
4. Do you think people have changed *how* they use energy as a result of having a PV panel? In what way?
5. Is behaviour change important to your project? Why?
6. What makes people change their energy behaviour?

Local Level

7. Do you think people who have been involved in your project feel as though they are part of something?
8. Do you think people talk together about their panels/efficiency measures?
9. Do you think people have been influenced by other people to sign up to the project?
10. Why did you want to run the project in the way you have – with this number of solar panels/other measures on the buildings that you have chosen? What did you hope would be the benefits of doing it this way?

National Level

11. How do you think people feel about the environment?
12. Do you think this has changed since the start of the project?

Technologies

Individual Level

13. How do you think people feel about their panels/efficiency measures?

Local Level

14. How do you think the wider population feel about PV, and energy technologies in general?
15. Do you think this has changed since the start of the project?

National Level

16. How does this project fit in with wider/other projects to do with renewable energy generation and behaviour change? What works well, what's difficult?

Governance

Individual Level

17. Why do a project like Birmingham Energy Savers/SusMo's green streets?
18. Why did you want to be involved in this project?
19. What do you think is the role of the City Council/community groups in these issues?
20. How do you think people react to that role?

Local Level

21. How does BES/Green Streets fit in with wider BCC aims and processes/what's going on in the rest of the city? What works, what's difficult?
22. How is Birmingham Energy Savers/SusMo Green Streets talked about by the Council/Moseley? Do you feel this is a true picture?

National Level

23. How does BES/Green Streets fit in with national aims and processes? What works, what's difficult?

Appendix B3 Sample Interview Transcripts – BES Case Study

Beneficiaries

Interview with CK on 31st May 2011

Interviewer: Ok, it's the 31st of May and I'm here with um, CK. Erm Ken – CKis it ok if I record this?
CK: Yeah.
Interviewer: Thank you very much. So um, tell, tell me all about it then, how did you get involved in the project, what happened, who came round.
CK: Err, basically they're doing a limited, a limited amount of people, er, with the solar sys – they're trying to, I think it's something like a few thousand people, er, they're trying to get to have solar cells.
Interviewer: Ok.
CK: Er, because I think they're getting a government grant.
Interviewer: Ok.
CK: Er . . . and in this, this day and age basically, anything that will save you money on your electricity, the way that the prices keep going up,
Interviewer: Yeah.
CK: Is, is good.
Interviewer: ok. So er, did, did you get a letter about it or did somebody come over to explain?
CK: Er, I think first of all they phoned me up I think, then they sent me a letter. And then I ended up having a lot of paperwork of 'em, er, which they give me about it, and in paperwork I had to sign for when they'd finished, basically.
Interviewer: Ok. So why did you agree to be involved in the project?
CK: Mainly it's, it's what I said before, it's, it's about saving money, energy, because of the energy costs.
Interviewer: Ok. Fair enough. So do you know anybody else who's involved who've got panels as well?
CK: As far as I know there's, . . . I only know one per, person in this road that already had it. Cos a lot of other people, er, in the road, cos you've got a lot of elderly people in this road, and, I don't know if it's, don't want, don't want the disruption of all the work or, they're partly, not that interested.
Interviewer: Ok. So there's only one person that you know that's got it.
CK: Yeah.
Interviewer: So why do you reckon they got involved, I don't know if you know?
CK: I would imagine the same reason I did, basically, anything that saves money.
Interviewer: Fair enough.
CK: And it's not costing the people who had it cos they're all council tenants, cos that's er, the main, er requirement, you have, it has to be a council property.
Interviewer: Right. Ok. Alright, let's just talk about energy and stuff, er how much energy do you use, are your bills very expensive cos you use a lot, or just because it's expensive.
CK: Er . . . I would imagine it's probably medium basically because er . . . I try not to use as much power, basically because of the energy costs as what I said before. Er . . . and that's mainly it basically I don't use a lot of energy cos I try not to use as much, as well as, I don't have the same kind of, er, appliances that other people have.
Interviewer: Oh no?
CK: No, I don't have a washing machine or microwave or anything like that, basically. I just have the bare minimum
Interviewer: Ok.
CK: Like a fridge and a cooker.
Interviewer: Ok, and a tv . .
CK: As well as lighting.

Interviewer: OK! You're the first person that's answered that as directly as that so thank you very much! [laughs] Erm, so how warm is your house, and how warm do you like it?
CK: In the winter it's quite cold, because basically er, I only have the gas on, er, mainly, er, a few hours on a night-time, so it'd be like a fridge in here.
Interviewer: Oh really?
CK: Yeah.
Interviewer: You not got insulation and things?
CK: No I got insulation and double glazing and er, loft insulation.
Interviewer: Oh really?
CK: But I've got a very old system .
Interviewer: Ok
CK: Er, which is one of these gas hot air blowing things,
Interviewer: Oh, yeah yeah yeah.
CK: And that's one of the most inefficient systems, the way, to heat the house. Aside from having an electric bar fire. [which I think he also had].
Interviewer: [laughs] Right, ok. So yeah, I suppose that doesn't help you very much if you're . .
CK: Er . . . what I know about the present moment in time, because one of my neighbours who I know quite well, she's had radiators fitted, basically.
Interviewer: Hmm.
CK: They're taking this heating system out, and they're fitting radiators in.
Interviewer: Hmm mm.
CK: Er, in erm, whatsit, all the bedrooms in the upstairs bathroom, I think, I think they're doing one, I think they might be doing one in the kitchen as well as the sitting room as well.
Interviewer: Wow. That'd be good. Ok. Erm, so how come it is that you don't have, like um, more gadgets, are you just, is that just not your thing
CK: Er, it's all about income basically.
Interviewer: Fair enough.
CK: You know that I, I'm, I'm incapacity benefit basically because I had an accident a few years ago.
Interviewer: Ok.
CK: Plus, it's income based – er, income support based.
Interviewer: Ok.
CK: Er benefit. I haven't got much savings, I've only got thirty pounds in the bank.
Interviewer: Oh right, yeah. I suppose that limits your choices a bit doesn't it.
CK: Plus the, a lot of people today they just get gadgets er, for ee – using, you know, doing it the easiest way possible, plus for gadget's sake, basically.
Interviewer: Really?
CK: Yeah.
Interviewer: You think so?
CK: Well, I'd imagine that the average per-person between er, twenty five and forty today, if they're on a reasonable income, they've probably got something in the region of about er, probably as many as thirty to forty items, er that use electricity in the house which they probably use every week.
Interviewer: Wow that's quite a lot, when you think about it isn't it?
CK: Cos you got mobile phones, and, cos you gotta charge them and er . .
Interviewer: Yeah.
CK: And they have a cooker and and, a microwave, and they've got mixers and all the other stuff basically, and they got, they got, toys and things like that.
Interviewer: Yeah. That's a fair point. And yeah, I have a personal vendetta against gadgets, personally, I just don't like spending money myself either. I think people get a bit excited, don't they about their toys.
CK: Well, in the present economic climate, with the people got, let's say mobile phones, they've got computers.
Interviewer: Mmm.

CK: Basically, and, and other . . . things that they actually got on a kind of contract basically.
Interviewer: Mmmm.
CK: Their income is going down, because, they've got, not only pay for the hire, the hire kind of costs for the phone, they've got to pay for the phone calls, and then they, they with, with computers you, you, you're paying er, for the electricity the computer uses, plus the cost to get onto the internet.
Interviewer: Yeah. And then you usually have insurance on top of that wouldn't you.
CK: Yeah.

Interviewer: Oh, it's so much. So um, do you think you use more or less energy than you have, like, in the past? I don't know, if, when you were a kid or something did your family us a lot, or did they use less, or do you always think you've used about the same amount?
CK: Er, I can't really say basically because, er, there was, my father and mother, and my brother, when we used to live in Melvina Road, which is no longer there, it, er, it's up by Duddeston Mill railway station,
Interviewer: Oh ok,
CK: And we were, er, in a, a council maisonette, it was three storeys basically,
Interviewer: Yeah,
CK: It's er, in each block you had families in there, so . . . I'd imagine, because of the time, that people didn't have as many gadgets, cos it, er they were, very expensive then.
Interviewer: Hmmm.
CK: And there wasn't that many around. So, um, we'd've use- we probably would have used a certain amount of gadgets basically because we were more people, basically, so energy costs are gonna be more.
Interviewer: Yeah.
CK: But, energy costs then were cheaper.
Interviewer: Yeah.
CK: My dad used to work for the MEB, which is the, the old er, Me- Midland Electricity Board, basically.
Interviewer: Oh right, ok. Ok. Alright then. So do you want to use less energy then because, just because of the cost, are you concerned about the environment at all?
CK: Er, . . . partly the cost. . . . To a certain extent the environmental costs basically but, . . . unless you're a really big user basically, of, of energy, which I – in some respects my carbon footprint is a lot, a lot lower than other people's cos I don't have a car
Interviewer: Yeah,
CK: And things like that. Er, and lots of electrical gare – gadgets, er, and I don't have a lot of money so I'm not buying er, lots of things, I don't have holidays and things like that so, . . . my carbon footprint, compared to a lot of people's is a lot lower, but, the . . . it's certainly true that houses and individuals can help to lower the energy needs, but we still got a lot of inefficient er, industries in this country.
Interviewer: Ok.
CK: Cos over the road basically we got a giant paper factory.
Interviewer: Yeah, I saw that yeah. Is that really inefficient then? I don't know much about paper, how that, works?
CK: Well the, they have to heat the water don't they? To make the paper. And then they end up venting that, whatsnames. I don't know does, in, on the plant there's any, um, those devices that er, what you call them, heat extractor, type things
Interviewer: heat exchange,
CK: Type thing, in the plant, er if they're just heating the paper up and then they're venting the air out the system
Interviewer: Hmm
CK: Then that is being [laughs] inefficient.
Interviewer: Ok. And do you worry about the cost of that to the environment or is it just wasteful or . . ?
CK: It is wasteful. It's also that er, it's also a very smelly process.

Interviewer: [laughs] I did actually use to live near a paper bill, a paper board factory
CK: [coughs]
Interviewer: and that did stink, yeah.

Ok. I'm just going to ask a few questions about like, your local community. I used to be like, a, um, a community development worker and I used to
CK: Yeah
Interviewer: work in the Black Country. And um, so I had this sort of idea like,
CK: Where did you work?
Interviewer: Erm, have you heard of Groundwork West Midlands?
CK: Er,
Interviewer: Used to be Groundwork Black Country
CK: Where was that?
Interviewer: It was based in Tipton.
CK: Tipton?
Interviewer: Mmm. But it changed er,
CK: Yeah, I don't really know Tipton, cos I used to work in Oldbury.
Interviewer: Oh right?
CK: Yeah.
Interviewer: Yeah, my boyfriend works there. Er, so yeah, so um, we used to have this idea of, like, what a community is. And then I left, and I kinda realised there were lots of other definitions of it. So yeah, that's just why, I'm going to ask you now, what do you think of when someone says there is a sense of community here. What does that actually mean to you, if anything?
CK: Basically that, good neighbours, er, people, er don't make, don't intrude into other people's lives then if, er from the lets say in the sense of let's say having wild, er loud parties, making noise, you know, making other people's lives a misery. Plus er, er helping people basically as well. To a limited extent, be – because, er, you have to think that when you're helping somebody, er, you have to think of yourself as well, you can't put yourself completely out- out, you know, out, basically, er, to help people. You, you can help people from a limited perspective, basically but you . . . if you, if you were like some people that, that did everything basically, er, they might be thought of, but people are walk, people are using them basically. So, you, you have to try and find a balance between the two.
Interviewer: Yeah, that's a fair point. So um, like in your local area is it like that around here, do people help each other within reason, and like are your neighbours quite good or is it not like that here?
CK: Er . . . I know a few neighbours, I don't know everybody, whatsnames, but, on the whole the, you can go to people if you, let's say if you got a problem with something. Or if, if they want, if they want some shopping or whatsnames, things like that.
Interviewer: Oh ok.
CK: Er, . . . because communities today are not like the communities of the past basically. Not where, let's say, er when people un-, left their doors unlocked, and basically that, er, the neighbours were in and out of each other's houses. Because communities, er, when the old back-to-backs basically was,
Interviewer: Yeah
CK: That kind of community does, doesn't exist anymore. Because, er, if you're in a tower block basically, you could guarantee that probably fifty per cent of the tenants, er, are not er, only stay there some in the region of a few years basically. You might get to know 'em a bit, and then you get another set of people. But – and you, you, er, not, not everybody's the same basically, you know, some people are more private, that kind of thing.
Interviewer: Alright. Um, right, well that answers most of these things. So, like, since you, since you've had this, these panels put in your roof, have you like spoken to any of your neighbours about, about it, that you wouldn't have spoken to normally?

CK: Er, a coloured woman came to ask me about the solar panels. And I told her that basically that, er, who, who fitted them, and to get in touch with them, basically.
Interviewer: Oh ok. Do you think you'll ever speak to her again, or do you think that was that?
CK: That, I think that was that basically. She was just curious, about the solar panels.
Interviewer: Oh fair enough! Has that been the only person then, you haven't had any more curiosity than that?
CK: Not really but, even the neighbour next door's not, not that bothered, particularly.
Interviewer: Oh, I wonder why!
CK: She's an old, older person and . . . I'm somebody that likes science, I've always been into science and things like that, you know, so,
Interviewer: Mmm
CK: People that have a . . . like scientific things and history and whatsname, are more open to new technologies.
Interviewer: Ok. Alright. And I suppose if it's free that gets over that barrier, doesn't it?
CK: Yeah.
Interviewer: Well that's cool. So, er, was there, was there any particular person that affected your decision to, you know, have the panels put on?
CK: Not really, you either, yes or no basically. Then er, it's just the financial situation that was the main consideration.
Interviewer: Ok. And did you feel that when they came round they sort of explained it well and everything? How, how it was gonna work and . .
CK: I, I, they give a rough idea. But you . . . it, people can only give a rough idea, cos, it, they, you don't, they don't know if there's any problems going to occur.
Interviewer: yeah yeah yeah, fair enough. Alright then. So, yeah your interest in science something that made you want to sign up as well as the cost factor. What do you think about the fact that it's sort of the council that are behind this project?
CK: It's good basically but, but it's not just the council it was government funding cos the council in the financial situation, whatsnames, so,
Interviewer: Yeah
CK: So if they didn't get government grants to let's say, do double glazing, and whatsnames, council wouldn't do anything.
Interviewer: [laughs] Fair enough. Yeah I think it was, it was a fund that helped them do this stuff. Alright so who have you told about this project?
CK: Only people that have asked me about the, a few neighbours, that's all, in the road.
Interviewer: Ok, and like, do they want to be involved or? [don't you mean who have you asked say friends and family, here?]
CK: Er, they've, I've been asked but er the, been asked but they turned it down basically.
Interviewer: Oh right. Ok, fair enough. Erm, I was just wondering, do you think, do you think it's like, it would ever be in any way better around this area, because of these panels?
CK: What do you mean?
Interviewer: What what, do I even mean by that, yeah! I'm just trying to think, um, because my original idea when I was thinking about this question was if people like talk to each other because of it then, you know, maybe you might like know a few more people because of it. Um, or maybe if people around here are not having to spend so much on energy it make their lives a bit more easygoing. Just wondered, that kind of thing, if you've got an opinion on that.
CK: I think, I think basically that . . . one of the main problems with Britain is that we're still stuck basically in the, in the thinking of the past. That er, we wont spend money, basically, on er, improving things. One of the, the council, years ago basically probably could have come up with er, there must have been companies around that having a solar cell fitted to, er, the lights basically.
Interviewer: Yeah. It's not new technology is it, it's been around since the 70s.
CK: You know that if there would have been a battery in the actual light itself, it might not've produced enough energy er, to fill, er, to light, keep the light, er the street lamp for the

whole of er, the night, night period basically, but it would have been probably enough energy to probably do something in the region of maybe a third

Interviewer: Ok

CK: Of, of, the, because what they're doing now, is that councils are turning, in certain places, the street lighting off.

Interviewer: Oh right, to save energy?

CK: Yeah.

Interviewer: Ok

CK: And I don't know how many of the council proper-, er, er, properties, basically the council own themselves like, er their head office and things like that have got solar cells themselves.

Interviewer: Yeah. And you think that's just part of an old idea about not investing in things?

CK: Yeah. Because er you've got at the present moment aint ya, yesterday you had Germany said they were not gonna have nuclear power.

Interviewer: Yeah.

CK: That means they've got to get every trick in the book to, to try and get as much energy that the country will need, not only now, but in the future.

Interviewer: Yeah. Yeah, all from other sources.

CK: Though, what the programs I've seen about Germany, er, it's, they've probably one of the, aside from some of the Scandinavian countries, Germany's one of the greenest.

Interviewer: Yeah.

CK: It does go for, invented, inventive technology, to er, to get as much as they can

Interviewer: So you reckon they're not, as committed to the status quo then?

CK: This country is not.

Interviewer: This country's what, sorry?

CK: This country's not committed to it.

Interviewer: Right, to becoming more green. Is that what you mean?

CK: . . . Look what happened when er, when that contract was signed for the, new, new nuclear power s, they signed a contract that gave the energy companies a fixed tariff to charge

Interviewer: Ok

CK: For producing the power. But there's nothing said about, what about all the nuclear waste, who's gonna pay for that.

Interviewer: Yeah

CK: And you got that, that idiot Pickles. He's gonna dump low level nuclear waste, off, off sites soil,

Interviewer: Oh right

CK: Into landfill!

Interviewer: He's in charge of communities, he's got nothing to do with that!

CK: Yep.

Interviewer: That's weird. Sigh, I'm not going to start ranting, I completely agree with you, but I'm not going to start ranting! So what made you interested in science just out of interest, have you always been like that or . . ?

CK: . . . I think, I think knowing something about how things work is . . . is a good thing basically. It, I try and do as much, let's say electrical things, basically that you can if, you know, you're not trained to do things, simple rewiring, basically, not all the complicated stuff. Not like my Dad used to do, when he was work, cos he used to er, do the high, you know the, the high power cables.

Interviewer: Oh god.

CK: He'd seen people burnt to death.

Interviewer: I bet he did. Gosh. But you can do the simple stuff? [laughs]

CK: Yeah.

Interviewer: Ok. Did he get you interested in it then, asking him what he was doing at work.

CK: Not really, I've just always been intere- cos I used to, I used to like watching tomorrow's world.

Interviewer: Oh right, yeah yeah yeah!
CK: I'm surprised they don't have a science based program today.
Interviewer: Oh I hadn't noticed that, I don't have a television so like . . .
CK: The only one I do know of, and that's not on very often, is that thing, is it on a Monday or a Tuesday, with them three, the man and the woman, er, on BBC1. I can't remember, is it science lab or whatever it is called.
Interviewer: Oh right. You think that's the only one they've got at the moment program wise.
CK: Yeah they, two of them are on yesterday doing that er, the egyption, er, er, when they, this American woman er, had got these satellite images, and then adds them by using some, infra, infra red or, or or, you know, what, filter on it, basically and it showed up where in ancient Egypt, where buildings were under the soil.
Interviewer: Oh yeah so instead of having to dig for them. Oh that's fascinating! Alright then. I think, that's that's all th

Interview with MW 5th July 2012

I: Today is the 5th, thank you, the 5th of July and I'm here with Mrs White, is it ok if I record this?
MW: That's fine, yeah.
I: Thank you! Ok, um, never mind this for the moment, um, would you mind telling me, just sort of a blow by blow account of how it all happened, with the, with-with the panel on the roof?
MW: Er, we had contact from Birmingham City Council, asking us if we wanted them put on, um I'd read quite a lot about it so I thought ok, we'll have a go and see if it saves any money,
I: Ok
MW: erm they came on the Friday and put scaffolding up, ready for the Monday, um, and they were here for three days, in, that's total putting, in, installing everything and the electricians coming, um, and them taking it all down and going away and er, they had access to the back of the house so they didn't really bother us at all it was, in and out.
I: Fair enough, fair enough. When you say you had contact from the city council, was that a letter or phone?
MW: A letter and like a leaflet with information about solar panels and what their uses are, and what they do and that sort of thing, and what all the work would entail as in somebody having to come into the loft and install certain things.
I: yeah, yeah. Ok. When you said you knew a bit about it already, I mean, where from and how come?
MW: On the news, really, cos it was like a big thing, er, you know there was quite a lot of information about it, you know, I'd seen it going on around, you know, I'd seen them being installed a lot around here.
I: Ok
MW: Um, so we sort of, I'd heard little things about it and that it was there to save you money and stuff like that, so.
I: Ok, and last question on that little bit, when exactly was it that you had yours installed? I say exactly, I mean, like, a month?
MW: Er, .. it was … trying to think now, cos I was going somewhere, that's why I was thinking was it about this time last year but I don't think it was, I think it was about October?
I: Ok
MW: I think it was just before winter 'cause I thought we won't see any benefit from it, so I think it was probably about October time, now.
I: Ok, ok, right, now I know where I am. Um so how much energy do you use sort of roughly, I normally sort of get round this question by asking what kind of appliances you have, um energy saving light bulbs, you know what you normally do in terms of you know, leaving stuff on or off standby, bla blab la.
MW: Ok, er, all my bulbs are energy saving,
I: Ok, cool.
MW: All of them are. Erm, to our best ability, we have certain fancy lamps, sometimes you can't
I: It's harder, yeah
MW: To, to our best ability most of them are. There's five of us in the house, erm, six now my son's back from university so, there's somebody in all day long really,
I: Ok
MW: So there's things on all day. I can do two loads of washing and two loads of drying most days, erm, and the normal appliances as in the fridge and the freezer, those things are on. We do put TVs off, things are not generally left on standby if we can help it, you know, sometimes the children do, but if I, c- you know can catch it then things are not really every left on standby. We've got TVs in all the bedrooms, so there's quite a lot of energy being used constantly.
I: Are there a lot of computers or laptops around?
MW: There's two laptops, er, x-box, two x-boxes, so yeah, there's quite a lot, there's all, once everybody's here there's all, something on, pretty much
I: Yeah lots of stuff going on. That's an amazing piece of cooking equipment you've got there, is that like an Aga, or um?
MW: It's just a, it's just er, a range cooker.

I: A range. And that's electric, is it, or
MW: No it's just, it's gas, it's the, er, we need the electric to light the pilot light on
I: Oh, I always wondered! Now I know [laughs] Excellent. So um, there's kind of two parts to this question, do you feel like you're using less energy since the panels were installed, and that means both you know, are you spending less, but also, are you actually using less?
MW: We're definitely spending less, um, especially on a day like today when the sun has actually come out!
I: Yeah I know, better than last week, eh?!
MW: [laughs] yeah, um, yeah we definitely are. Um, when we first had them installed they recommended that we maybe let the, because I have um, er, pre, a prepay meter.
I: Ok yeah.
MW: Possibly let the meter run out, put some in and check, sort of for our own guide, how much, and I would say, previous to that we were having to put ten pound every other day without fail.
I: Oh my god!
MW: yeah. Without fail, every other day. But if, when the weather did sort of, perk up a little bit, I was doing it every four days at some point.
I: Wow, so you kind of halved it really?
MW: Yeah, halved it in some. But, but even on just a mild day, when it's you know not the rain and whatever obviously that we've had recently, but just a mild day I'd say ten pound would last us three days on a good day. Whereas as I say when we did try it out it was four days if, if the sun was out like today.
I: Ok, Ok. Well that, that's gotta be good, hasn't it? [laughs]
MW: Yes.
I: So um, do you feel you've got a bit more control over your energy use and costs now?
MW: Um, yeah it's, well yeah, more control as in it's lasting a little bit longer and we can maybe not that, we're not the sort of people that, we do turn lights off when we go out of rooms and things but we don't sort, I don't think to myself I won't do the washing today cos the sun's not out.
I: Ok!
MW: I, I just carry on as normal, I don't change my routine, I do, do the washing and do the drying, I don't wait till tomorrow in, in case, I don't do that sort of thing. Erm,
I: You [laughs] you appreciate it's a possibility that you could do, but you don't do it.
MW: No I don't, just because as I say, there's so many of us that if I waited till tomorrow I probably wouldn't get into the kitchen
I: [laughs]
MW: [laughs]
I: Right, I see what you mean. Yeah.
MW: So I do carry on, I do not, I don't tend to think, oh, today let's get it all done, but I do, I do very much now, do it all in the day time, whereas before I would go to bed and leave my washing machine on, or go to bed and leave the dryer on, I do tend to do it in the day time so that I get up, see what it's like and, and try and get it done if it is a bit bright, you know what I mean, but I still have to do it,
I: As often as you do yeah,
MW: whether or not it is yeah,
I: Ok, well, fair enough, there's, it's just how it is isn't it, you can only do so much and you've got to balance it with how you live your life normally. Erm, so um, how do you feel about the fact that you produce, you know like, some of your own electricity now? Your own little power station.
MW: Mmm, it's quite, it's quite interesting to know that, that's going on,
I: Yeah
MW: And there's, I think I was, I'm right in saying that whatever we don't use goes back into the National Grid anyway, er, isn't that where the sort of profit's made?
I: There's
MW: On their side?
I: There's two parts to the profit, there's like the tariff is made up of a generation tariff which is actually the bulk of the cash and then an export tariff which is actually much smaller, because

it's, you know it's like a subsidy to get people, to encourage people to put them up there, so they give you 41.3p per kWh just for making it, and then it's 3p per kWh for that, that you export.

MW: Ok

I: So um, but yes, how it all actually works in terms of the money and stuff, and you're still doing your bit aren't you?

MW: Yes.

I: Jolly good, um, so um, my question there, so why do you feel like it's quite interesting, I think we've kind of covered some of it.

MW: Why do I feel . .?

I: Like it's interesting that you're producing some of your own electricity now like your own little power station?

MW: Cos I think every little penny counts these days, doesn't it? Saving money is like one of the main factors of why people choose Sky or Virgin, BT or Virg-, you know, it is, it's all, it, it's not always about the service is it, a lot of times now it is about how much money you can save. [Dog comes in, is taken away]

I: Um yes, so, so really, you said yes to the panels in a way then because it was another thing like that

MW: Yeah

I: It was another money saving thing

MW: Yeah, it was a money saving thing, yeah.

I: Ok. Ok! So have you spoken to anybody else about your panel, I don't know if you can remember any conversations that you might be able to tell me about?

MW: A lady came round when they originally came round to talk to me about it, it was a lady, and I think she was the lady who contacted me about you coming.

I: Ok. Oh J-?

MW: I think it was yeah, a young lady.

I: I've not met this person it's a voice on the phone!

MW: Ok, and a man, she ac – spoke to me and told me the ins and outs of it basically, while the man went round measuring up, and checking that we could have them, because the sun comes on the back of the house luckily here, so,

I: Yeah yeah

MW: We was ok to have it, but I know others have had problems and not been able to, because of the way the house is situated, so all that was, all the checks were done, so there was a lady here telling me all the ins and outs of it then.

I: Ok, have you told anyone like friends and neighbours or anything?

MW: Oh yeah, I've spoken to quite a few people about, actually there's, neighbours around here erm, we-we've sort of discussed that we'd saved money.

I: Ok

MW: A few of us have discussed that, um that we've saved, er there's a bungalow, some bungalows further up and I spoke to the lady there the other day and she said her bills had halved.

I: yeah

MW: Easily halved. And I've spoke to other people who had been contacted by Birmingham City Council er, friends and family, erm, asking them and they were sort of saying is it worth it, do you think it's a good thing, and so I've had a few conversations about it and, I'd say, anything I would say would be quite positive

I: [laughs]

MW: I'd say good.

I: Alright, that's good. So do you know a lot of people around here then to have those conversations?

MW: No, just a few, I've only been here for two years so,

I: Oh fair enough.

MW: Yeah, we moved from a different area, so I, it's just obviously the neighbours that talk to you say hello and the lady in the bungalow is actually on the residents' association round here, so she's

I: Oh, are you a member?
MW: that I talk to. I'm not, no, I went to her about a few repairs and things, so we got talking then. And we were talking about the solar panels just the other week.
I: Fair enough, fair enough. I always like to try and think of reasons to speak to my neighbours cos I only know like one set but um, you know beyond the fact that a hanging basket gets stolen from time to time, [laughs] we don't really have anything in common that we know of, that you can start a conversation. So I was just intrigued. So um, how do you feel about the other people that have got solar panels around here, do you feel like you've got something in common with them?
MW: Yeah I'd say so, I'd say that we're all in the same situation now where we're saving a bit of money each, week, month, whatever it is that how they pay their bills, or so yeah, I would say so, yeah.
I: Ok. Um if you see something on television or about town or hear something on the radio about solar panels do you kind of, do you feel part of something? Like a wider, sort of
MW: Ooh, we've got those, sort of thing? Yeah? Yeah I guess so yeah. Yeah. Um, yeah, I do definitely and I would probably listen to it a little bit more and see if other's people's experiences are the same as mine, that other people are saving money.
I: Ok. Ok um, so um, what do you think about people that like, don't have panels? I don't know, cos I know in earlier phases of this project some other people that I've interviewed, um, some of their neighbours were offered this, but like didn't take it up, so one of the things I was speaking to them about was, you know, why on earth didn't they, and what do you think about that, but I don't know if the same situation happened at Woodgate.
MW: Erm, the family next door, that's a bought house, so they haven't got them. And the one after that, she's Birmingham City Council and she wasn't offered them.
I: Oh! Is she on the same orientation as it were? Does she face the south too?
MW: Yeah yeah two doors that way. Some of the houses that way have got them too, so I'd say so, but she said that she hadn't been contacted and she's on Birmingham City Council, um
I: Oh that's a shame.
MW: Yeah, yeah it is a shame really.
I: Unless there's a tree issue or something and she's shaded, I don't know.
MW: Yeah it could be. But um, no, I don't, I don't know why, she doesn't know why, I sort of said to her maybe you should look into it because it's worth it to save some money, but um, as I say next door, I know next door isn't done because they, theirs is a bought house, but they've asked me about it actually, they asked me if, d'you think it's worth it, so, I think it's quite a lot of money to pay if er, you've got a bought house isn't it to have them installed.
I: I think so yeah, I mean obviously the way Birmingham City Council is doing it, because they're doing like a job lot, they're paying I think much less per like array than you know you might do as an individual customer, but they've got it down to something like 5k from like 10k, I might be making that up but it was, they have made massive savings, but um, but yeah, I don't know if like individual householders, if you're gonna have that kind of buying power,
MW: Yeah
I: I think after, you know the feed in tariff went down in November
MW: Yeah
I: And there was a bit of a scuffle about it, I think like, some of the PV panels might have gotten a bit cheaper then because people didn't know if they were ever going to shift them again. But um, but yeah it can be quite expensive.
MW: Yeah.
I: D'you think that, I don't know are they a bit sort of gutted, do you think that they can't,
MW: The lady two doors away that on Birmingham City Council, she definitely is. She's definitely upset that they haven't contacted her. [phone rings, MW ignores] My eldest son.
I: [laughs] but he's just here?
MW: No no, that's my, not my eldest son,
I: Oh right,
MW: My eldest son's 24, doesn't live at home.
I: Oh right right. So, is that four children you have?

MW: Five
I: Five children you have.
MW: Five sons.
I: Five sons! [laughs]
MW: [laughs] [I remember there were lots of Looks at this stage that gave me to believe that this was rather a bind]
I: Wow. You must be indefatigable. Um, so um, where was I, yes there it is, did you know about the earlier phases of this project? Because you know Woodgate Valley wasn't the first set of council houses that the council did.
MW: No I didn't, I didn't, I had seen them, um, I don't know if you know er an area, Bordersley Green, um by the Heartlands Hospital,
I: Yeah.
MW: The
I: I think I know that area
MW: There's a road down there and quite a lot of them seemed to have them at the same time, and I had noticed them because that's where we, we'd moved from over that way, so when I was going back over visiting people you did, I did notice them.
I: Ok.
MW: Quite a lot. I noticed that, I noticed them, I didn't really even know what they were at the time, sort of asked somebody once, what are those, and um, that was sort of um my first introduction to knowing even what they were, so that was only just before these got done here those.
I: Fair enough. So a little seed. In a way.
MW: Yeah.
I: Ok. Other things, how do you feel, cos you, you've spoken about this very much in terms of like the economic benefit that you can get out of it,
MW: Yeah
I: Um, which is very important, I mean, ten pounds every other day, I mean, I would [laughs], but um, you know, d-do do you think about environmental issues at all, do you worry about the environment or just generally how do you feel about those things about climate change, and energy security and . .
MW: Um, I wouldn't use the word I worry about them. I do think about them. I do try to do whatever I possibly can, er, a bit of recycling and things like that. Er, I wouldn't, I wouldn't actually use the word like worry. But I do think and I do try my little bit if I can help.
I: Ok.
MW: But I think I've also become used to things and, I think, I think like the next generation as in my children that, it will be more installed in them
I: You think so?
MW: To do constantly recycle and always, d'you know what I mean, to always behave like that, whereas I've been doing something one way for so long and all of a sudden now we're expected to it in a different way and it's a bit hard to change sometimes.
I: yeah no, absolutely fair enough. So do you see at least like, the link between the environment and the panel that you've got on the roof, cos it, obviously is renewable energy as opposed to coming from non-renewable stuff.
MW: Yeah. Um, well yeah, I, I can see there's a link, I, I, you know I do understand it and I suppose it's another thing I'm helping out with.
I: Ok fair enough. But not primary concern really?
MW: No, not really.
I: Ok. That's fair enough. Um, I think we've kind of already answered this a bit, have you changed the way that you use electricity since the panels were installed, um, to a point, as in, day instead of night, but not to
MW: Not the amount
I: sunny vs
MW: Not, not the amount of what I do, but um, yeah, definitely waiting to see what the day's like of a morning, it's normally the first thing I say when we get up in the morning – is it raining! [laughs]

I: [laughs] I think we all say that!
MW: Right, get the washing in, but it's not get the washing in if it's raining outside, it's get the washing in the washing machine and get it done, you know there was actually one day when it, you know we had about a week of some nice weather, there was actually one day
I: Back in May?
MW: yeah, sometime, years ago it feels like, I actually used 29p electricity all day.
I: Wow.
MW: I checked my meter. That, and it was amazing that I actually checked it that day and that's, that was the one day I did notice a real big saving because it, it the sun was out all day and,
I: yeah
MW: I still used my dryer, I still used all the, you know, still carried on behaving the way I normally did, and that's, that was that one day I noticed this amount of saving.
I: That's, that's that's an amazing saving.
MW: It is.
I: I mean do you ever think about doing, I mean, cos tumble dryers they're quite expensive to use, I was under the impression they were?
MW: Erm, people say yeah, I do notice a difference, when my tumble dryer's broken I have to go to the laundrette, I do notice a difference in the amount of electricity we use. Definitely
I: Fair enough. Fair enough. Cos, I, I was just wondering like, you know, .. since you can use so little electricity through your key meter when it's a sunny day, if you ever do think about well maybe if I didn't use a tumble dryer I could, I could pay nothing! Today . .
MW: Yeah,
I: But that's not, you've not . .
MW: Erm, no, out of .. maybe I should use the word laziness.
I: [laughs]
MW: No I don't, I just take it out the washing machine to the dryer and I've had the children walk in and go it's boiling in here, the dryer on and it's boiling outside, but I think it's habit as well.
I: Yeah
MW: It's quite a habit to take it out of one and into the other.
I: I see cos it used to be habit for me, when I was at home my mum had a tumble dryer so it was literally like pull it out into your arms, turn,
MW: That's right
I: shove it into the tumble dryer
MW: That's it
I: Yeah, so it was only when I went to university we didn't have such things that I was like [huffed] and that's how that habit broke,
MW: Yeah
I: But yes, habits are hard things to get out of. Um, jolly good, so do you think that other people have changed the way that they use electricity, at least in terms of day vs night, or do you think that they're still sort of sticking to their old sort of habits?
MW: I'd say that um, people who have just recently had it fitted um, would, y-you do, I would personally think that you would stick to the habit first of all, I think it, if you saw that saving, that amount of saving I think maybe you, your habits would change slowly. But um, in all fairness I'd probably say a, a younger, maybe a younger person with a few little children obviously, we all have to be careful but having to be careful with the money and whatever, I'd say that they are probably, they'd probably stick to it. You know? They'd probably try and do those things where you don't use the dryer all the time.
I: Yeah, maybe, yeah.
MW: I think another thing I've always been told uses a lot of electricity is the kettle.
I: Oh really?
MW: yeah
I: Well they do say only put in as much water as you need
MW: As you need yeah, they actually gave us an eco-kettle.
I: Did they?
MW: Yeah

I: Oh brilliant!
MW: We had somebody come round towards, it wasn't to do with the solar panels but they came round to try and tell us how to save energy like, as in putting something in the toilet cistern so that not so much water gets used, and, and they gave us an eco-kettle and you actually pump it through how many cups you need.
I: Oh wow! That's cool, is it working alright for you?
MW: …
I: I've heard they're crap [laughs]
MW: [laughs] Yeah! I think if you was on your own and, and had, and wanted one cup, it would be ok. You sort of have to, it's like going down to the river and having to pump it up,
I: [laughs]
MW: oh get the old kettle back on.
I: I suppose if you've got a big family anyway it doesn't make much difference anyway
MW: Yeah, once we've boiled a kettle everybody's, everybody uses it anyway.
I: Fair enough. So who was that that came round, do you know who they were from like?
MW: Um, EcoWarm? Or, I'm sure that was the name of them, erm, I'm sure that was the name of the company. EcoWarm.
I: Gosh I've never heard of them!
MW: I'm sure that's what it was called. I'm pretty sure it was.
I: But they were somehow connected to the whole process that put your panel in?
MW: Yeah, yeah. Everybody round here having the panels and one thing and another trying to save a little bit of energy, I'm having trouble with my heating system, it's the old blow air heat,
I: Oh yep, yep.
MW: Erm, so I'm having problems with that so they sort of came round to try and help me save a bit of money on things like that.
I: Ok. So just gave you like little bits of advice or
MW: Yeah, advice,
I: That was related to your house
MW: Yeah. Yeah and I think it was different obviously for everybody, everybody's needs were different to others and that's what, I think that's what they did, they went round and did a bit of that.
I: That's good.
MW: Mmm.
I: Ok. And how sort of, I don't know if you know that, if you can remember how long it was after the panel actually got installed that that happened.
MW: Um, I think it was about two months later, so I'm thinking it was around about Christmas time when the woman came out to me, so yeah, it was probably about two months later.

I: Ok. Ok cool. Um, completely different question now, what do you think that other people think about sort of solar panels generally?
MW: Um, most people I speak to think they're a bit unsightly.
I: Ok.
MW: That they're um, but we don't see them on our house that much cos they're on, actually on the back of the house.
I: Yep.
MW: Um, and I think that's the main thing – ooh, they don't look very nice. Erm, that's the first thing that most people say when they see them
I: Ok
MW: But I do think that um if they sort of, if they had leaflets like we had and the information and whatever that, I think that they would realise in the long run it's gonna be a better thing. I think that's probably the only negative I've heard, I hear people say, a bit unsightly, sort of stick out a little bit.
I: Yeah. It's interesting isn't it, cos I mean obviously they used to be really, almost unknown, you'd never see them, but I kind of wonder since they're around a lot more now if people will kind of get used to them,

MW: You get used to it, you, well, it's like everything isn't it, you actually do get used to it.
I: Ok. So um, what do you think about all of these sorts of technologies generally, so like you know solar panels is just one way of saving electricity but then of course you've got your double glazing, cavity wall insulation, [deep breath] all those sorts of things, um
MW: Um, I would definitely say certain things, as in double glazing. The house I was living in before I was here was a new build house with central heating, double glazing and lovely we could walk round in tee-shirts and shorts in the winter it was so warm in there. So definitely say that those sorts of things do, they do make a difference. Cos this is, compared to where we were living before, this is an old house, um, and you, you can feel the difference in the winter time you definitely, so yeah I think all those sort of things are good things to have because it makes a difference to your comfort even, you know? Even, even just day to day comfort of just walking round and not having to go upstairs and put a jumper on and, I've seen the kids playing computer with a blanket round their shoulders cos it's so cold sometimes, but as I say that's down to the heating mainly. Um, so yeah I think anything like that, and then ultimately you save money somewhere, don't you? You don't need your heating so high, and you're saving money on your gas and, yeah, I'd be quite up for, anything like that.
I: It's interesting that you mention comfort, I mean sometimes I'm working from home and I've got like a pre-1919 house, I've got – I rent it. And it's right at the end of the terrace and all of the warm air just goes 'and out'! [laughs], so I'm sitting there sometimes with my laptop going oh, oh I'm so cold I can't even think!!
MW: Yeah, it's, it, it does make such a difference to, you know as I say we used to walk round in teeshirts, and the boys would be in shorts and they'd get up and be in their rooms and, then we came here and it was like [gasps], and it's so cold up here as well, up on top of a hill
I: Oh I suppose, yeah!
MW: [laughs]
I: Have you not got like cavity wall insulation here then?
MW: They said there is, they said there is, and I know the loft's in good condition, I know the loft's ok, but um, as I say a lot of it is down to the heating system.
I: Yeah, keep the heat in, if the heat works,
MW: Yeah! That's it, yeah.
I: Alright. Um, so this, this is just sort of about the council really and stuff so, um, have you had any contact with the city council or with anybody involved in the project since the panels were installed, and you mentioned this little EcoWarm,
MW: Yeah
I: Job, um, anybody else or anything?
MW: No, nobody else.
I: Ok. Um, was it, how did you feel about the –
MW: Sorry, there was a phone call, there was a phone call, maybe off that J- I'm sure that's the lady's name, just asking if, if everything went ok. There was that contact from them.
I: Yep
MW: But that's all, there's been nothing else since.
I: Ok. And are you ok with that?
MW: Yeah, that, that's fine.
I: to your needs. Ok. Um how do you feel about, because I know there were lots, they, they contracted J-'s company and these other people to, to actually do this, but it was the council that set it up, [phone rings, MW answers – it's her brother]. Aww, do you come from a big family do you, or . .?
MW: Seven of us yeah.
I: [laughs] And you just carried on the trend! Ok and so wh- wh- where was I? Yes, how do you feel about the City Council for actually kind of running this project? And deciding to do it?
MW: Erm I think it's a good thing, I think, I think it's finally giving something back to, you know, myself personally I don't actually pay rent here, I'm on benefits, so, I don't pay my own rent, but as far as people who do pay their own rent, um, it's finally giving something back to them, because everything, like I keep on saying everything costs so much these days, that to be able to

give them something back and they can save a little bit of money in the process has got to be a good thing really, hasn't it?

I: Ok fair enough. So like do you think that the City Council as you say has kind of got a responsibility to its rent payers to like help out a bit or something?

MW: Um not, not so much it's a responsibility but if, it's, if you can get a little bit of something back, you know, it's all worth it in the long run isn't it then, it's, er, it's beneficial to both the, the house, the home owner and, and the city council if it's also putting something back into the national grid too, isn't it? So.

I: Ok. Um, so what sort of like, um, you know do you think that maybe Birmingham City Council has got like a special or particular role in this area, this subject area, kind of thing?

MW: Um, I'm not really sure, I'm not really sure what the answer to that is. Um, … do you mean it as in like looking after them now, or, I don't really,

I: Um, I guess like, .. like a big council, like you know, Birmingham City Council is the biggest council I think in Europe

MW: Yeah

I: Isn't it, so especially compared to other like Parish councils, it's got, it's got a lot of property, and it's got a lot of actual, people that work for it and a lot of clout to actually do things, so I've always kind of thought it could be like a force for change however, you know sometimes you get these massive organisations, and they don't really know what they're doing from the front door to the back door

MW: Yeah

I: So I'm just so, kind of interested in whether or not people think that you know, that they should like local, local, local authorities should have a, a role to play in this sort of area or it's kind of more up to the individual, which is my next question . .

MW: No I think definitely Birmingham City Council will have a role to play um, that obviously that, I think if a tenant is keeping to their side of the bargain so to speak, as in keeping the house tidy, and clean and tidy and not having your neighbours or friends or d'you know people who come to visit you make a problem for other people that, that maybe that's, they should keep their side of the bargain too as in, you know what their role is, as, as your landlord, you know? Ultimately if anything goes wrong in private accommodation it's up to the landlord to sort it out,

I: It's their house

MW: That's right, ultimately it is theirs isn't it, it's their property for them to look after. So yeah I think they should have a role in modernising maybe

I: [laughs] Yeah

MW: You know, you know, that's what it is really the solar panels, it's part of modernisation, it's part of the moving on process in technology.

I: Well I definitely think so yeah. Ok. So what um, I think you've kind of answered this next bit really already like what kind of role or responsibility do you think you have it's just your end of the bargain?

MW: yeah. My side of the bargain is as I say, not causing problems for my, you know my neighbours and anyone that ever comes to my house you know, doesn't make a problem for anybody, keeping it tidy, keeping it clean, keeping, um, keeping it, decorated to a certain standard, um,

I: Which is very nice by the way

MW: I don't have, I don't have carpet in my hallway because of my flood last week

I: [laughs]

MW: But um, yeah, that's what I think my role is as in looking after it and leaving it at the end of it if not as good as, but better, never in a worse condition, I don't think, and I do know that does happen.

I: Yes. Do you think you have any role or responsibilities in terms of energy saving and energy efficiency and the environment and that sort of thing?

MW: I think that's everybody has got a role to play somewhere, even children, even encouraging children. You encourage children now to recycle, when they get older as I said before, it'll be commonplace for them.

I: Yeah, second nature

MW: Yeah, they'll you know whatever's installed in you when you're a child you grow up and that's, I think that's a lot of you know what you learn you learn from your parents and your elders around you, so if they're encouraged to do that sort of thing, now, once they're my age it'll be, that is how they will behave all the time. That's where I said to you before that I think it's habits and sometimes I'll throw something in the bin and I'll think that could have been recycled really but, you know it's habit. The bin's there and you throw everything into the bin, but I think that if you, if you install it in the children now, which I think, I think by the time my children, my younger children especially, I've got a 15 and a 10year old, by the time they're older, I think it will be commonplace to recycle everything.

I: Yeah.

MW: You know.

I: Yeah! I hope so! I'm quite good in the kitchen and everything, but if I have bits and pieces upstairs I tend to still throw bits of paper into the living, er bedroom bin.

MW: [laughs]

I: Um, ok so, I'm asking you to think really widely now, so um, you know, so you're one type of householder, social housing tenant, but you know there are other people who are tenants and other people who are homeowners, you know, … I'll leave that, um, what do you think should happen next in this sort of arena? And again, not just necessarily here in Birmingham, but you know across the country maybe not necessarily the council but you know higher echelons of government?

MW: Um, well I would say that if it's, if it's a success, as in it saves people money, it's good for the environment, and all those other things that, you know, come with it, that it should be something that the smaller housing companies erm, you know personal landlords and homeowners, um, um I wouldn't say should be made to do it, I think it should be encouraged to do it, cos it, if, if it's a good thing it should be, maybe advertised a little bit more, and let people, let other people see that it is a good thing, and, and as I say sort of encourage them, I know some of the smaller housing companies or private landlords with only a few properties erm, probably afford it on the sort of scale that the council can, but maybe you know, as in most, as most things they do, they do come down in price sometimes, and that it would be affordable for people with one property you know, to, to be able to do it.

I: Ok. That's interesting. Sorry you just made me think of something so please forgive me for this little rant I'm about to go on, have you heard of the Green Deal?

MW: No.

I: Yep, precisely, so like, that's the next, so the feed in tariff was a thing the government did last to try and encourage solar panels, and the green deal is a thing they're doing next just to encourage general energy efficiency, and what they're going to do is anybody who signs up to it, it's a mechanism, by way you can put a little charge onto your electricity bill um to pay off any measures that you might have done, so if I want to have solid wall insulation, um, I could have it done and then like a little charge would go onto my electricity bill, so it's kind of a loan

MW: Mm hmm

I: But it's fixed to a bill, as opposed to like a stand alone loan,

MW: I understand what you mean, you sort of pay it back as a loan, in instalments as such, through your meter.

I: Through your meter. Yeah, its' really hard – often people don't default on that, so um, there's more chance of actually getting it back.

MW: Especially with the prepaid meter, because you've got to put the electricity on.

I: [laughs] yeah or your lights don't go on! Yeah exactly, but um, yeah it's funny what you say about advertising isn't it, because that's supposed to be happening, in October, [laughs] and I haven't heard anything.

MW: No I haven't heard anything about that.

I: No.

MW: I do watch an awful lot of TV, I do read the newspapers every day, and internet, I do look at [inaudible] homepages and news stories and it's not anything that I've seen at all. So but yeah, but that would be

I: So you're a well-informed person and you don't know about it.

MW: No.
I: Specialist, you see it in specialist places.
MW: I do think that's a good idea, that you know, as I say for instance my neighbour's next door, I would say, I'm not saying I can speak for them, but I would say that that's probably something they could take up, paying it back. That's a good idea.
I: As long as it
MW: If it gets off. [laughs]
I: As long as it meets what's called the Golden Rule, so basically if like over a period your instalments that you pay back are the same as, or less than, the money that you're saving because of those measures.
MW: Yeah
I: There is the worry that maybe PV wouldn't really be included because it's so expensive that it would take you so much longer, but you know, as you were saying about comfort, you know, all those things that could be done. Yeah. Bit of advertising would be nice. Sorry I've totally put words in your mouth there!
MW: No no!
I: Well we've had a nice conversation about this. Ok I'll stop it there.

Organisers

Interview with BG on 15th August

Interviewer: Today's the 15th of August and I'm here with BG, B is it ok if I record this?
BG: Yes.
Interviewer: Thank you. Ok, so um, haha, please describe Birmingham Energy Savers very briefly, if you may.
BG: The principle of Energy Savers is to encourage people, ostensibly Birmingham City Council tenants, to take up the opportunity of photovoltaic panels to their roof, and mitigate some of the, the price rises now in electricity.
Interviewer: Ok, so that's interesting, you're coming at it from a fuel poverty point of view?
BG: Oh definitely.
Interviewer: Ok. Er, so, would you describe your project so far to be successful?
BG: Very. Successful.
Interviewer: Go on, why do you say so.
BG: Phase one of the project, er, managed to install 179 domestic systems,
Interviewer: Does that include the interim stuff?
BG: Yes, it's everything. Ah, and that has potential to generate 275,000 kilowatt hours of electricity per year.
Interviewer: Wow,
BG: So,
Interviewer: I'm impressed by how you know the numbers off by heart. [laughs]
BG: I'm a bit of an anorak when it comes to numbers.
Interviewer: [laughs] Um, so um, how did you get people involved, and what worked and what didn't? Sort you're the
BG: Er,
Interviewer: customer engagement person, what was
BG: Yeah
Interviewer: the approach?
BG: Well essentially the customer engagement was done more or less at an arm's length because we were, as part of the project team we were more strategic than operational.
Interviewer: Ok.
BG: Ah, but essentially what we were looking at was targeted areas and initially it was just the door knocking exercise. Phase 2 has changed the approach slightly, in that we're looking at more clusters of houses.
Interviewer: Oh you are?
BG: So it makes it easier for the er, the actual operation of fitting the panels.
Interviewer: Yeah.
BG: So you could have, at the moment we're say doing fifteen in one street, so it makes
Interviewer: Wow!
BG: Easier.
Interviewer: How come it's happened this time round but that didn't happen the first time round.
BG: Er, I think it's a learning process. You know obviously phase 1 we were travelling at a hundred miles an hour, we had targets to deliver, and the actual strategy about how those were delivered wasn't perhaps clear at the start.
Interviewer: Yeah,
BG: It was just a case of yeah we've got this money to spend, let's spend it. Rather than going for yes we've got Bordersley ward,
Interviewer: Yeah,
BG: say, er, we then look at the available council properties, we then look at the suitability of those properties and it's a sort of funnel effect.
Interviewer: Ahh,

BG: You start off with a headline of say 2000, 3000 properties, you find maybe a thousand of those are suitable.
Interviewer: Yeah.
BG: You then engage with those thousand, certainly on phase two what we've done is we've sent people a introductory letter, to say this is what's happening, please come on board, so that they know that the customer engagement people were going to arrive, before they actually get on the doorstep.
Interviewer: Yeah.
BG: So I think that's been more of a success.
Interviewer: So I mean is that not what you did with Family then?
BG: No. No, ah, a lot of what was happening with Family was, we sent them a list of addresses and essentially they went out and knocked on the door.
Interviewer: Oh right, where did the list of addresses come from? Was it just . . ?
BG: That was from our asset management team.
Interviewer: Ok.
BG: So essentially we said right, we want to work in the Newtown area, say, for an example.
Interviewer: Ok.
BG: They'd send us a list of properties that they thought were suitable.
Interviewer: Ok.
BG: And then that was just passed onto Family.
Interviewer: Ok. So I mean it was kind of area based like, phase 2 but this is much more systematic?
BG: It was but not, not as intense.
Interviewer: Ok, fair enough.
BG: Obviously part of that was the fact that the actual numbers for phase 1 were not as large.
Interviewer: No, fair enough.
BG: You know phase 1, essentially we started off with a remit to deliver 60 systems,
Interviewer: Yeah,
BG: We did three times that,
Interviewer: Mmm
BG: Simply because of the need to continue while we were setting up phase two,
Interviewer: Yeah,
BG: So, that's how it came about.
Interviewer: So, I mean, I'm kind of interested in what happened in, in sort of phase 1 because obviously that's who I've been speaking to, but also I don't wanna, you know make out that that's how the project is going to be for the rest of it
BG: No, no.
Interviewer: So, um, so tell me a bit about how you got Family involved, and what it was that you set them up to do, and sort of what lessons you've learnt from that, so I can see there's slight differences already between what's happening, and so yeah, why, why why is that?
BG: Well, I'm probably not the best person to talk about the initial engagement with Family, because I cam to the project quite late as well. Ah, they were already in position and doing what they did.
Interviewer: Ok.
BG: Essentially they were engaged as part, as a .. I would say a strategic partnership and their remit was so essentially get the customers engaged and sign the legal agreements, and then pass it to Thomas Vale, who were the contracting partner,
Interviewer: Who would take it from there?
BG: Who would actually get the work done.
Interviewer: Ok. Alright then, and then this time round, yeah you were part of it, that whole tender process,
BG: Yeah, I mean essentially this time the managing contractor for Phase 2 is responsible for the whole customer engagement piece.
Interviewer: Right, and getting them to say yes, sign agreements and actually fit the work.
BG: Yes. You know so they,

Interviewer: Ok
BG: They're doing the whole thing, so they're closer to it, which I think is providing better results.
Interviewer: Cos that was something that people were saying wasn't it, the bouncing between Family and Thomas Vale?
BG: Yeah, and it's also, I think, about branding. Because people were, the feedback I got from people on Phase 1 when I went out to see people on completion,
Interviewer: Oh did you?
BG: There were, they were getting confused. In the initial stages. Although they still signed up, they were saying right, this is a Birmingham City Council initiative, but I'm not actually seeing anybody from Birmingham City Council. Ah, there were people with Family branding on, there were people with Thomas Vale branding on, where were the people with the Birmingham City Council branding? So it was all about perception more than anything else.
Interviewer: I found that quite a lot as well actually, there's a lot of confusion about who actually did what. And things, and, so um. So just, just, just to sort of recap then, your process last time was a list of people from housing management, Family knocked the doors, but now it's letter, door knock,
BG: yeah, it's more structured. Um, essentially the list still comes from asset management because obviously they're the landlord,
Interviewer: yeah,
BG: Ah, but as I say we then take a more strategic view, we knock out anything that we know is not going to be suitable,
Interviewer: Yup,
BG: So there's a, there's almost a, like a desktop review
Interviewer: yeah
BG: Of the information,
Interviewer: so you're not wasting time in the engagement.
BG: Yeah, exactly. And there may have been a bit of that on Phase 1 that you know, we were trying to engage with flats, for instance. Even if it looks like a house on the outside, it could be four in the block.
Interviewer: I see.
BG: So the difficulty there was, well, who's got the roof?
Interviewer: Yeah! [laughs]
BG: You know who's got the garden, it's the usual question! Ah and we took the view that if we couldn't sign up everybody in the block, then we didn't do it. With phase 2 we've made that decision straight off, all flats are gone,
Interviewer: Ok,
BG: So we're not even gonna try and engage with them.
Interviewer: Ok. Um, so next question, um, and you know, reflect on phase 1 and phase 2 if you can. Um did you get very many people involved, was this more or less than you expected, and why?
BG: The take up was a lot less than we expected
Interviewer: Was that in phase 1, sorry?
BG: Phase 1. In phase 2, our initial results are round about three times the level.
Interviewer: Wow! Why?! How can that happen?
BG: I think part of it is the first area we've gone into in Phase 2 is Bordersley Green,
Interviewer: Right,
BG: Now, two years ago, that same area was subject to a Warm Zone.
Interviewer: Ok,
BG: So they had initial surveys done, but unfortunately the budget wasn't big enough to have measures done.
Interviewer: Right.
BG: So if you like they're already on board with sort of energy efficiency and things like that, they were given advice,

Interviewer: Ok,
BG: But no practical measures.
Interviewer: And that didn't discourage them? Cos sometimes –
BG: No, not at all!
Interviewer: Ok,
BG: No, we found them very receptive, and, I mean I think, … from a personal point of view I can't see the downside of having these panels put on your roof.
Interviewer: [laughs]
BG: But, you will get various people saying er, they're happy with bills, which confuses me even more, but, you know,
Interviewer: How can one say that, I'm sorry!
BG: Well, I think, reading between the lines, it's more of a case of I can't be bothered.
Interviewer: You think?
BG: Yeah. Definitely. There are other issues, like with the elderly, they don't want the hassle of people in the house, and it is, it is an intervention, you know it's an inconvenience having people in your house, ah so we accept that. But that's I think the main reasons.
Interviewer: Ok. Alright then. Um, ok then. So, about –
BG: Ooh, just an addition to that,
Interviewer: please go ahead.
BG: Ah, because the technology is new,
Interviewer: Right,
BG: There is a distrust initially of the figures.
Interviewer: Oh really?
BG: So people don't believe that it will do what we say it can do. So that is, that is another big reason that people didn't take it up.
Interviewer: It's funny isn't it how technology can be sorted quite neatly into things you should love, and things you should mistrust.
BG: Mmm.
Interviewer: It's like the internet and ipads, and apples and all that kind of thing, you know, and smart phones, oh yeah, get on board, gotta have one, gotta have one, but this ..
BG: I think it's almost by, it's guilty by association. Because it's power and fuel,
Interviewer: Right
BG: Then the mistrust of the fuel utilities
Interviewer: Aaaaah
BG: sort of carries over, and I think that's, that's part of it.
Interviewer: That's really interesting
BG: Cos what we're finding is that a lot of people .. there's one particular area, ah, it comes to mind, there's a block in a cul-de-sac of about nine properties,
Interviewer: Ok,
BG: One of the properties got in just at the tail end of phase one.
Interviewer: Right.
BG: The other eight now want it. But we're not working in that area.
Interviewer: Damn!
BG: But we might instruct er, the new management contractor just as a one off, because there's 8 in a cul-de-sac, it makes it economically viable to go back there.
Interviewer: Yeah. Alright, um, do you think that the project, this is talking about behaviour change, it's something that I'm quite interested in for my PhD, because, interesting you described at the beginning, to get people to have these panels, to accept having these panels on their roof, but, I'm also aware that you did some stuff with green doctor, and that, that was a sort of targeted piece of work on behaviour change as well wasn't it?
BG: Yeah.
Interviewer: So I mean, do you think that the project will encourage people to think more about conserving energy?

BG: I think it does, but the results probably aren't as strong as you might believe. Ah, we have actually commissioned some work around behaviour change and, you know,
Interviewer: Ok,
BG: Some of the feedback from phase 1, and I'm putting together a sort of,
Interviewer: Is this that Alison Millward's thing.
BG: Yes. Have you had that?
Interviewer: I've read it, yeah.
BG: Yeah. And that, that was saying you know, about a third have probably changed their behaviour.
Interviewer: Yeah.
BG: A third haven't, and the other third were doing it anyway.
Interviewer: Yeah.
BG: It's those sort of results that we're getting. I think it does sort of heighten peoples' sort of perception on energy efficiency, and you know the need to conserve energy, but I don't, I don't see any dramatic changes in behaviour yet.
Interviewer: Ok. I mean do you think you will in future?
BG: I think we've got to!
Interviewer: [laughs]
BG: Ah, it will happen, you know simply because people become more aware and they start looking at what their resources are, you know at the moment, I mean, we've known about climate change and you know, on a global scale, for some time.
Interviewer: Yeah.
BG: It's now come down to the national scale. It will drift down, cos people think of it of climate change isn't my problem, because I don't impact on climate change. If they actually sat down and thought about it, then everybody does.
Interviewer: Mmm.
BG: But it's, the big problem is not down at the grass roots level yet. But I think with the rises in fuel prices, and people becoming more aware of the issues, like the, the sort of finite resources that we've got, then that will then lead to more drastic behaviour change.
Interviewer: That's interesting, that's what I'm looking for when I do my interviews again next year with the people I interviewed in the last couple of months, cos, a lot of people were really thinking about getting involved in this project for economic reasons.
BG: Mmm.
Interviewer: It seemed to me, so when I asked them do you care about the environment, well actually I noticed that a lot of people, when I said 'the environment' they meant, they assumed that I meant things like local environmental services.
BG: Mmm.
Interviewer: You know like litter and recycling, how, how tidy are the streets, are their pot holes. And I was like, yeah, some people, that idea about world climate and world environment problems, sort of had yet to, trickle down.
BG: It's not even on the radar.
Interviewer: Yeah, that's, that's what I was finding some of the time. Ok, now I suppose yeah, if people do see, if it becomes a national problem and then a local problem
BG: Mmm!
Interviewer: That's quite a nice answer, I like that, thanks! [laughs] Um, so, has Birmingham Energy Savers done anything to encourage people to conserve energy and do you think it's worked? So I guess this is a chance to talk about green doctor,
BG: Well it's the green doctor, the advice, and just making people aware of you know what they can do.
Interviewer: Ok.
BG: Ah, even simple things like you know, turning your thermostat down by one degree. Ah, because obviously we've got links through to the energy saving trust, if people want advice. But even on our Birmingham energy savers website, we have sort of the

top ten energy saving tips, you know, only putting enough water in the kettle that you need, things like that, you know, basic stuff, that people can do.

Interviewer: Do you think that it's gonna work? Or do you think it has worked so far?

BG: It's a slow feed. Er, I think if we keep people putting the message out there, then people will come on board.

Interviewer: Which is why I'm going to come back and ask you these questions next year! [laughs]

BG: [laughs]

Interviewer: So um, so yeah do you have any evidence or idea that people are using less energy as a result of this project so far?

BG: Using less energy? Mmm. They're pulling less energy from the national grid,

Interviewer: Ok,

BG: and we can support that by the evidence of the way the panels are performing, so yes they are using less energy as a result of the project, and we've got the evidence to prove it. [laughs]

Interviewer: Excellent! Excellent. Um, yeah I think you've kind of partially answered this already, but I don't know if you can think of anything else, how do you think people react to or feel about energy technologies?

BG: I think through phase 1, ah, they were unsure of it.

Interviewer: Mmm? Ok.

BG: Not from a point of view that they were being mis-sold or told any sort of untruths, it was just, it was something new. As we've progressed, and we're now into, like, much bigger project in phase 2, er, just to give you some idea, over the next 18 months we will be producing, or we will be installing ten times more systems than we did on phase 1,

Interviewer: Oh it's massive, isn't it?

BG: So it's a huge ramp up.

Interviewer: Yeah,

BG: And then phase 3, numbers just get scary,

Interviewer: [laughs]

BG: Ah, we're talking about 15000 properties by 2015. Um, and I think yeah, initially there's a lot of let's wait and see. You will get the early adopters, which you know, we've got those, like I said that example about the cul-de-sac, they all had the same opportunity, but one

Interviewer: One person

BG: One neighbour came on board and then the other eight have sort of found out what it could do, the benefits, so they're now interested. And that's what will happen as the project builds.

Interviewer: It's nice that you've got a nice little example of that happening. Ok, it's just to remind myself, you were also talking about, oh I don't know, energy technologies, it's like the energy companies, there's still a bit of mistrust just because it's an energy company issue, and older people and the hassle and things.

BG: I don't think, people might not make that consciously,

Interviewer: Oh, no I,

BG: But I think you know, between power fuel, electricity, they suddenly think, ooh!

Interviewer: Yeah,

BG: British Gas, Npower,

Interviewer: Yeah. Ok. Now we're going to talk a bit about some of the communities that you are working in and have worked in. How would you describe some of the communities that you've worked in? Well I was asking people questions in Nechells, Aston,

BG: Yeah, I mean what we've tried to do, because for us it's a fuel poverty issue, so we're trying to mitigate the fuel price rises for the less well off. So in that respect, the communities we engage in are probably some of the most deprived in the country. You know certainly in the city, but definitely in the country as well.

Interviewer: Ok. Is there any other way of de- anything else to say about them other than just they are deprived?

BG: Ah, also I would say a large number of those that we engaged with in phase 1, were elderly, if you imagine, er, … there's about 20% fuel poverty in Birmingham. 90% of those fuel poor require quite high levels of daylight electricity. So those were the sort of, that was our target market.

Interviewer: Yeah. Alright. So what sort of challenges have you had in running this sort project in these sort of deprived areas? I mean, have there been any difficulties that have come about as a result of it?

BG: I think that the major challenge was getting the numbers of people to be interested.

Interviewer: Which is counterintuitive when you think about the economic problems that they're facing!

BG: Of course! I would say that that's the major challenge.

Interviewer: I mean it's, I mean clutching at straws here, but I mean you know, areas which are more economically deprived I mean, I don't know, do they have lower levels of awareness of this sort of thing,

BG: Yes,

Interviewer: Less education about that sort of thing? I don't know –

BG: There are several, several factors, ah, yeah, they probably are not that interested in the news, it, it comes down to pure economics.

Interviewer: Yeah. Ok, um, how have you tried to get the wider community involved or engaged in this project, to sort of make it easier?

BG: Well what we've tried to do is certainly, ah, we've tried to employ from the local areas where we've been working.

Interviewer: Ok!

BG: Ah on phase 1 I believe there's been one trainee taken on permanently,

Interviewer: By, Thomas vale?

BG: By New World Solar

Interviewer: Oh right, brilliant,

BG: Who were the installer. And also there was opportunities given to work on the customer engagement team, locally. And that is continuing through phase 2.

Interviewer: Ok. Alright, so is that quite an important aspect for you then?

BG: Oh yeah!

Interviewer: How come? Do you think it'll make it,

BG: Well I think, we found in sort of projects in the past, with the city that if you can get local community groups or even people that are recognizable in a community, then it makes it easier to engage.

Interviewer: Ok.

BG: Certainly if you can get some of the key, sort of religious groups say, involved.

Interviewer: Are you doing anything like, you know involving those types of groups in this as well?

BG: Not actively at the moment, but that is the strategy we'll look at going forward.

Interviewer: Cos I know Dave set up a couple of meetings of community leaders of sorts, on a Saturday morning, I want to ask all about sort of where he sees that going. But nothing, nothing has happened on that front so far?

BG: Not so far, but it's something that we're looking at. Cos we know it's been successful in the past, so.

Interviewer: Yeah. So do you feel there is a role then for the community in this project, sort of going forwards?

BG: Yes.

Interviewer: So, what kind of role do you think that will be then?

BG: I think it's more around er, the sort of word of mouth aspect.

Interviewer: Yeah?

BG: You know, and sort of helping to break down some of the barriers. You know cos we know that there are, certainly the areas we're working in, there are cultural barriers that maybe need to be looked at, there may be some language barriers.

Interviewer: Ok,

BG: So you know it's important that we engage with people that can help us sort of through that.

Interviewer: Fantastic. Alright, just, just to recap sort of some of the stuff you were mentioning earlier about other initiatives happening in these communities, I don't know if you can list any other sort of projects or initiatives, or campaigns or anything, that's to do with energy sustainability, that have gone on, in any of the areas that you've worked in in phase 1 and 2. You mentioned Warm Front?

BG: Yeah, well there was the Warm Zone

Interviewer: Warm zone.

BG; Which was um, it was basically just to survey and advice exercise, that wasn't so much of a, a success, but I would say things like SRB6, which worked across Aston Lozells, Newtown, Handsworth, that was a central heating initiative, back in 2006 7.

Interviewer: Oh right, what did that do?

BG: Ah, basically we, we looked at, again the vulnerable groups and the age of their heating systems. It, it had some positives, but a lot of negatives for me as well. Ah, we fitted these shiny new central heating boilers and radiators, and we did no work around whether they could actually afford to run them properly.

Interviewer: Oh!

BG: So, that was a sort of personal bugbear for me.

Interviewer: Yeah.

BG: In the latter stages we started to get the benefits people involved, so that people could piggy back on getting benefits advice. Cos it's not just the measure that's, you know, required, it, it has to be,

Interviewer: They have to know how to use it.

BG: Yeah. Knowing how to use it and being able to afford it, you know, to use it properly.

Interviewer: So what sort of systems were you replacing, was it the hot air systems?

BG: Er, some of it was but most of it was just out-dated central heating boilers, because it was about owner occupiers, not about

Interviewer: Ohh, ok

BG: Council tenants.

Interviewer: Alright then, and, it, I would have, sorry, I would have assumed that the new system would have been cheaper to run because it would have been more efficient but,

BG: That, that was the principle.

Interviewer: But I would be wrong.

BG: Er,

Interviewer: Well, I wouldn't necessarily be right.

BG: There are so many factors, ah, it's not, like I say it's not just about having a shiny new boiler, you have to be aware how it works, because a number of people were still using the thermostats to turn the boilers on and off, rather than programming them properly,

Interviewer: Ohh

BG: Ah, because what a lot of people don't realise is with central heating boilers, especially the new ones, it's much easier to leave them on, and programmed, than switch them off, switch them on when you need it and switch them off. Cos there's more fuel used, in getting them back up to temperature, than there is keeping them just below where you need it.

Interviewer: Yeah. Alright, that that's interesting, thank you very much for that.

BG: But the key to that, the success of that programme was engaging the community groups.

Interviewer: Oh right!

BG: Getting the local religious leaders involved. Cos then the message got through to the community that it was ok to open your doors to these guys, cos they're gonna do something good for you.

Interviewer: Yeah.

BG: So it, again, it's, it's all sort of, as I say it's not just a case of getting through the door, it's breaking down the cultural barriers. The language barriers, things like that.

Interviewer: Yeah. Yeah. And if some people are unsure even if it's genuine, kind of thing then having someone,
BG: Of course. Yup.
Interviewer: This was, this was the thing, this is one of the reasons I was asking these questions of people, you know did you have anybody tell you it was a good idea that made you feel better about it, and people were just sort of saying you know, I was expecting there to be answers like that, but cos that hasn't happened in phase 1 so far, I guess I had [inaudible] people to interview because people actually turned up in the first place, um, and other people, described family members who were online.
BG: I say I think with phase 1 its, it was purely a pilot.
Interviewer: Yeah.
BG: We did it to see if there was any sort of appetite out there for this sort of technology. And going forward we think there is, and it's just a case of getting the right strategy in the right areas.
Interviewer: Ok. Moving on then to um, key individuals, have you tried to engage any particular individuals in this project so far to help, you mentioned employing local people,
BG: Yeah, we've employed local people where possible, and also um, we try and identify key individuals in a given area, and when we have, through the, the ward support officers. They, they're a great contact because they're on the ground through most of the areas we work in. So they're a good starting point. But they can also signpost us to maybe key residents in their area. So, say for instance you have someone who's on the tenant liaison committee, something like that or a residents' group.
Interviewer: Are there many around, do you know?
BG: There's a resident group in most communities in Birmingham, but finding them is another matter!
Interviewer: Ok!
BG: And that's why the ward support officer is a key person.
Interviewer: Ok. Um, ok, that, yup, so basically your ward support officers are people you can think of at the moment.
BG: Yeah.
Interviewer: Alright. So, so you Bill! What, what, what has been your role in, um, getting this project to work?
BG: Well essentially my role through phase 1 was customer engagement, and there was some project liaison between myself and the contractors.
Interviewer: ok.
BG: Phase 2 going forward, I've stepped back from the operation stuff, and it's now purely customer engagement strategy.
Interviewer: Ok. And do you think your role's been effective and sort of what have you learned?
BG: I would hope it's been effective!
Interviewer: [laughs] people have signed up Bill, it's fine!
BG: [laughs] we've now got installations on the roof, um. It's been a very steep learning curve for me, because my background is technical. It's not strategic, and in some ways that's been frustrating, because I tend to want to play more in the operational part than, um, I'm supposed to, or allowed to. Ah, but yeah, I think it's been effective and it's also enabled me to look at different strategies. You know perhaps rather than come at it from the same direction as someone who has some basis in customer engagement, I look at, well, if it was me, what questions would I be asking?
Interviewer: Yeah.
BG: And then I try to sort of pre-empt what people would ask.
Interviewer: That's interesting, almost if you're too strategic and you get fogged by that sort of thing don't you, so you don't think what you would ask in that situation.
BG: Mmm. Yeah.
Interviewer: Potentially. Alright. Do you think people are talking together about this project? Um, you mentioned the 8 people, the 9 people in the cul-de-sac. So you know is that the only, any other example that you,

BG: They're talking to each other but also I think there's a, there's an element of jealousy as well.
Interviewer: Oh right.
BG: Because they feel that they couldn't participate at the outset, they've suddenly seen, ooh, they don't look so bad, or the benefits that their neighbour is getting from the panels has surprised them. So there are various things that people are certainly talking to each other about it. And I think what's happening as well with the profile of the project, it's growing steadily. We've already won an award, we're up for the Chamberlain Award which is quite prestigious in the city, ah, so I think through, through our success, then our communications and marketing becomes better, and then it breeds more success. That's the aim.
Interviewer: It was interesting that speaking to a lot of people who had benefitted from Birmingham Energy Savers, I was speaking to them about their local community and um, a lot of them were saying that there really wasn't much of a sense of community these days, especially the older people who had a different scenario to refer to from their youth, or something, and I kind of got the impression that people weren't talking as much as I was expecting them to. Because they didn't know any of their neighbours to talk to.
BG: That's true, but that's, I think that's the general sort of social malaise that has happened over the past twenty thirty years.
Interviewer: But you don't think it's affecting this project?
BG: No cos I think the project's bigger than that.
Interviewer: [laughs]
BG: It would actually, I would say that it could be a stimulus to the community.
Interviewer: I had wondered this.
BG: You know, if somebody for instance, has said yes from the outset, then next door neighbour says 'what's that about' and then the person across the street goes 'what's that' and it gets people talking, so there could be an added benefit to these panels.
Interviewer: It could be. Well hopefully I'll find out if that seems to have happened next year, or not when I ask more people more awkward questions.
Um, so, this next section of questions, community vs council. I don't me to be, I don't want to be incendiary or anything
BG: It's not confrontational!
Interviewer: It's not confrontational! But I mean, cos I'm also looking at, you know Sustainable Moseley?
BG: Yes.
Interviewer: You've heard of them. Cos obviously they've done a project with British Gas
BG: Mm hmm.
Interviewer: And so I'm looking at their, that's, that's a, a project run by members of the community and of course this project is run by a local council, so that's what I mean when I say 'vs', I mean comparatively. So, what do you think your role is as the local authority in trying to encourage people to behave more sustainably with their energy?
BG: I think the basis of our role in this is ah, it comes from two angles. As a local authority we have a duty of care to our residents, whether they be council tenants, owner occupiers, housing association tenants or private landlord tenants. So we have a responsibility in that respect, we have a responsibility as part of a national picture to look at carbon reduction, energy efficiency and all those sorts of things. But also, I think, er, as there was some research done by the energy saving trust ahead of er, the debate for the green deal, and these other initiatives such as Pay As You Save, and they actually undertook some research about, well, where would you go for a, for this sort of advice. And overwhelmingly the local authority was the first port of call. Cos I know there was an attempt by the high street, if you like, you know, B&Q, Marks and Spencers, to come on board with this sort of stuff.
Interviewer: Yep.
BG: But people had an eye to the fact that these were profit organisations. So the advice they were getting from the local authority had more weight, and I think that, that's

where we come from. You know we have a responsibility but also we have a trusted face.

Interviewer: Ok. Excellent. Cool! Um, so but do you think that, um, a local authority led project, maybe as opposed to a community led project is the most effective way of getting people to behave more sustainably with their energy? Why or why not?

BG: I think that depends on the individual.

Interviewer: Ok.

BG: Er, people will come on board with a project for different reasons, the biggest ah, in any sort of project would be economics. And I think that's true no matter who runs the project. The key driver is still economics for people. The other knock on advantages would be, you know, things like recycling behaviour change, that's more of a slow burn. I think, .. people are still, although they would come on board with a community led project, I think it's still about the individual.

Interviewer: Ok. So, you can't answer that basically! It's going to be down to the person.

BG: Yeah

Interviewer: Ok

BG: I think, I think it, projects are different things to different people. I mean even the people working on them!

Interviewer: Yeah fair enough!

BG: You know it's different thing, it means different things to different people.

Interviewer: I just want to come back to behaviour change for just a second before I go on to the last question because this keeps bugging me. If it's always an economic motivation, do you really feel people will, because we talked about you know, global environment, you know these kinds of problems aren't going to go away um, unless we take to heart what we need to do to change, but if people are only ever acting economically, in joining up to these projects, is that, is that really gonna,

BG: I wouldn't say,

Interviewer: What if prices fell again?

BG: No it's not, .. yeah well economy is always going to be at the heart of the issue,

Interviewer: But if you look,

BG: Even if fuel prices fell, if you have PV panels on your roof, you're still going to be paying less than the guy next door who doesn't have PV panels on his roof.

Interviewer: That's fair enough

BG: But I wouldn't say that economics is the only reason.

Interviewer: No.

BG: It's the key driver for the majority of people, because if you don't have a lot of money to spend, then if you can spend less, on fuel, then that's a good benefit. Ah, and I would say even for the most green aware, until the introduction of the feed in tariff, two years ago, renewable technology was not an option.

Interviewer: Yeah.

BG: So I think economy has to be number one, but it's not the only reason. Some people have got a sort of philosophical or philanthropic view of green technology and green issues, they are what I'd call the green-aware. But there are other people who want to do more, but don't know how, so, the benefits of the project is, yes, economics, but also we also have the expertise to give them advice on how to save money, how to use less resources. So, it's, it's a sort of, it's a pot full of things, but I would say that the biggest chunk in the pot is economics.

Interviewer: Ok. Alright then. Last question. So what are the positive and the negative aspects of a project like this being run by the local authority, as opposed to a community group.

BG: I would say that the positive was definitely the trust issue for people. Um, we are an honest broker simply because we're not in it for profit.

Interviewer: But then neither would local community groups be in it for profit.

BG: Yeah but you'd probably find that in the background to any community-led project, there is as a local authority involvement somewhere. You know it's not purely community led.

Interviewer: No. No.
BG: Maybe you're asking the wrong person because I work for the local authority!
Interviewer: Well, no, I wondered if you might say sort of positive things like the sheer scale that you can achieve and that sort of –
BG: That is certainly going to happen as we go forward, because as I already said, from phase 1 to phase 2, we're talking about ten times the volume, which I don't think, I mean a community led project, by its very nature is quite localised. Ah, whereas we have the whole of the city of Birmingham to go at. You know which is in some ways good, in other ways quite a daunting prospect.
Interviewer: Absolutely. I mean, are there any negative aspects to it being a local led project, especially in the current economic climate, was it a bit of a worry, for a while I suppose,
BG: It was cos certainly what we have to look at is the resource that we've got to actually deliver the project. But, em, as I'm sure you're aware we are actually only a project team of four.
Interviewer: You're what sorry?
BG: We're only a project team of four,
Interviewer: yeah
BG: So we're not that expensive, and if you do a cost benefit analysis of that, you know it's good value for money for what we're providing.
Interviewer: [laughs] definitely. Ok, I think that's all my questions now, I'll just –

Interview with DA 27th September 2012

I: Today is the 27th of September and I'm here with DA, D is it ok if I record this?
DA: Yes
I: Ok, ok I've split the questions into sort of behaviour change things, a little bit about the technologies and then stuff about sort of governance, but, you know, feel free to veer off when you think something particularly important has not been covered. Um, would you mind giving me an overview of the progress of Birmingham Energy Savers um, and your role in it since I last spoke to you. I, I want to hear the whole thing, but bear in mind that the people that I've been speaking to have mostly been sort of phase 1 and a couple from phase 2. But,
DA: Right, ok, so so, do you want me to focus more on those phases?
I: We'll start with that yes!
DA: Ok, um, so um Birmingham Energy Savers just, kind of, a, just to start right at the beginning if you like, um, which as you know started as um, the, a proposal called the Green New Deal in Birmingham, um was always intended to be a programme that was to promote energy efficiency and um therefore c, er reduction of carbon emissions um, by making houses more efficient, and it was seen that one way of getting that started, and in fact one way of paying for it, was by using the feed in tariff, and the photovoltaics, so um, phases 1 and 2 which were all about photovoltaics were always seen as preliminaries for the main programmes.
I: Like feeders, kind of thing?
DA: Yes, that's right, the main programme um, which was conceived by a group of people including KB, PB, JM and MR. Um, had er, came up with this scheme and the, the kind of financial modelling for it which I think MR did, relied heavily on the feed in tariff and basically what, what it relied upon was that Birmingham City Council would procure a delivery partner who would do photovoltaic, alongside energy efficiency works, the photovoltaic would be at lower cost to, to owner occupiers because of the size of our procurement, and that we would therefore make, be able to make a profit um. Unfortunately, that, that element of it, which was essential to the business case, was never achievable because of state aid. We're not allowed to, to buy something cheaper and sell it on to householders, because we're distorting the market. Basically what we would have been doing is competing with the other, the other companies in the, in the market. So we can't, you know we're not allowed to go out and compete with other providers unless we've gone through some process or unless we've proved that we're competing in a commercial way. And the whole basis of their model was that we weren't going to compete in a commercial way, we were going to undercut the market. So, so, um, so phase one and two became, became slightly more complicated in their relationship between them and phase 3, in, in their model, phases 1 and 2 paid for phase 3, whereas in fact what, what phases 1 and 2 became was that they paved the way for phase 3, and they paved the way in, in a number of essential ways which was perhaps more um difficult to identify, one is er, and this is probably the most fundamental, is that it kind of persuaded senior management and politicians that that, um, if you like energy efficiency and renewable energy could actually be self-financing. So it established the model that we could borrow money, quite large amounts of money and pay it back. Now, I think it's fair to say that up until then everybody had seen energy efficiency and renewable energy as being small pilot projects you know, maybe a few hundred thousand here, a few hundred thousand there, and to actually have a project, phase 1 that was 1.3 million, and then phase 2 that went from 15 to 30 million quite quickly, um, was was, a sign of how senior management and politicians moved in terms of their willingness to accept that, that these things could be self-financing. And that was essential in getting phase 3 onto the books.
I: I see!
DA: So it's a complete change of attitude. So if you like, the, the, the, the report that will go to cabinet in a couple of weeks that says we're going to borrow 75million and we're fairly confident we'll get it back, is, is sailing through because the politicians say oh yes, that's right you've proved it.
I: You couldn't have done that without this PV project first?
DA: No. So, so though logically the, feed in tariff and green deal are utterly different, and the risk profile associated with them is utterly different, but the principle that energy efficiency pays for

itself, has been established now in Birmingham. And I, and I think it's, it's easy to forget just how complex that journey was, and, and it took a lot of work going round politicians and senior management, usually again and again, and again, because, because, it just doesn't make sense in the first instance. You, you're telling me that we do this, and we put the money in, and then people pay us back, well, why would they? Well no it's ok, because it's part of the green deal plan or it's part of the feed in tariff, and it's legislated in law, but, er, but, you know, and people

I: This is new!

DA: This is new! And people don't, also with all of the background noise that there was about changes in government, people not trusting the government, DECC reneging on the feed in tariff, as, as people saw it, um, and the fact that we were able to say no it's all alright, it still makes sense, I've done the modelling, it still works, we're gonna carry on, um, you know, and giving that reassuring noise all the time, this still works, it's ok, has been a really important part of if you like the background noise to this all.

I: Yeah

DA: Um, and so if you're looking at behaviour change, changes of attitudes, then you have to think about that at the governance level, not just at the household level, um, which, I don't, maybe not something that you've particularly addressed in your thinking up till now but!

I: Well, I mean, I think, I-I'll come on to this bit later but um, you know I think it's been interesting certainly at the beneficiary level seeing PV panels everywhere, I think, I remember when I first started interviewing people, some of them were a bit suspicious or they told me stories about people, neighbours who had been suspicious when they'd been called up and offered a PV panel, and now that's much less the case a year on, and I, yeah, obviously it's kind of permeating the whole way through this project is happening and people are used to it, this project has happened, governance is used to it, and, yes, I think you, you need to have this culture change at many levels,

DA: Exactly.

I: And then it will, it feeds back round again.

DA: Yes, so, so the politicians are much more comfortable with, with that part of it, and and, it's so, partly it's that it's self-financing, and the other part of it which is really interesting is that it's not a pilot scheme or a hole in the corner, and though I've been, excuse me I'm going to sneeze … no, so the, the way to, often to deal with um, with anxiety, in both senior management and, and politicians, is actually to break things down, so you say oh well, never mind it's only five million this time round, it, and then, [laughs] so you're not approving, so you, you approve an outline business case and that doesn't actually commit you so much, and then you commit, and then you approve the full business case, but you only approve the full business case for the pathfinder programme, and that's only this much money, and then you approve the fi, the full business case for the whole programme and that, so you, you, you, you have to lead them on a journey, but we've actually got really quite far because now the cabinet report that goes on, um, in a week's time, will actually award the contract that has an upper limit for Birmingham of 600million. Now that's not, only 75million of that is Birmingham money, but the size of the contract that we're awarding just for us, or obviously they've got to find the 525million from other sources, but still it's kind of, it's, it's now become an 8 year, very large, programme, you know, one of the largest, well the largest refurbishment programmes that been let in the country, and, and probably in Europe, um, and, and to have got politicians to that stage of saying energy efficiency isn't just a bit of loft insulation here and there, and oh, give them thirty quid kind of attitude, which is pretty much what the kind of attitude's been up till now, saying, this is about the whole of Birmingham, it's about every householder, and it's big. And it, and, if we're gonna make it happen we've got to think big. But if we think big, then we get all the other benefits with, then we get the jobs, so um, depending on who is the successful bidder, we're talking about um, er, a manufacturer relocating to Birmingham very soon and creating 200 jobs, because of the, of the, cos they're manufacturing a product that we can use. Um, we're probably at the moment we reckon thinking that, that the programme will create 600 jobs um, in Birmingham, which you know, and when, when you, you know, when you hear about a new car being on the track and all that sort of thing, you know, it, it's similar to that, it's similar to a major investment by, by car, in the car industry. And, and, and that's just based on what we're

doing in Birmingham, if we can get the whole of the West Midlands to go in the same direction, then the, the opportunity is enormous! Um, and politicians are really, are beginning to kind of, wake up to that as well and getting really quite excited about that, and then of course the benefits in terms of fuel poverty, and and almost last down the line is oh and some carbon savings as well, which, which as you know, in the story, is probably the last thing that we talk about. Because it, it's not something that's beginning to, that, that wins the votes. Though interestingly I think people are beginning to talk about climate change. And I know that's silly but, you know the fact that we've had four or five summers that have all been really wet, and the people then go to the Mediterranean and it's been really really hot, and that's, we're now beginning to see patterns. Now I know you can't say that weather patterns are necessarily climate change, but people are beginning to wonder if it is.

I: Yes, because people don't understand that anyway, so,

DA: Yeah

I: It's good enough!

DA: Yes, so, so, you know people are beginning to think, I mean you know, the, the worst storms in, in September for 30 years, the wettest summer for a hundred years, beginning to say, errrrr! You know! Is, is, [laughs] is there something here? So, so that, now is not the time to talk about the CO2 reductions, but I think people are gonna be more acceptable to that part of the argument over the next few years, you know next couple of years I suspect.

I: Ok. So what's your role been in sort of, you've given me a really nice sort of strategic level almost, overview of, of what's happened, what, what have you particularly been doing since I last spoke to you a year ago?

DA: Well, I suppose that a lot of it is about um, is about leading people on that journey. Um and we've, so it is about, well I think my main role is leadership. Um, it, I mean obviously I also manage the programme but my kind of primary role is to take the key decision makers on that journey, um and particularly with a change in administration, to make sure that as we moved um, as we changed administration, that there were no hiccups along the way so one of the key things I was doing was briefing the incoming politicians, and I have to say, all credit to Paul Tilesley, who was the um, er leader of the La- er, of the Lib Dems and Deputy Leader of the Council, he encouraged me to do so, he saw that the Coalition administration had no chance of surviving, and he was committed enough to this agenda to not want it to fall down just because there was a change of administration, so being a very mature politician as he, as he is, he encouraged me, to start speaking to the opposition as they then were, and briefing them, so that when they became the er, um, the administration, they were already briefed and were very supportive. Um, so, so that was number one thing I was doing, was, was briefing politicians and reassuring the senior management, um, obviously quite a lot of liaison with government, um, because of, it was crucial that we were responding to the changing agenda in every way, so quite a lot of time spent with DECC trying to understand what they were trying to achieve, erm, and making, and to some extent influencing what they were trying to achieve, so they had seen for example the green deal and indeed the feed in tariff as primarily a private sector initiative, and um so all, you know almost everything that came out from them talked about this, you know, it's gonna be led by um, er high street supermarkets and, and, and utilities. Um and that's, that was, and when, er you know so they talked about, yes and Marks and Spencers and Sainsbury's and B&Q and the utilities, um, and it had been an absolute turnaround in twelve months because now they say, this is going to be local authority led,

I: And housing association led,

DA: And housing association led,

I: Here are the briefing notes.

DA: Yes. So it's a com, complete change of, of direction in that, in that regard, um, and, and the same is true about the feed in tariff is that they, they saw the feed in tariff, or the, the they saw the feed in tariff as primarily a source of renewables, and they thought that the, they had to set the feed in tariff as, at a given rate to attract the business and the owner occupier and the investor, and then what they found was that, when they started to change, that basically it was a fuel, people were seeing it, or certainly Birmingham saw it as a fuel poverty response, and that we were looking at social housing, primarily, and that actually most of the PV in Birmingham is

on social housing, and was done for fuel poverty reasons, by Birmingham city Council. Erm, and that, and, and they, it was quite a surprise to them to wake up to that, and, and they, I think that has changed their thinking.

I: Ok. Alright, I think if we leave that for a second, um, going sort of back to basics, what, why do you think, what has motivated people to sign up to this project in phases 1 and 2?

DA: I think um, well I think at different levels, I think the householder, the tenant has primarily signed up to it, um, because they have um, believed that their energy bill – that they will pay less because they will be enjoying the benefits of electricity generated for free, during daylight hours. I think they probably over exaggerated that in their own mind, um, so they, they may have, I mean any saving is a good saving, and particularly if you're on a prepayment meter you're paying a lot for your electricity, so, so, they are the ones who have probably seen the greatest saving, because, because they're probably paying the greatest amount, so I think they have been attracted by that. I think at another level, they are attracted by the fact that they've got a panel on their roof, and there's a certain amount of PV envy, um, and, and you know that wasn't there at first but I think it has grown in Birmingham, um, and I think it's quite a nice, it, and and and I think that then, they have almost surprised themselves by becoming, by realising that, that there's a kind of quite an empowering experience that you can be, because you can start changing your behaviour and therefore increasing the amount you save, whereas up till then there was the feeling well, you had to buy electricity, you couldn't do anything about it, it came from somewhere else, and you just had to put up with it, but actually thinking well, ok, so the sun's shining so I can put on my washing machine, um, or er, you know, and and therefore people actually thinking about how they use energy to reflect the fact that, it makes them start thinking, ahh I'm in more in control of this. And, and I think that that then makes people start thinking well, maybe, maybe I can control other things, you know, maybe this isn't something that's just done to me, and I think people started feeling proud that they were doing something and then they began to think well, not just for me, maybe I'm doing something bigger, and then I think people began to think, well, you know I am actually contributing, to a better world, because this is clean energy, they may not have thought about climate change especially but they thought to themselves well this is clean energy and people like the idea that this is clean energy therefore you know, there's less pollution around and that's good for my kids and all that sort of feeling, so, so I think, I think people got themselves into quite a positive frame of mind about it which I think is great, um, I think, I think the, um, people delivering it are, obviously motivated, they've got jobs, they're very pleased about that, they see satisfied customers, they're part of a ground-breaking scheme that's got national ide- profile, and, and all of those sort of things and I think that's positive for them. I think there's, the politicians like it for the same reason, they, they see happy customers, erm, people lifted out of fuel poverty, it's a good news story, there aren't, there weren't a lot around in the last twelve months, so, so Birmingham has enjoyed the fact that there has been a good news story here. Um, a certain amount of push back, um, in er, inevitably, um, one, one of my, kind of great, great friends and managers who managed me at one stage said that you always know if you're doing something good because of the, the resistance that you get. Um, and the resistance was, in a very difficult time, we were doing something that was positive and that was good news, um, and there were colleagues around for example who were in the kind of, fairly humdrum boring business of repairs management,

I: [laughs] this is interesting, I have heard this from one person, yeah,

DA: Who, who kind of, who was kind of, you know, all these people are getting the credit for doing something that really is, is just here today and gone tomorrow, whereas we're here day after day after day dealing with grotty repairs and replacing gutters and

I: getting shouted at

DA: And getting shouted at because we never do it fast enough because we haven't, we've got limited resources, and et cetera et cetera et cetera. Um, and, and they perhaps have taken more delight than they should have done if something has gone wrong, so if, if, if you know one of our people puts a foot through the ceiling and, and therefore there's a hole that has to be repaired, they would, they would kind of almost crow about it. I mean we're, obviously it'd be

put right, but they would be pleased that it was wrong and therefore had to be put right, cos that was kind of,

I: [silly voice] muggins picking up the pieces!

DA: Yeah exactly, yes, and and, we've found ourselves blamed for things like, like um, gutters not being there and we've discovered after the event that the gutter hasn't been there for three years, um, but you know, it, so there has been a kind of a silly resistance from some parts of the organisation. Um, but, and, and, and a silly resistance from um, some parts of the community, more about jealousy now, than anything else. And quite, now that we've run out of money to do the PV on the roof, or we think we have, we're getting some quite nasty phone calls from the people who haven't got it. That's not fair, why, why've you stopped, you know, why've you got to number 43 and not done number 45? Um, and, and the answer is you've got to stop somewhere when the money runs out, the money runs out, kind of thing. Um, so, so those are the kind of motivators, both for and against I think around this, for me, as the main ones.

I: Ok. Alright I think we've covered a couple of things in my questions, so if you feel you've already answered, then just say, and we'll skip it. Um, so do you think people are using less energy as a result of having a PV panels.

DA: Yes

I: Ok. As you said, because of the control factor. Um, and same answer for the –

DA: Sorry, are they using more, less energy, they're certainly using less energy from outside their property, are they using less energy *within* their property?

I: I, I should swap these questions round really, too late now, um, have people changed how they use energy as a result of having a PV panel, and you know you were saying the shifting, and then it follows from that, if they're thinking, ooh I'm saving this much without trying, if I do try, can I actually conserve more energy?

DA: Yes, yes. A-and you know we did some analysis of phase 1, we haven't done anything on phase 2 so far, but we have done some analysis of people's general behaviour change, and, and that showed that people have not only thought about using less electricity but also using less water. Um, have you not seen that?

I: Is that the report that Bill Goodfellow sort of finished off, and

DA: Yes, that's right, which um, was um, Phil Beardmore and, and somebody or other, Dr, um,

I: Alison Millward

DA: Alison Millward did, which showed that people kind of thought about turning the tap off while they brushed their teeth and that sort of thing, you know,

I: I'm sure I have got it, if not I can always pester Bill for it.

DA: Yeahh, or he, I've got it, yeah B's got it, yeah we've got it.

I: Ok, is behaviour change actually important to this project?

DA: Oh yes, yeah, yeah, I mean, um, well, I would, I would actually, I think attitudinal change, and how that then changes behaviour and decision making, um, is very important to this project, so, so I th- um, change, I would say that, for me, and and, and um, the, there's a part of the procurement which, which probably everybody thinks is bizarre, is that, um, we've asked our bidders to sign up to do something called a social value agreement. And the social value agreement is to increase people's sense of um, security, satisfaction,

I: Solidarity . .

DA: Solidarity and significance.

I: [laughs] I remember this from last year, I was just dealing with this interview yesterday!

DA: Yeah! Yes. Now that, I've written that into the contract so, security, particularly energy security, particularly for people in fuel poverty, particularly for people in ill, with issues, health issues related to, to cold homes, how can we make them feel more secure by the way we work, not just by making their house better, but by increasing their sense of security in other ways, so layering on other security, so perhaps doing a smoke alarm check while we're in the property, perhaps by, by doing a domestic security check while we're in the property, those, so, so how can you layer a secure, now the reason that these are significant, these four 'S's, is um, according to David Clarke, who is my great guru on community, is that these increase people's sense of security, no this increases their sense of community. They build community, and they build cohesion. And therefore you begin to not only address an individual but you begin to

grow a, a kind of a community sense that we can do something about this, and that together we can make a change. And I think it's there that we will then get, which all government talk about nudge factors and that sort of thing, but it seems, you know I, I'm old fashioned enough to believe that you actually get communities thinking that they can make a difference, that then you start getting behaviour change.

I: Ok. Is it because people can see like their own efforts are magnified, is that –

DA: Yes, yes. And, and because they're being reinforced from all directions, so you begin to think, so I mean, you know, I'm sorry I keep going on about these, by why on earth do people started picking up dog poo?

I: It's fine I love this story [laughs]

DA: [laughs]. But, but it, it, it was, you know, if, if one person had done it and nobody else did, then they'd stop doing it! I mean it's not a nice thing to do, but there was a kind of, it began to be a kind of, almost everybody was doing it, and therefore you weren't the only one, and everybody was doing it so if you didn't, it was unacceptable, and people started talking about children who could be blinded from the diseases that were in dog poo and so on, you know. So you've got all this, but, and, and of course there was this thing saying you'd be fined, but actually that thing saying you'd be fined had been up on lamp posts for years, and nobody had done anything about it. There was suddenly something began to change, and society began to say, in a very very quiet way, oh we're sick of this. And things began to change. Now I think you can do that, you see, but I don't think you're gonna do it, you don't do it by trumpeting at people. And you don't do it by legislation. You, legislation can enable it, but it can't enforce it, you know, people in Greece don't wear seatbelts, but the legislation is the same as here. And it's not enforcement, you know, there are police blocks, er road blocks in, in Greece where they will stop you and fine you if you're not wearing a seatbelt, as they will in this country. But the difference in Greece is, that as you approach a road block, everybody flashes their lights to warn you that you're just about to turn a corner and see a road block, so everybody puts their seatbelts on, as they approach a road block because they've got good warning. Because the whole of society believes it's stupid.

I: Yeah. Whereas the whole of society here has come round to the idea that,

DA: Saving live

I: Just like dog poo

DA: Yes, yes. So, so, I think if we want to see behaviour change, and I think this is all about behaviour change, and I don't think you're going to address climate change without behaviour change because in the end as we're seeing at the moment in the politics, people will do what they think will win votes. And at the moment they don't think that renewables win votes. So we've got to change people's attitudes to both renewables and energy efficiency,

I: Ok. And this is the thing isn't it, I'm trying to think about how this, what you've just told me has kind of fed into how you've, you've done this intervention, so just by kind of having PV everywhere, and trying to do as widespread a project as you could, um, that's kind of made renewables um, more acceptable, changing people's attitudes

DA: Yeah

I: Which would then change their behaviour because everybody's doing it, we're all in this,

DA: Yes. Yeah, that's right.

I: I- It's not a drop in the ocean if I turn of some lights because you know, they'll probably turn off some lights as well all down the street.

DA: Yes, so, so that's where you get, so you've got to get to security and satisfaction, and then you begin to get that solidarity, the thing you just said, everybody's doing it, so you're part of something, and what are you part of? Well you're part of a bit of er, a movement towards renewables, oh, my goodness, I'm part of a movement, I didn't think I was, I thought I was a pensioner living in Northfield, but now I suddenly discover I'm part of a movement! You know! And, and then you get to the significance, woo, and, and now cabinet minister has actually come to my home, in or, and, and the BBC want to interview me, and ooh! And and, my picture's on the front of, of the newspapers, and you know, you begin to get this kind of thing that people are kind of going, going on this journey, and and, there's kind of champions around and, and it's not just kind of always people wearing open-toed sandals in Moseley

I: It's people like me, ordinary!
DA: It's ordinary people!
I: Sensible people! Alright! That's cool. And that covers as well what makes people change their behaviour in your view, you think it's these, these four S's the sense of community and solidarity and stuff
DA: Yeah. Yeah that's right.
I: Ok. It's interesting as well just, the sort of the role of the technology within that kind of thing it's almost, the physical presence of this PV everywhere is a helper in that.
DA: Yes, I mean, you know, I think, it, it's not a coincidence to me that the word 'empowering' is linked to this, because I think it is, I think people do feel that they are getting, you know, energy and, and you know a source of, of power, ener, you know electrical power out of it, and you know, I think it is, I think the actual technology is itself quite, quite a positive experience for people. And you can see them, you know you can go in, as, as I do, you can go into the cupboard under the stairs 'oooh, it's gone up to 1734! Ooh', you know, kilowatt hours since I installed it, and that sort of thing, ooh, you know, and, so it, it kind of moves it's not static, it looks static on the roof, but actually the little meter if you go and look at it, clicks. And people do go and look at their little meter. Er,
I: Yeah. Have you got a PV now then?
DA: Yeah
I: Ahhh! I remember last year you didn't have it and there was discussions about whether or not it was PV or replace the carpets, [laughs]
DA: Yeah!
I: you got over that one in the end then?
DA: No, that's, that's very interesting story, um, um, my mother in law has, er, has a small amount of money that she invests, and she asks me to advise her. She doesn't want to invest it long term but she kind of puts it into five year trust funds and that sort of thing, and she had a trust fund that was maturing that I'd advised her on previously and she said where should I put my money to get the best return, and I had a look round and I said I couldn't find a better return than about 6% anywhere that I looked, for the period that she was looking at, I said, but, but if you let me have 6000 of it, I guarantee you 10% a year. From the feed in tariff.
I: Wow! So you did it before the 12th December then did you?
DA: Yeah.
I: Oh wow!
DA: So, so it became an investment for her.
I: Oh that's interesting.
DA: And, on that basis we went ahead as a family and we did it. So, so it wasn't, it wasn't um if you like a, a kind of then a choice between our carpets and our photovoltaics, it was, it was an investment for my mother in law, which is given, so we've made a, we have a standing order that pays her, you know that ten % per year, and then we claim the feed in tariff, and actually, we're doing better than 10%. So, so we're doing ok.
I: Wow, everyone's doing alright out of that one then! [laughs]
DA: Well exactly, so, and so, which, which I think is very interesting, because, because we, if you like, what are the factors that will encourage people to do things, and in the end what made the decision for us was that it helped another member of the family. Um, and probably if it had been our money, we'd've thought very carefully about it, because it was her money, it was just, so much a no brainer. Kind of thing.
I: Yes, yes, well, everyone's been saying about putting these PV panels on their roofs from the council, well it's a no brainer, the council's paying for it, it's somebody else's money! So yeah I'll have it!
DA: Exactly!
I: Ok. it's interesting because I think I've spoken to a couple of other people, um, one person I know from the council has said that they, they put the feed in tariff, [tut] the, the panels up, and yeah, the way that they kind of discussed it was, you know, it was an investment, we'll put this money in, and we'll get loads of, we'll get loads more back, so, which is interesting, it's another motivator entirely, from environmental and,

DA: yes, yes, so
I: More um, fuel poverty based economic or, social things.
DA: So, we're not getting well, we are getting a small profit, but we're not getting the profit but what we're getting of course is just like the council house tenant, we're getting the benefit of electricity generated off our roof, and so we're going through all the journey that they are, so we're turning the washing machine on during the day and we're doing this, and
I: [laughs] awesome
DA: Well awesome, but actually of course, it um, probably kind of does lead to tensions because you know, should we put the, decisions that you wouldn't normally make, you know, normally you would, you would kind of get to the end of the day and put the dishwasher on,
I: Yeah, should we leave it or should
DA: Should, should we do it or shall we leave it till the morning and then put it on, but, but then, oh god, you know, kind of, then they're all sat in it all overnight and dum ti dum ti dum, you know!
I: Yeah, no I know, I spoke to somebody from phase 2 who had made a lot of savings, she's got I think four or five um, boys living at home, and I think some of them are teenagers, so shall we say they're fully grown, you know, they haven't got children sized clothes, they've got man-sized clothes, and um, she kind of carried on her usual washing routine as usual, so I said so, you know, are you not, are you not changing, and she said well, I'm kind of more aware of it, I look outside and think oh yeah, it's sunny today, washing machine, but if it's not, I don't not do the washing, otherwise I wouldn't get in the kitchen.
DA: Yeah, yeah, yeah exactly. Yeah. Yeah.
I: Ok. This question I think you might have already answered, do you think people who are involved in the project feel as though they're part of something? And you think yes, it's like a movement.
DA: Yeah, yeah. I mean, you know, there are people who are involved today in evaluating, well you, you would be one of them, I mean some of the people who, who say well you know it's not really part of my mainstream job D, I, I'll take a day of annual leave.
I: Really?
DA: Yeah. There are people who are, who have been, who are involved in the evaluation who are doing it as part of their annual leave.
I: Oh gosh! Wow!
DA: Yeah.
I: I suppose
DA: Yeah, but you, you're not being paid to be here,
I: yeah, I'm not being paid to be here and I'm going to have to catch up on work over the next couple of weekends! [laughs]
DA: Yeah, yeah, so quite! You, you're making a commitment, and there are people here who are similarly, or even if they're not, they won't claim the hours back, they will probably then do what they would have done today, kind of, you know, as you say, work that bit later some of the evenings, or they'll try and catch up. But, but there's a lot of commitment in this,
I: Yeah. That's cool! Really cool!
DA: It is! Yeah!
I: Do you think that people talk together about their um, their solar panels, the beneficiaries from the first two phases.
DA: I wouldn't know that and, that's why we've built into phase 3 this idea of solidarity, and that we are actually linking very closely with Digital Birmingham because the idea of trying to create some sort of social networking is really important to me around this, oh, oh, geographical networking, I mean face to face networking, I prefer,[laughs] because I'm old fashioned, but
I: So am I, I agree
DA: But, but um, but the idea that we might start producing newsletters, um, blogs, web pages, facebook pages and that sort of thing, I'm, I think will help people to feel that sense of we are part of something. And if we don't do that, then we won't achieve the behaviour change. Because we wont, we won't, you know, it, for me it is an absolute hierarchy, yes you must feel secure, yes you must be satisfied, but if you don't do the solidarity and the significance you won't actually get to that, to the,

I: The next step
DA: To the next step.
I: The tipping point
DA: The tipping point, exactly, yes.
I: Alright. Um, do you think people are being influenced by other people to sign up to the project?
DA: oh I'm sure that's true we've had lots of stories of, of people hearing from their neighbours or talking to their children or their [inaudible] yeah.
I: I suppose there's this solidarity thing again as well, insomuch as behaviour change within the home with your energy, actually choosing to get your energy from a renewable solar panel
DA: Yeah, yeah
I: As opposed to conventional methods is another form or choice of behaviour.
DA: Yes, that's right. And people talking about it I mean yes, it has, I mean we, we know that for example one of the, one of the, er, beneficiaries said that, when her, her, I think her son started um, primary school, or no I think he was at primary school, you know he went in and did a kind of show and tell type thing about the PV on the roof, kind of exactly! You know, took pictures in and talked about it and so on. Which is,
I: Oh wow! Which is what you want really, isn't it?
DA: Yes it is, yes, yes.

I: Ok. Um, this, this is an interesting one, why did you want to run the project in the way that you have, I mean since the initial inception the project has changed because of, you know, various things, like the change in the feed in tariff which as you said they changed it from phases 1 and 2 paying for phase 3 to phases one and two paving the way for phase 3 in terms of politicians attitudes, but there are so many different things, decisions that have been taken in this project, that could have gone a different way, so I'm wondering you know, why did you make the decisions to run phases 1 and 2 in the way that you did, and why did you make that decision, what did you think would be the benefits of doing it that way?
DA: Ok, so um, what you have to understand is that though, um, errr, forgive me for using jargon, kind of jargon here, but I, I believe that all people are either um, reds, yellows, greens or blues, ok, so, r-reds want to win, yellows want to sell, greens want to achieve um, the values, are kind of values driven, they want to achieve good things, and and blues want to achieve safety, and go, go into detail and want to be really sure and safe. Ok, so you're, I, I suspect you're a green person, and most people would expect that I am, but I'm not at all, I'm a red, I want to win
I: [laughs] ok!
DA: [laughs] I, now it so happens that my way of winning is by, by espousing values, um, but, but if you want to really understand what's, what's at the real heart of me, I love to win.
I: [laughs]
DA: Ok,
I: God, I bet you're a fiend at Monopoly [laughs]
DA: [laughs] no it doesn't really interest me, I want to win in real life, I don't want to [laughs], a bit like, I'm not bothered about games! I'm not that, I'm not that [inaudible] for games.
I: Ok,
DA: Ok, so, you know, what I want to do, I want this to be the best project in the world, I want it to win, I want it to succeed, and that's really important to me, and what I realised very early on was that, was that I needed to get everybody aligned, to that end, I needed everybody to want it to win, and that, the way to achieve that is actually to show all the benefits that it delivers, and the reason it's such a lovely project is that it delivers against fuel poverty, it delivers new jobs, it, it delivers um, a sense of society and social value, it delivers job creation and, and inward investment, it you know, so it, it, it delivers improvements for our, for our tenants, and it delivers CO2 savings. So, it had this really wide range of social, economic and environmental benefits, and, um, and I quite deliberately got, when I first set up the governance arrangements for the programme, I quite deliberately set up three champions within the board, who were champions of each of the three benefits, so there was a social benefit champion, who happened to be from the housing side of it, and that was somebody called Bob Brown, there was a, an

environmental champion, and that was Keith Budden, and there was a kind of economic and um, benefits and that was Jack Gloneck. So within the board, I had a tension. Now the reason that that's important was that some of the decisions that you have to make are between those. So for example if you sourced um, photovoltaic or, or perhaps some of the parts for those photovoltaics locally, you would increase the amount of economic benefit. But if that meant that you so increased your costs, that you would do less,

I: Yeah, you decrease social benefit

DA: You decrease social and environmental benefits, or you could say well actually you'll get more environmental benefits from putting the photovoltaic onto the largest energy users, which might well be in Sutton Coldfield, where people, owner oc, large owner occupiers using a lot of electricity, but you wouldn't derive any of the social benefits of addressing fuel poverty. So, so all the decisions that you're describing are made within the context of w-whether they deliver, which benefits they deliver and the only way that you can make those decisions is within tension. So, so, I, the project has always been steered with all three benefits in mind, and quite consciously, with different champions pulling in different directions, and therefore I believe achieving the most creative response.

I: It's interesting, in the life of the project, that board tension, I mean it's changed now, hasn't it, Bob's no longer there

DA: The people have changed, yes, but John Jamieson is there from Housing,

I: Oh, ok

DA: But, but, in fact what happened is it went up to the cabinet level, so then the cabinet member for housing became the, became the champion of, I mean not consciously, but when I went to cabinet, um, the reason that the project was so successful at cabinet was that there, was that the er, deputy leader would say it's delivering this much in CO2, and then the person responsible for economics would say, but it's also delivering jobs, and then the housing cabinet member would say and it's making things better for our tenants and addressing fuel poverty, and even in the new administration, so I've briefed the health and wellbeing, social cohesion, um, and Tahir Ali who's responsible for employment and er, and economic activity, so I, I've briefed the cabinet members that are relevant to this,

I: For that tension

DA: For that tension, so that I keep, I have to keep all of them on board, and, and that, that to me is, now, you know, within that tension, if you like I'm then, in a really quite, you could say I'm the spider in the middle of the web because on one hand you could say that they're pulling me in all directions, but on the other hand they rely on me to tell them, whether or not, you know, what are the implications of any decision, you know, is it gonna be more social, or more environmental, or more economic. So in a way it, it puts me at the centre of the triangle, because they're all looking to me and saying

I: Answer these questions

DA: Answer these questions. Which is actually what, what I should be doing, because that, so, so it's kind of giving, it's saying how do you make governance work, and I think that deliberately creating tension within governance is not a bad thing, which interestingly is the way, is the way that the Labour administration have gone, they've gone for matrix management, they've not go a, so you don't have a cabinet member for housing, manager for housing, you have a series of cabinet members who all look at housing, some of them from the point of view of health and wellbeing, some of them from the point of view of green, some from economic inclusion um, and so on, who look, um and social inclusion, and they look at housing. So if you like, the, the new administration has kind of gone for that style of, of governance. Which, which I kind of, I think actually is quite creative, or could be, the um, the bureaucrats hate it, because they don't know who to report to. Who should sign this off? It's not clear, you know ahhh, I can't cope with this! It's meant to be, you know there's meant to be straight lines,

I: But, but it's true I mean sometimes there are difficulties with thinking in silos, and housing is related to health, and

DA: Yes. Yes, quite.

I: And planning does have aspects related to sustainability as well as simple legislation.

DA: Yeah.

I: Simple, it's not simple, don't let my school hear me say that, um, let's go on to asking what do you think that people feel about the environment and I mean primarily the beneficiaries, or the people that you would be targeting with the PV.

DA: I think mostly they think it's something that they can do very little about. I think people will think that they can make their garden look nicer, and their house, they hope that together with their neighbours they can make their street a bit better, but I think the idea that you can actually make a difference to, to the environment

I: The global

DA: the global environment is just, is very difficult to conceive, for any of us I think. It's very difficult to think when you know, I'm late for a meeting I could put my foot down, that'll get me to the meeting quicker, but it might have an impact on The Environment, ahh, you know, it's just, it's just so, you know, it's so difficult to think that way, unless you're an absolute convert, you know, um,

I: And even so there's always tensions, me and my boyfriend were arguing last night about whether or not tomorrow we're gonna pick somebody up from the train station and go home on the bus with her, or pick her up in the car, and given that she's coming so late wouldn't I be tempted to get a taxi anyway, in which case isn't it better to take the car, because

DA: Yeah. Yeah.

I: [laughs]

DA: I know, exactly. Yes. So I, I think people struggle with the idea of the environment, and I think, I think we're going to have to break it down into things people can work on.

I: And I'm wondering, you know, this discussion we were just having about solidarity, which I think we might, we might I think you might argue is, has been increasing a bit since the start of this project since the PV phases, so do you think that this, these few people who think they can affect the environment, do you think that might have changed a little bit since the start of the project?

DA: I think, I'm not sure people would express it in those terms. I think they might think that they are, they're wasting less. I think, I think people, I mean it's like the body shop thing I think people like the idea of, of not wasting, so I think people have begun to think I'm not wasting electricity, I'm not wasting water I'm not, I'm throwing, you know, I'm recycling which is the same as not wasting, and I think people have got kind of a natural inclination not to waste, and I think that the food campaign around you know, not wasting food and so on, I think, I think that, I think people kind of saving and not wasting is natural, I, I think the idea that what I do today actually impacts on the environment, is so hard. I think.

I: Yeah. Ok. How do you think that the beneficiaries feel about their, their solar panels?

DA: Well the ones I've heard talk with pride about them, and they, they actually talk about them as 'my panels' um, so I think they feel kind of positive, quite possessive, quite proud of them. And I'd be interested to hear if your research is kind of backs that up.

I: It's interesting, I mean, I guess with the qualitative sort of research that I'm doing I can only look at the different ways that people might talk about it as opposed to say, the population of people who have had panels, think like this, I, I can't answer that question, and I think, it's, it's been interesting since I started this, this PhD, I know some people do talk like that, some people have become very interested, some people have become panel spotters and meter watchers, some people still refer to their panels and don't look at them, some people forget they've got them, until their bill comes in, and then they're like 'ooh' when they're in the hairdressers, oh was yours that big? Oh yeah that's why. But um, there's, there's a variety there.

DA: Yeah, sure.

I: Um, how do you think the wider population in general going forwards, you know, got everybody on board, how the wider population feel about PV at the moment?

DA: I would have thought it's very mixed, I, I would have thought there's it, mostly if they think about it at all, they think about it as something that they are paying for um and not benefitting from. I think, I think you know I think the Daily Mail has, has one that one, and I think people would say well you know, we're paying for it through our electricity bills, but we're not getting any benefit, whereas that person over there is. So I'd've thought there's a kind of um, er an us

and them type view of them, but I wouldn't have thought people look at them and think positively. They might look at them and say I want one,

I: Yeah, I want to be in on that,

DA: I want to be in on it, in on it, you know, there's a, I've missed a trick by not getting in on this one, um, but I don't think they look at them and say oh, bless, you know, that person, that person,

I: [laughs] oooh, a little bit more for the environment!

DA: Yeah, doing like their bit for the environment.

I: This is so frustrating isn't it, I remember reading I think it, the Energy Agency website um, the head of the energy agency mentioned something like you know there are still these subsidies for fossil fuels are still seven times that for renewable energy subsidies, so you know, can, can we stop all this, this this epiphenomenal sort of nonsense about ooh god you know its expensive, bills are going up because of renewable energy subsidy, [laughs]. Not really.

DA: Yeah. Yeah.

I: That's just my rant. Um

DA: But, but I think you're right, I think, I think the story's been lost, I don't think, I think on PV, all that you can do is, is use it, is kind of try and win people through, you know want it themselves or you know want a substitute um,

I: And so do you think since the start of the project then that view of PV has changed, or become more negative since the Daily Mail started writing about it?

DA: I suspect so, yeah, of PV probably, I think people want it more, almost because they see that it's, they, they feel well I'm paying for it so I, I should be benefitting from this. Um, so I don't, I don't think people look at PV and think oh good, I mean, I don't think they see it elsewhere than on homes, you see, so you know, I think if they saw it on, on you know on the Millennium Centre or, or, or you know, or, or the council house, well not, probably, [laughs] but you know, um,

I: New street station or,

DA: New Street Station, when in fact, in fact of course, lots of buildings, other buildings do have it, but it's usually so high up that you wouldn't see it. So the only ones they see are on houses, and that really creates the us and them doesn't it?

I: Yeah. I guess with susmo's project and that's what they were hoping to sort of, well you could argue that they were, having it on some community buildings might have negated that, but um, haven't worked that one out yet.

I: Um, move on, sorry. Um how does this project fit in, um Birmingham Energy Savers fit in with wider or other projects to do with renewable energy generation and behaviour change, at sort of the national level and what works well and what's different, er difficult.

DA: Well obviously it fits with green deal, um, and it's still part of the, if you like, finding out what works well and what, how, how do you get people involved, um, I am sure that it provides as basis for things. We've done this on a geographical basis and I'm sure the community involvement is right and you know that's why I think the susmo approach is right or whoever it is, I think it's basically communities who are going to be trusted in this space, I think it is quite complex business, who gets in who doesn't, who, who's right and who's wrong, who pays for what, and I think that, that the noise off-stage is always going to be negative, because in the end, this, all, all that we're doing will be paid for by everybody, you know the only, most of, most of the things we do in phase 3 will be funded out of the energy company obligation, probably I would, it may be as much as 90%, so I mean, you know we talked about 100million of which 25% would be ECO, we might be talking about um, 600 million of which 90% would be ECO. I mean that's, that's, because the energy companies are absolutely up against it, they just don't know what to do with their money, and because Birmingham's going first, they just want, they just want to throw money at Birmingham. To get rid of their obligation. So, but the negative side of that is that we will be spending the rest of the nation's money, I mean, great, good, lovely for Birmingham, but, but the potential for a kind of, a campaign against that in a way, is significant.

I: Quite a powerful piece of legislation though, to oblige energy companies to,

DA: Oh, incredibly so! Um, but, but with all that kind of noise around and all that kind of complex story, is it a good news is it a bad news, we're all paying for it and some are benefitting and other's aren't, the only way to deal with that it seems to me is in community. Because, because those are, I mean, you know, that, you, you've got to start saying, let's as a community think about whether we're gonna help people who are in fuel poverty, you know, how do you decide whether it's more important that everybody pays less, or that some people who are really up against it pay less, those are the sorts of decisions that should rightly be made by communities and society as a whole. And society can't cope with those in the main, which is why, you know you should make some of these decisions at a really local level. In my view.

I: Ok, sorry, just as a subsidiary to that, I just want to mention the change in the feed in tariff, and I want to kind of guague your, your feeling on that, how you felt about that when it happened.

DA: Well it was obviously badly managed, um, and, and it was badly managed in as much as they panicked, I mean the decision they made wasn't wrong, the decision they made they should have made three months earlier, and they should have managed it. And everybody pretty well had been telling them, and then you wouldn't have got the, the boom and bust. You, you'd've got a sensible transition from a higher feed in tariff to, to an acceptable feed in tariff, um, because we were sufficiently ahead of the game, we were able to accelerate and take advantage of it, so we, we did very well out of it, to be honest, the fact that they dragged their feet and then made a quick decision suited us fine because we had a supply chain in place and our supply, and, and we were able to say to our supply chain we're not gonna stop when this is over, especially if you help us create a cushion by doing as much as you can by whatever it was, the 8th December or whatever it was. So our supply chain said ok you are our number one customer. So whereas pretty well the rest of the country was people were scratching around to find solar panels, we never were, we did,

I: Yeah somebody said there was a like, national shortage at one point wasn't there?

DA: Yeah! But, but it, wasn't, it wasn't here.

I: Ok, um I'll, I'll move on to sort of governance-y, well role of the council sort of questions, why, why do a project like Birmingham Energy Savers? Why should Birmingham City Council do that?

DA: Er, because um, going back to what I was saying about, about it needing to be, have ownership and leadership at a local level. And obviously Birmingham is, is very big in local authority terms, and therefore can afford to do these things, but is sufficiently local in the sense that it's representative in a way that perhaps MPs and government isn't. So it can, it can feel it's doing this as part of a community, or on behalf of a series of communities. Um, so I think it is right that local authorities should take leadership in these areas, and I think that's almost, I think that's the new role for, or it's been the emerging role of local authorities as enablers, rather than just service deliverers. You know cos –

I: Certainly, certainly in terms of the Pioneers into Practice programme that I'm involved in this year, um, you know all of the sort of the crucibles that we've had, um, and talking about who should sort of spearhead transition, they are very much talking about regional governments, and region, you know, local authorities, because they, I don't know, they have that sort of, system wide view kind of thing, their fingers in all the pies, so,

DA: Yeah, yes, that's right.

I: Ok, um, now this is assuming that you had any choice in the matter, and in fact that you did want to be involved, but I, I sneakingly know that you did, [laughs] why did you want to be involved in Birmingham Energy Savers, you personally, D- A-?

DA: Um, it, um, it was a project that I believed I could um, I could have a, make a difference to, um, it goes back to what I was saying I, I like, I like to win. And I thought, I thought we could. Um, but also my daughter would say I love a sinking ship, so I, it was also, it was, it was a project that needed somebody, and I thought that it probably needed me.

I: [laughs]

DA: [laughs] so, so, I mean I'm sorry about this but I, I am arrogant, you know! [laughs], you know and um, and, um, and I, I, so I was kind of, er, I do actually have a few values,

I: [laughs] they're in there!

DA: And um, um, genuinely, I thought that it was a project that I wanted to be involved in, because it delivered things that I believed in. Um, of which interestingly probably the, the climate change is, is one of the lowest of the things for me, I mean not, not, I wasn't exactly a sceptic, um, I'm less of a sceptic now, but, but I'm, you know, I'm, I needed convincing on some of the stuff, but certainly I don't need convincing on community cohesion, and economic benefits and fuel poverty and all, you know, and, and I think like most people in local government that's what I want to do, I want to make life better for people. Um, so you know, I could see that I could do that, and if I, if as well as making the world a better place for my grandchildren, when they come along, you know, fine, good.

I: Alright, um, what is the role of the, the city council in, well in all of those issues, I suppose you kind of half answered it, it's sort of what local authorities do, make life better for people.

DA: Yes. They, that's, that's ultimately what they should exist for, is, is to, is to make the world, their, their bit of the world better for their, for the people and communities and businesses who are within their boundaries.

I: Ok. And, and how do you think that, sort of, the citizens of Birmingham, you know, people react to that role that it takes?

DA: Um, I think mostly positively actually, I, I think one of the things that's, that's quite good about Birmingham is that in the main there is, there are high levels of satisfaction, I don't think, as far as, I mean people can moan about bin collections, and so on, but in the main I think the view is that the council is, is there, is on their side sort of thing. That's probably, I think that's true. And I think things like kind of having a kind of, a fairly local presence and having neighbourhood offices and libraries and those sorts of things are important, which is why losing those is also worrying. Because I think –

I: Mmm, yeah, my local neighbourhood office seems to be shut, and seems to have moved to Acock's Green,

DA: Yes, well

I: Which I'm confused about, I live in Ladywood.

DA: Yeah, well, yeah, quite. And unfortunately that, that is the way, because of cuts, that's the way things are going, so I think it's really important that we find ways of re-engaging, because I think, cos I think people were able to think ok my, I know the council's nearby and it's there for me and I know where to go if I've got a question, and I think that's disappearing a bit.

I: Ok. How does, um, you've probably answered a lot of this already, but how does Birmingham Energy Savers fit in with the wider council sort of aims and processes, um what's going on in the rest of the city, what works well, what's difficult?

DA: Oh it, it's seen as, as, kind of the forefront of the new way of doing things really, it's about, um, it's about leadership it's about um, multi-benefit projects, um, that engage um on a matrix and involve lots of people, works across departments, it's transformational. It fit, it fits very much with the way the council sees itself going forward, it probably, it probably gets negative because, because it's seen as being part of the new way of doing things rather than the old way and so those people who perhaps,

I: Yeah, at times of transformation there's going to be the ones that go with you and the ones that take some persuading so there will be tension.

DA: yeah. Especially as people are losing jobs at the moment, and that sort of thing, so it's difficult time, but mostly I think that the city council – and it's got cross party support so that, absolutely at leadership level no question about it. Um, obviously the finance people are slightly twitchy, this is a new way of doing things and how can we be sure, and we've got to risk management, um, and so on, but yeah.

I: Ok, um, why did I even bother with this question, I've asked everybody else, I have to ask you, um, how is Birmingham Energy Savers talked about by the council, and do you think you get a fair picture? Or you get given a fair representation?

DA: Yeah, yeah. I mean, you know, we, we, we couldn't ask for more.

I: Ok. Last question, before I asked you how does Birmingham Energy Savers fit in with wider projects to do with renewable energy and energy and behaviour change, this question is how does Birmingham Energy Savers fit in with sort of, national aims and processes, as a whole? So, you know we're in the middle of the recession, central government's got an agenda about

various things, possibly not a very local government-led one in many other, or, possibly not a very state involved-led one in many other areas, how does Birmingham Energy Savers fit in with that whole picture, and what works and what's difficult?

DA: Ok, um, interestingly government is looking more and more at whether it can outsource stuff to local government.

I: Oh?

DA: And so, some of the things that were previously outsourced to regional development agencies, are being um, are being outsourced to large local authorities, because government recognises, I think, is beginning to recognise that actually they're not very good at delivering things. Central government is good at policy, but it's not good at delivery and I think Green Deal and the feed in tariff have shown that, they don't know how to manage the market, they don't know how to engage with industry, they don't know how to, to actually make things happen. They, they're very good at, at consultation and designing policies and strategies and all that sort of thing, but I think, when you get to the stage where you, you need to make things happen, you need somebody that's, that's a bit more um, action-oriented,

I: And operational, kind of thing?

DA: Yes and operational. And so actually, what we're discovering in Birmingham is that government is beginning to approach us, not, not just, you know from several departments, um, with a few to saying could you manage a national programme for us. Um, so, so I think that in that sense, the success for Birmingham Energy Savers at a local level, but the possibility that it could become at a regional level, is actually is, quite a strong message, because I think government is beginning to say, not just that, because of that, but you know, a series of things, beginning to say oh, the folk in Birmingham can deliver. Um, that, is, is beginning to tell the story that local authorities can deliver. And, and in a world where there is quite a lot of feeling, when government always outsourced to the private sector, and it's beginning to maybe think, that it should be outsourcing within the public sector. So, so instead of saying we want G47 to do this,

I: Yeah, it is interesting because you know in terms of, yes, it's security, prison services, NHS, trains, it does all seem to be very much all outsourced to private sector.

DA: But that might be beginning to change.

I: Gosh, you're very hopeful! This is why I stop -

DA: I'm always

I: This is why I stopped listening to radio 4 I can't, I can't deal with the depression [laughs]

DA: [laughs], no, but genuinely, we're beginning to see very small changes, but we are, large programmes that we're beginning to be asked whether we could deliver. Not, not in this space, but in things like um, you know, innovative manufacturing support, um, handling grant regimes, um, you know, for, for for the industry, things that government has not been very good at in the past.

I: That's really interesting. Ok! D thank you so much for your time.

Appendix B4: Sample Interview Transcripts – SusMo Case Study

Beneficiaries

Interview with HS on 25th May 2011

I: I'm here on the 25th of May with HS, just for the record H, is it ok if I record this?
HS: that's ok.
I: Excellent, I'll put this here. Um ok, so um, so how did you come to be involved in green streets, tell me what happened.
HS: Ok, there was a notice in my church, i attend st mary's Moseley.
I: Oh ok!
HS: Yeah, and they said they would select five families. And they'd be monitoring our, we would have to monitor our own usage, things like that, and it seemed quite interesting to be involved. I myself um, support the idea of . . . well, being careful with the use of energy, and not increase carbon footprints, and this seemed to sort of tie in with that idea. So I put my name forward.
I: Hm hmm
HS: And I was . . . . selected! So to say selected
I: [laughs]
HS: Yeah, they, they chose five families from st mary's and i was one of those, and that's how I got involved in it.
I: Ok. Since you say that um, you, you thought it was important, you're interested in cutting carbon footprint, I mean, why is that, is there any story behind why you think that that's important?
HS: No, there is no story as such behind it, but well my father was an electrical engineer way back in India, and we had free electricity but he still instilled in us not to keep lights on, always to be careful and switch it off, maybe that was because, [laughs] I don't know, he must have been very careful even way back in those days, so I-I've always been conscious of not leaving lights on, not going away leaving dripping taps and all that, so that, partly I've been brought up that way, and then also I've become more aware of the-the harm that we are doing to the environment, to our planet, maybe use, resources are not limitless.
I: Hmm, it's hard to get away from it these days isn't it this continuous message about climate change? Ok, so do you know anybody else who's involved in this project?
HS: Um, I know at least two others from my church, yes.
I: Ok, why do you that think they got involved? Same reason?
HS: I don't, it's not for me to say how, how and why! [laughs]
I: No no, fair enough! [laughs]
HS: That's for them to say!
I: Ok ok,
HS: Maybe they shared the same values?
I: Alright then
HS: In that sense.
I: So Um, how much energy do you use in this house, sort of like, how, you know how expensive are your bills, do you have lots of appliances, do you use a lot, or not, do you think?
HS: No no, I don't have, I've got the sort of normal ones [laughs] that I use, yeah, but nothing, no I don't have washing machines, and I don't have these big stereo things, I'm not very fond of keeping music on all day,
I: Yeah
HS: So I-I have got the essentials, I've got a fridge, I don't even have a freezer now it packed up! [laughs]
I: Oh no! [laughs]
HS: No freezer! I probably will have a small [inaudible], I have a washing machine, and as you see, this, I use the iron to [laughs] iron a few clothes off and on,
I: Yeah,
HS: I like cotton so, and they do need ironing so I,

I: Oh they do, don't they,
HS: So I use the iron sometimes. Lawnmower, and as you see, I got rid of my lawn in front and I've done vegetables there instead! [laughs]
I: [laughs]. Ok, so um, and how, how warm do you like it in the house?
HS: I do like it to be reasonably warm yes. Yeah yeah, no I don't like a very cold house I mean I would probably at one time would have put the heating on for a little bit, but I know we are not here for long so,
I: No fair enough. We had such a horrible winter as well didn't we, it was so cold!
HS: Oh, I was away in India for part of the time, which was great! [laughs]
I: [laughs] Well let me tell you, it was awful!!
HS: [laughs]
I: Goodness, ok, just, just so I can get an idea, you know, you said we're not going to be here for very long, so do you normally walk around with jumpers and things on, or do you . . .
HS: Not thick ones, but something light, yes.
I: Something light.
HS: Yes yes.
I: Ok, Um, so my next question is what do you think about all your gadgets and your appliances so, you don't really have a lot, so
HS: Not too many, and I don't tend to leave them on standby, no.
I: No. Are you more of a book person then?
HS: Yes, yes I read more. [laughs]
I: Yeah. Um,
HS: And radio, I listen to the radio.
I: I know, it's nice isn't it, to have that on. Yeah I have to say I'm the same, I don't have a television at home,
HS: Ohh right?
I: I wont have, I won't have one, and yes, I also have, I listen to the radio in the morning when I wake up so I know what's happening.
HS: Yes, same!
I: Erm, so do you think you use more or less energy than you did in the past, do you think you know, over your lifetime, your energy use has changed? We'll finish with the energy stuff in a minute!
HS: Ummmm, maybe in some ways, perhaps I may be using it a little bit more because when I was working, i wasn't at home very much,
I: Yeah
HS: And I was younger and I was running around here and there. And I think as one gets older, then, perhaps [laughs]
I: [laughs]
HS: and I suppose, comparatively I'm here at home for longer periods now that I'm not working, and if it's really very very cold, I'd much rather be warm and, be, not have a cold.
I: Yeah, be warm and pay for it.
HS: But it's never, my heating is never on unnecessarily. No i don't leave it on for, . . you know long periods and not be there, nothing like that, so it is, it is warm, but in my view, it is sensibly used [laughs].
I: Fair enough! No I did hear a story once about a receptionist who um she'd turn the heating on in the reception and leave it on on a Friday evening, so when she came in on a Monday, it was still, it was warm enough. You're making a face there, for the record, so you wouldn't do that sort of thing?
HS: No! Good heavens never! [laughs] no.
I: [laughs] Ok, so do you, this is a good point, I don't actually know what are you getting from green streets the project, what are you actually having done?
HS: Er, not an awful lot! [laughs]
I: Oh right!
HS: I don't qualify for very much, [cough] my house was already, my walls were already insulated yeah?

I: Yes!
HS: That was done not very long ago, and then the loft had insulation but was done 17 18 years ago and so I think the specifications have changed,
I: Yeah,
HS: And so yes they increased the insulation in the loft,
I: Ok
HS: They did that, and apart from that, I think that is one substantial thing, I've had, nothing, nothing else really, and then two, what is it the, heat reflectors, the silvery kind of thing [laughing]
I: That you put behind the radiators?
HS: Two, which keep falling down all the time [laughs]
I: Oh really?
HS: No i don't think, and the kettle, I'm not bothered about registering so I don't get that kettle, and I'm told the kettle doesn't work very wonderfully either, so but, no no,
I: [laughs]
HS: No i don't qualify for anything else, now see double glazing, I don't think they do the double glazing?
I: No, I mean do you have it already, the double glazing?
HS: Oh yes, it's all done. I would have very much liked to have had solar panels, but the guy came, and he looked at the big tree and he said no i don't think that that will work [laughs] so he didn't.
I: No, there's lots of trees round here aren't there, must be very shady.
HS: There is a beech and a chestnut at the back.
I: Yeah that'll do it. [laughs]
HS: So, I would have been interested in that
I: And how come, to save more money, or just?
HS: Yeah, I think partly to save money, and also to use natural resources. Yeah, it's such a nice idea,
I: Yeah!
HS: To conserve the energy yeah!
I: Why do you think it's a nice idea to use natural resources? I mean obviously, you're bit, you know if you use wind you're beholden to when the wind blows, whereas with more conventional sources it's there, it's more reliable?
HS: I suppose I come from India and sun, sunshine is just so plentiful there, and we make full use of it, we use for drying clothes you don't use the tumbledryer anything like that, we dry all sorts of condiments out in the sun, and that is preserved for the whole year, and then, what else do we do with the sun, yeah disinfectants we didn't really use it, we just put it out in the strong sunlight and then that itself sort of killed off the germs you know every so often they put blankets and all out in the sun, so, that
I: Oh
HS: Whole concept of using sunlight, it's just I've grown up with it, and here heaven help us we don't see much sunlight [laughs]
I: [laughs]
HS: But if there are means and methods to use it, I'd love to do that. I mean there was some, in my family somebody started using, they invented, quotations a cooker, and they did their own panels, and they would cook, they would just put it out on the terrace, and they didn't need to use gas or anything, and the food was cooked just through sunlight so.
I: Oh wow!
HS: Yeah! And so, yeah if there was a chance I would have liked well,
I: To have done that.
HS: To have done that. Yeah and if they were doing it for, say I don't know whether they were doing it free or not but if they were doing it for free, all the better! So,
I: Yes, this is true,
HS: But I didn't qualify for,

I: No sadly not. But I mean I suppose, you don't use energy, going back to the question of insulation, you don't use energy unnecessarily, but I suppose it's still expensive isn't it?
HS: Hmmm . . . I-I-I suppose so I mean I have, not struggled to pay my bills, I'm perhaps in a fortunate situation, I'm alone, and I can manage yes. So I'm, I-I-I maybe yes, things have gone up, but that is not a sort of worry, how will I pay my bills, it's not a worry.
I: Ok, so it's more being environmentally friendly that,
HS: Yes
I: Ok
HS: Yes rather than financially, sort of a financial necessity, no, that is not, i mean everybody likes to save money but, no, it is not a worry like, oh gosh, if I put this on and the bill goes up, I won't be able to pay it, no, that is not my situation.
I: No, fair enough. Fair enough. No I remember that, because we used to have a pay as you go meter, and they're very expensive, and I remember one time having a bath, and then seeing how much, i was like!
HS: Hmmm, mmm, mmm,
I: Wow, that's a real choice!
HS: And I do have sort of friends for whom really every penny and pound counts, I'm aware of that, but I am in a more fortunate situation.
I: Very well! Ok, I'm going to ask you a few questions about community now. I used to be a community development worker,
HS: Hmm mmm
I: So I kind of realised I have this understanding of what community means, and that maybe other people don't share it.
HS: [laughs]
I: So I'm going to ask you, what do you think of when someone says, quotations, there is a sense of community here, what does that mean to you?
HS: In different contexts different things, but I'm applying it to the community of Moseley, and because i think that is the context in which this . . .
I: Project
HS: project is working. So I'm thinking roughly of people who live in Moseley, and to me it seems that Moseley has a good sense of community and that, the evidence is really in, they do Moseley in bloom where people local residents really just chip in, they work and then the vegetables and what grows, the produce is again free for people to take,
I: Oh ok
HS: Then one has just to go to the farmer's market, and you know half the people there [laughs] You know, and then probably going, being a member of a local church, again, gets you to know people around here
I: Yeah
HS: And what is this, there are meetings and then you are told, or then, political hustings, things like that, and people go there, so I get a sense of a community, people living in Moseley, sharing concerns, and erm, probably also in the good things that are there, trying to keep it nice, trying to keep it clean, beautiful, things like that.
I: Ok, right, well now we're on the same page then. So that's what community means to you then.
HS: That's what it means in your context.
I: [laughs]
HS: Yeah, but in the context that you are interviewing me.
I: In, for this project, well Ok, fair enough. Yes. So do you um, do you know lots of people in the local area then?
HS: Yeah!
I: Sort of who do you know then?
HS: Well I know many of my neighbours in Paton grove,
I: Ok
HS: Yeah! And then the church, most of them are residents in and around here, so I know them through that, then it just happens that I'm involved in campaigning for peace, Palestine issues, and again there are several people it just happens they are from Moseley, and we meet, then it's

issues like peace and united nations, again that is there. And I was part, I don't have very much time now, but there was the Moseley interfaith, and there were events

I: Yeah

HS: So i know people from, from that who have attended, some meetings, been on their interfaith trips, so all in all, I feel it, yeah,

I: Ok

HS: I don't feel alienated at all!

I: No fair enough!

HS: [laughs]

I: So you know all these people . .

HS: Oh and they do open gardens as well over here!

I: That's nice. I can see you know people from your church, you know people with the interfaith group, you know people that you campaign with, and that sort of tells me what you do with them as well, you worship with them, you campaign with them, but what do you do with your neighbours, if anything? Apart from just . . .

HS: Well, different things [laughs!]

I: [laughs]

HS: Talk to them, compliment them on their gardens. There are a couple of elderly people here who not very mobile, and if it's really bad during winter, they didn't want to go out, and I . . . I-I am still mobile and I use the car! [laughs] So yes on various occasions I have done some shopping for people.

I: Yeah

HS: And at least three I know round here.

I: Ok

HS: Yeah, but I mean, it's all comparative, my next door neighbour is much younger than me, so sometimes she asks me if I need anything!!! [laughs]

I: [laughs] payback!

HS: She sees me as being you know, older than her, so perhaps I'm the needy one! [laughs]

I: [laughs] Aw, but that's nice though everything goes round . .

HS: Yes yes, it's very nice.

I: So this project, has it affected your idea of the community? Or do you think, I don't know, do you think it's quite harmonious with it?

HS: Um, well it's partly me I haven't had very much time to be very involved, but it has certainly raised my own consciousness about being even more careful, and I mean not just energy, but also use of water, just, generally.

I: Ok, and but in terms of the community as well, it hasn't changed your ideas? I mean I suppose, if you knew .

HS: I got to know a few more people, I mean I didn't know Esther Boyd, and I just feel yeah, it's so good that there are people who are so willing to commit themselves to time and energy and raise awareness. Yeah! And then they have a stall at the farmer's market

I: Yeah

HS: So I'm personally not often able to support them, in spirit I support them [laughs] but in actual activities, occasionally I have done it, but I can see that that is happening in my community of Moseley, and I feel very good about it [laughs].

I: Yeah ok! So, did Esther come round then and tell you about, or did anyone from Sustainable Moseley come round and talk to about it? How did you meet them? How did you meet Esther?

HS: No but it-it, my contact, our contact point at the church was John Dowell,

I: Hmm

HS: Yes, so I suppose he was initially the contact point, and with Esther it was emails and then she expressed a desire to know more about my work, because I went to Palestine and she was very interested, and so there was sort of not just one track interest, but things overlap

I: Yeah

HS: And therefore I got to know her personally a little bit more, whereas if it had been just susmo, I might not have come to know her in quite, you know

I: I see what you mean

HS: And then I did attend a few meetings, you know they said householders were welcome, and being one of the householders then i attended some of the meetings, and saw a few other people, families from the mosque who are involved.

I: Ok, Erm, so how did you um, um describe this project to your friends, if indeed you did, have you told any of your family about what's happening, and what did they say about it?

HS: No I have no family, but my friends, [laughs] yes. I told them that Moseley was going for this kind of project, and also we were bidding for certain grants, the area was bidding for certain grants, and for me I knew the church was putting panels, so I told them about that, and then the ongoing saga about . . .

I: Oh saga's the word isn't it?!

HS: Yeah yeah, but eventually yes we have succeeded, and then again they've sort of changed the goal posts and reduced some of the benefits that bigger projects can get out of it I think. Yeah yeah, they've changed the parameters of that. Anyway, yes so my friends certainly know that I'm one of the householders and I told them i wasn't lucky enough to get the solar panels myself, [laughs].

I: [laughs]

HS: No in terms of actually getting anything, I don't think I, I don't see myself as got, as having got something concrete, what is it, material very much out of it, but no, I'm glad I was part of it, everymonth they wanted the readings, and I've sent the readings, when I was here.

I: Oh that's good. Ok. Er, der-de-der, done that one. . . . So I mean, do you know, you mentioned you knew one or two others who'd benefitted from this project, have you spoken to them about it. . .

HS: No because we were at the same meeting, because house holders were invited and at that meeting I knew two of the people who were, who are from my church, and I think probably their circumstances or their situation was such that they got very much more, but then, that is the way it is, maybe their needs were greater [laughs] and so they got it, that's it.

I: Yeah yeah absolutely. So, it sounds like I'm hammering this home a bit, but we'll move on after this. So do you think it's better in Moseley as a result of this project in any way?

HS: Well, I-I imagine definitely, if the solar panels go up on the church then that will be very good on a big scale, and then I'm not absolutely sure what's happening with the Mosque,

I: Yeah I think it's ticking over, I think it's going to happen soon.

HS: So, yes, this is my – I know only my little window

I: Yeah

HS: But it's like a domino effect there are, there are many more families involved . . hopefully . . there are families with children, and maybe not everybody was as conscientious and aware as me, and if they have become more aware, then all the better for it.

I: Ok. Um, the next question is, are there any particular people that affected your decision to join this project or use less energy, I don't know if you've sort of already answered that by saying . .

HS: No, no it came from me, no, nobody needed to sort of enlighten me, or convince me, [laughs] or persuade me, no, it came from me, I wanted to put my name, and I put it there.

I: Yeah, and the church merely offered you the opportunity

HS: Yeah they just announced it, it was a general announcement in church. And so I knew – and they said talk to John Dowell, so I knew John and I said, well put my name there if you will and he said yeah there will be different names and then we'll see what happens, so I put my name and then I went off to India and then I came back, I came just in time to do whatever was necessary [laughs]

I: Sort of clear the loft,

HS: so, yeah so I was one of the five, from the church

I: Ok, so it was quite a short conversation then that you had with John, like, put my name down, that . .

HS: Yes, no no, I didn't have a big in depth one, I can't remember whether there was also a write up in one of the church magazines, or blue sheets or something, but it certainly originated from St Mary's church,

I: Ok

HS: I didn't hear of it from elsewhere, only from there.

I: Ok! Well that's gotten rid of all that one. . . . Yes, I've answered that. What do you think of the fact that, you know this project has come from SusMo, you know they're just local people like yourselves that sort of decided they wanted to bid for this and you know, SusMo's sort of gone to all the effort

HS: Mmm mmm, mmm,

I: Well John Dowell as well

HS: Mmm mm mm,

I: To try and deal with getting the panels on and all that fight. What do you think about the fact that it's a community group that's doing this project, as opposed to any other agency? If anything!

HS: I don't know about others, I don't know about other models, I know only about this model, and I think this model would work only where people are really commited.

I: Hmm

HS: Yeah? Because that commitment is the one thing that stands out and drives it and keeps it going, yeah? So in terms of material or anything, none of them get anything except the knowledge that they are sort of helping the environment doing all the things, that, that they value. Yeah? So I have not seen any models, I'm not acquainted with any other model, so when I, I see this model and i have great admiration for people like JD, for E, and then there are some others involved in it, and it's their driving energy that have kept it going, people like me have just sort of, in some ways, quotations, cooperated or just . . . marginally helped, we have not, or at least I have not been a driving force in any of this, but it was there, i was willing to . . . lend it whatever support I could, and like I told you I personally don't see that I have got any, any perks out of it, the loft was done, but I suppose with my age, I may have got it done or even have got it, whatever it was, if it was important to me I would have just paid the money like I have done with the rest of the things in the house. So I can't tell you about as opposed to other schemes cos I, I really don't know.

I: Fair enough, I'm just, I mean do you feel, do you admire E and J for all the work they do?

HS: Mmm! Indeed I do.

I: But I suppose it didn't have any effect on your decision to join up in the project, because you wouldn't have known would you?

HS: Oh no, I wouldn't have known, it was I found out after I joined it!

I: Yeah, ok, no i was just thinking because there is another project that's sort of starting up in Birmingham, it's being led by the city council really, and that's sort of basically, paid workers are arranging the whole project, and going to people's houses and suggesting what people might like to have and I suppose SusMo being unpaid have done that kind of thing . . .

HS: It's very much more credit, to me, a community project is very much more creditable.

I: You think so?

HS: I think so!

I: [laughs] I'm going to have to ask you why you think that!

HS: Because it comes from something that they hold important, they hold precious and worth doing, valuable, that they are willing to put themselves out, and do that. It's not for remuneration, it's not for money, it's just, I don't think John Dowell got anything out of it [laughs] except more heartache and more worry and their own expense I suppose running here and there, and writing, because I'm involved in some sort of campaigning, I know you end up posting, it's all yours!

I: Yeah

HS: You put in rather, and the only thing you get, which is important to you, is a satis-, a sense of satisfaction and knowing that you are doing what you think is valuable

I: Yeah

HS: And also affecting and influencing people along the lines that you think what is important.

I: Ok. Um, so last question, no actually, I'm going to go back to that a bit more then so, do you think you'd be likely then, if this happened again, you'd be more impressed and more willing to get involved with a project run by volunteers or by somebody like susmo, as opposed to somebody like the council.

HS: Yes possibly. Yes if it was a voluntary thing I would be more . . what the, favourably inclined towards that, yes.

I: Ok. Em last question. Who have you told about this project and um do they, does anybody else that you've told want to be involved? I know they've missed their chance but!

HS: I think they missed their chance! [laughs] No, my, my neighbours know, they know, across know, then some people who are not even living in Moseley, they know, so my, so several of my friends circle know, from Ireland they know from Lichfield they know, from Acock's Green they know, so yeah my friends certainly know what it is about, they know in which way I am involved, that I am one of the householders, and that is it, yeah. They, none, none of the neighbours said oh we want to be on it, no nobody said that.

I: Fair enough. What did your friends think about it, was it sort of you know, oh, sounds good.

HS: Yeah, I think mine are sort of like-minded, so they saw it as something very good.

I: Right, fair enough.

HS: Yeah! But they were not saying, ooh I wish we had known earlier then we would have put our names or anything like that.

I: It's almost a waste of time to say that kind of thing anyway

HS: [laughs]

I: I mean, well, what's that going to change!

HS: Yeah but they didn't say ooh is it still going, how can we join it, or anything like that, no they didn't say that.

I: Ok, well that's interesting. Um, well that's the end of my questions! It's interesting when you ask them the first time, you realise how much they are repetitive!

Interview with HM on 23rd June 2012

I: Today is the 23rd of June and I'm here with H, is it ok if I record this?
HM: Yeah.
I: Thank you. I'll put this there. Ok, so um, last we did a little kind of an audit, like how much energy do you use and you just kind of ran through like the appliances and stuff that you had, and like energy saving light bulbs and that kind of thing. Would you mind doing that for me again? To see if there's anything changed.
HM: Um, I think we, we're probably using a little bit less energy now, now that we've got this wonderful thing
I: I notice that! Wh-what is –
HM: Yeah smart meter, which British Gas have installed, so that because we have this wonderful er, light indicators on there, the red amber green, it tells us when we're in amber or red so you know, it makes us a bit more conscious about A what's on in the other room is, it, oh we've got the microwave on or we've got the iron going at the same time, and I, I think that has helped cos as you can see it's flickering at the moment because of, er, I've just noticed somebody's doing some ironing in the other room, so it does kind of like, ok, if you're doing the ironing maybe we can turn the telly off or turn the lights off in the other room where nobody's there, it, it does kind of does help with that, that's definitely helped.
I: Interesting!
HM: Yeah, yeah.
I: So when did you get that installed, because I don't think you had it when I saw you last?
HM: No, no, it's only bee .. about three or four months now I would say. Yeah, yeah, British Gas did promise to bring that a while ago, but yeah, they, finally installed it about three four months ago, I would say.
I: Ok, so it tells you how much energy you're using, and like your bills and everything, it's more clever than those little energy monitors, isn't it?
HM: Yes, I mean to be honest with you, I, I don't actually go into and look at how much energy we've used daily and weekly, it does have the capacity to do that, but I haven't, I just haven't had the time to sit down and go through that, but just the light indicators are what we go by for now, it's one step at a time, but yeah, erm, yeah, definitely, you know, a good indicator if you like just at a glance.
I: Yeah. Do you find you're using a bit, cos I would think, since you've had the baby like, is, is the washing machine going around more often and stuff?
HM: No, cos, our baby, I know babies do have like more change of clothes and stuff but my wife just will hold them on now, cos we have two previous children, and we have quite a lot of clothes that they have, er we pretty much recycling those, so she had enough clothes to wait until
I: there's a full load?
HM: Full load type of thing. Er, but we are, we did use a lot more heating, you know, cos we haven't had such a good summer, and especially in like, April, when the baby was born, and May, but now we've, you know, can slow down with the weather improving, so um,
I: Somewhat
HM: Yeah! We did find that we had to leave the central heating on all the time, that it's on with the winter setting, just for a couple of weeks er, in May, and er, the end of April.
I: Yeah, we were the same actually because we were,
HM: Yeah, otherwise, what, what we also have, is, I, I I mentioned this the last time you came, in every room in the house we have a gas fire, and central heating, so if we don't want to heat the whole house up, we can just turn the gas fire on in that particular room that you're in, during the day, and then er, just warm those up, but overnight we have to have the whole heating come on, on timer, because my father's a pensioner has to get up and go to the toilet, and he doesn't want, you know, to be, moving up and down the house and it gets quite cold in the hallway and in the bathroom and stuff, um, so you know,
I: He does have the heating on for that
HM: Yeah. Well, we did leave it on, but now it's off.

I: Fair enough. So um, do you think you're using less electricity since the solar panel's been installed?
HM: Er, .. No I think we're probably using the same amount.
I: Really?
HM: Um, yeah. Er, we're so (inaudible) there, and it's something that we, something that we actually er, have been, well, it's just something that's there if you like and er, [someone comes in and gives biscuits and tea, are thanked] erm, I mean we, we er, you may want to pull that table a bit closer, I mean it, it's only been like er, believe it or not, a week ago that we actually got our first, second payment from British Gas,
I: For the feed in tariff?
HM: For the feed in tariff, so based on that I mean the electricity still remains the same, um, we could interpret us using less by the money we were getting back if you like, in a way, but you know, British Gas have been er, apparently they, they have had problems with their payment systems and things, there's all sorts of issues that get um, batted backwards and forwards, but,
I: Well, they've got 25 years to sort it out!
HM: Yeah! 25 years, yeah. So er,
I: So, sorry, do you mind if I ask, do you pay by direct debit or like, quarterly billing?
HM: Quarterly billing, yeah.
I: So like, you know, the, it should be an accurate reading, it should be an accurate measure of how much electricity you're using, what you pay?
HM: Yeah. Yeah, that's right. And, and then what, what we do is quarterly we would give them, there's a, yeah, a separate meter that goes with the panel, that er, you know, how much electricity we've actually age- er,
I: Generated?
HM: Generated. Um, and we give them that meter reading, um, every quarter.
I: Ok. That's interesting.
HM: Yeah.
I: So they should definitely know how much feed in tariff to pay you that way.
HM: Yeah. And it's been, it's been almost a year since we've had it installed, and er, we've just had our second cheque yesterday. Yeah. So there, it's been quite you know, er, slow process.
I: Ok. So yeah I think when I saw you last year, was October I think, and you hadn't, the paperwork hadn't quite been sorted out.
HM: Yeah. It took quite a while for them to register us first, it took about, um, about five months to register us.
I: Really?!
HM: Yeah. And then it took about another um, three or four months for them to get our first payment out, and now it's taken another two months to get the second payment out of them,
I: You meant to be given payments monthly then?
HM: No, no every quarterly.
I: Every quarter.
HM: What, what,
I: Oh right, so they're still catching up!
HM: Yeah, still catching up, cos from the day I actually give them the er, meter reading, they should take 28 days, they claim you know, to make a payment. But it's taken them about two months. It's been about double the amount of time that they specified.
I: How does that make you feel?
HM: Well, it's a lot of chasing! A lot of chasing, er, you know, erm, it's just a bit, you know, frustrating because you're just constantly having to chase. You know. We've had the panels on the roof, er we're generating the electricity and we're working, so you know, we might as well, we, you know, we need to be benefitting from them if you like.
I: Well yeah, it's going into the grid and the utility company's then owning it, and um, yeah. Ok.
HM: We've always got the option of changing er, Feed in tariff provider, don't we?
I: I, I don't actually know the legalities of everything, obviously you can change your supplier whenever you like, can't you, I guess, I, I'm not sure if that also means that you can change who provides the feed in tariff, or if it stays with the one company. I honestly don't know.

HM: I think it, from what I was looking at on the internet, I think there, you can change, but I didn't look into it in any great detail. But yes, see, see how we go with er, British Gas. What they've now come back and said is that they changed their paying system, er service, it's an improved system which you, you email your meter readings and they go into er, they go into them, and then apparently go, they have got a new payment system which should pick up that email and ensure that the erm, cheque is sent out within 28 days, so it's just a wait and see.

I: See if that works, yeah,

HM: See if that works.

I: Are you all connected up to the internet and stuff here then?

HM: Yeah.

I: We pay our electricity and our gas bills like, online like that, they send us an email saying can you give us your meter readings, we email the meter readings, they email us how much we owe, and then we pay it. So, see if that works.

HM: Ok. Yeah, yeah. I mean er, we, my father is like this as well I guess, I probably get it from him, but very much a cash type of, you know, er, I like working with cash where you can see the bill, the quarterly bill um, not really um, again, I don't really favour making monthly payments either, get the bill on the amount that we've used within the quarter, and just go and pay by cash. Mm, a lot of this like kind of internet based thing um, a, my father is not computer literate, I you know, very rarely have the time with the kids and stuff to sit there every day, I check my emails every so often, probably more like once every you know, week or weekend, two weeks, that I can sit on the desk and you know, check emails and stuff, so, which you know,

I: Yeah, it's not gonna work so well for than me,

HM: Yeah. That's right.

I: Ok. Well that's all a bit frustrating, I'd say. They, they, it does seem to be that way doesn't it with loads of things are sort of going electronic, and they just, no one cares to ask whether or not people, most people are ok with that.

HM: Yeah, that's right. I mean we, with British Gas, just to give you an example, I called them the week after I gave them the meter readings, cos they said that they er, according to their system they should reply back by email to confirm they've had the readings, and they said, oh, sorry nobody's picked the readings up from our payments department, and what we'll do is we'll actually um, we'll notify them, and someone will call you back within 24 hours. No one called. So I waited another three weeks, cos that was the first time I could get back, you know, on the phone to them, er, so I called them, oh sorry, nobody's picked up your meter readings from payments, and you know, I, I will personally give them, I, I can see your meter readings are here, 731, they quotationd the readings that I gave them on April the 8th or some, somewhere around then, and I said oh this is exactly what I was told last time I called three weeks ago. So they said ok, I will personally give your meter readings to payments and I will call you back myself to tell you when your cheque will be out, when you'll be made a payment, er, what's your name, when will you call me back, so I made sure I took the name and, oh I'll call you back by the latest tomorrow, if not today. Or if I can't call you back I'll email you back. Still nothing!

I: Oh God!!

HM: Another two weeks gone by, you know, called them again, sorry, your details have not made it to the payments department!

I: [laughs]

HM: Same excuse! Yeah, so what I did was then I got a bit frustrated and this lady called Joanna who, works in the Feed in Tariff team and she was personally assigned to our case when we had the problems with the registration side, I got er, er, chap's name I forget who E also knows, he's our British Gas contact,

I: Right, right, yeah, L, isn't it?

HM: L Bo, L B- yeah. Not, not sure about his surname. And we got him involved and they assigned this lady and, and, I showed her the emails that kept going backwards and forwards and they made us go through British, Birmingham City Council, to Mel, to Offgem, to register address which my father had been living in for the last 30 odd years, and we said it was registered to his

name. Having, you know, established that, so, um, I then, so that lady managed to resolve our issue after six months so, I, I emailed her and said look Joanne, I'm having serious troubles with getting a payment made, er, but never mind the payment, your feed in tariff payments department won't even pick up my meter readings. She then emailed me back straight away the next day and said oh I will personally deal with this, I'll make sure they get your meter readings, and I will get, come back to you with a date as to when they'll make a payment. And then, I think a week later I picked up the email and she said, yeah, they've picked up your meter readings now, we, and then she basically said that we have a problem with our payment system, nobody else told me this mind, it was just her, we have a problem with our current payment system, we are updating our payment system. The new payment system which has been now, implemented and you know, it has been put in place, and we now will get your payments made to you within 28 days. So they pretty much confirmed to me in an email, and then I think like I said yesterday, we got a cheque. So this is the sort of kind of like er, you know, dealings that I've been having,

I: and you're going to have to do that every quarter?!

HM: Yeah. Hopefully not!

I: [laughs] Yeah, hopefully not!!

HM: Yeah. So, that's been our experience with the solar panel so far! So, hopefully it can only get better!

I: Cos that, kind of knocks away my next couple of questions which are um, um, do you feel you have more control over your energy costs now?!

HM: No. No not really, I mean like I said, if we do see you know, the benefit from the solar panel, and, and we try and reduce you know, I mean we've introduced things like you know, the er, the er, standby power sockets, and stuff, and we've got like the panels behind the radiators to try and um, save the heat in the room and stuff, um, we've got energy saving bulbs now, um, in all the rooms and all the hallways, um, the only room which we probably haven't is this one, which is a room which we very rarely use in the house, rooms that we frequently use we've made sure we've put like energy saving bulbs in, especially in the living room, um, so I think we are, making efforts to get a bit smarter in the way we actually use the energy, in the house,

I: But ironically they're through the more low cost measures than the ten thousand pound bit of kit on the roof.

HM: Yeah. That's right! That's right.

I: Ok! Um, how do you feel just, about the idea though, the concept that you're actually generating electricity? That's quite a rare thing for like a domestic householder to produce their own electricity, do you have any feelings about that?

HM: I, I think it's, it's quite a fascinating thing, you know, it's something, you know, something that you know, kind of like, how can I put it, you know, it's something of the future if you like, you know, something you couldn't do like, you know, say twenty years ago whilst I was growing up, and you know it's a thing of the future if you like, you know, which, it's quite fascinating, you know, it, it, it's good, you know, I, I would like to see this as something that you know, you kind of like erm, you know, rather than feeding it back into the main grid, it, it's something that you can benefit as, as household, and store it yourself. And you know, not become reliant on these big energy companies, you know! That would be something that I would like to see, but yeah. Like I said, you know, it is, something that's quite impressive you know.

I: Ok! Ok, let's go on to another set of questions now. About, about, have you, have you spoken to anybody else about your panel?

HM: Oh yes. Everybody on the street.

I: [laughs] everyone! That's, that's quite something.

HM: Yeah, er, everybody around the area, friends who I know, have all inquired about you know, the panels on the roofs, people at work and stuff, you know, um, have made people there aware, just through general conversation about the panels and stuff, you know. I, I talk quite positively about them, you know!

I: Ok, you don't stress the British Gas nightmare part of it? [laughs]

HM: Nightmare, no, erm, you know, I, I'm still you know, quite optimistic about you know, the panels and stuff, and the long term benefits that we should reap, er so yeah.

I: Ok. Ok. Um, how do you feel about other people who've got solar panels? Because I know you're the only person that got solar panels for electricity, um but other people on this project got, in SusMo's project, the Green Streets thing, got some solar thermal, and across Birmingham there are other projects that are putting solar panels on people's roofs for electricity as well like yours, so I don't know, how, how do you feel about that?

HM: I think, I think it's a good thing in the sense that you know it encourages um, other people to you know, kind of um, go down this route, um, you know, it, providing you know, everything is set up, and the system's you know, working as it should, um, people, people will benefit. And you know, it's, it's definitely um, I see it as a good thing. Um, you know, because in this day and age you've got rising you know, energy costs and people need um all the help that they can get, that, you know, there is the aspect of you know, the er, the, the main kind of energy supply companies probably get you know, reap more benefit than the individual householder if you like but you know, there is still some benefit there for you know, the household itself.

I: Yeah, ok. Um, do you feel sort of part of something, sort of knowing that you're one of a number of people that have got, sort of solar panels across the city?

HM: Yeah, I mean, like I said you're part of this kind of like you know, future kind of er homes, which a lot of people you know, in this day and age, they're building new homes, solar panels are something that are a must aren't they, they, they almost built into the plans of new homes and stuff, and um, you know, I think, I think this is definitely kind of like the way forward if you like er, people will be using more and more so yeah, you know, certainly I, I've had, get that impression from people who actual inquire as well because you know, they, there's, there's quite a big interest you know, that's why people, you know, ask questions I mean I've had that many people that ask about how much electricity do we generate through the panels on a, you know average day or on a sunny day or on a winter's day, you know, that's something like that we, we have like our meter that was given with the panels, and it's something that we, you know, occasionally check and say oh well it's fantastic day today we had sunshine for like you know six hours of the morning, let's see how much, you know er, how many kilowatts of energy did we actually generate, and and you know, people will gen- will generally ask, they'll ask questions is it worth it, you know, is it something you'd recommend for us to have, you know, what is the overall saving, yeah, how, how you know, money could we make out of this and stuff. So yeah.

I: It's so fascinating I think only a couple of people I've interviewed that have been oh you know I have a little look around the area and it's like 'ooh!' and other people who just like, oh I practically forget I have it! Like that just doesn't do it for them at all, it's, it's a curious thing.

HM: Yeah. Yeah you know, I, I still, I still look at it, but I remember when we first had it installed it was like a daily thing, how much did we do today! How much did we do the last hour, you know, all this statistical information about daily, weekly, monthly, you know!

I: Oh wow [laughs]

HM: You know, convert it into um, [someone comes in and speaks to HM] so um, yeah. Yeah, so,

I: Ok. Um, what do you think about people who don't have panels? I mean obviously they could not, they could not have them for any number of reasons but . . .

HM: Mmm. Well, it's, it's not a cheap option really so I don't, I don't think many people can afford to but, um, you know, it's something that people will probably start investing in once, you know, cost of installation comes down. But I think you know, people should install the panels it's something, you know, they could benefit from.

I: Ok. Um, ok cool. How do you feel generally about environmental issues, like protecting the environment and fossil fuels and that kind of business?

HM: Well the environment is, you know, is is, there, is part of our world that we live in, it's something that, you know, we have to, we have to think about and we have to protect um, you know, our, our children have to grow up in this world and you know, we, we've got to think about the environment, you know, it's definitely an integral part of our life, I think. Um, how we, you know, how we use the energy that we have, resources, um, you know, how we mine for

these resources and stuff is something that we've got to really think about, and, really, you know, if, if we go you know all out and think right, you know, we've got to keep ourselves warm and have all the electricity we need, you know, destroy other parts of the world, that's something that I don't agree with, I think you know, we've got to be very um, very wise in the way, you know, we kind of apply energy systems in big countries to, to provide people with their needs um, um, there, there's various kind of um, systems or installations that people have in different parts of the world. I can't think of any off the top of my head, but um, yeah, being er, self-sufficient I mean, you know, my parents come from a culture, or country where, you know, you have er, electricity for one hour in the day and then it's taken away and then you have it for another hour and then you don't have it for two hours, and they have to adapt in an environment where you know, energy is not there the way we have in this country. And it's just flicking a switch or you know, turn on your boiler and you've got heating um, now that isn't because the country that they come from are er, conscious about the environment, and trying to protect, it's more a financial thing um, you know, they call it load shedding, they, they're actually selling the electricity to neigHMouring countries, but, what that's forced them to do is make them, you know, not reliant upon you know, electricity so much if you like, but what that shows to me is that people can survive with, you know, using as little as you and hour, you know, in a typical twelve hour day, you've only got six hours of, you know, electricity, if we just focus on electricity. Um, the other six hours you don't because, you know, the state doesn't you know, provide you with it if you like. So, you know,

I: So deal with it.

HM: Yeah, just deal with it kind of thing, you know, if you know, if we are finding the, you know, um, electricity and you know, and other energy devices are harming our environment, and we really need to cut down usage, and be a lot smarter, then it's something that we can achieve. We're just so kind of set in our ways and think yeah, you know, ah well, what the hell if the TV's on standby the whole day and the whole night, you know, I can afford it, you know, I'm on, you know, a good salary, you know, I, I can pay my bills, um, but what about the harm it's doing to the environment, you know. So this is the type, type of like, um, changes in behaviour that we need to kind of, you know, um, er address if you like, amongst people.

I: Ok. And do you think, all that that you've just expressed to me, have you always felt like that, or do you think, um, I'm sort of wondering if sort of solar panels and the smart meter have made you think more about the environment or if that's really just come from elsewhere?

HM: Well like I said I mean, before these smart meter and the solar panels it was, we, we generally in our household, we don't really use you know, more than what we needed, you know, we'll, I mean in our house now, in the evening time, we don't have all the hallway lights on, as a standard thing, we only have them on if you're passing through the area, otherwise er, when we're downstairs we'll have the hallway light on for a short while, but when everyone's transferred upstairs, then the hallway light's off downstairs. Er, upstairs, lights don't remain on in other rooms, um, if they don't need to be, um, and this was before, you know, before this, um, the heating as well, you know, parents have always, very strict with you know, using it carefully, and I guess that was, that, may not necessarily have been you know, an intentional thing to protect the environment, it's more a financial thing, you know, my parents aren't very well off, and you know, they've always been conscious about, you know, um, keeping the bills down, but that's also had you know, it's helped the environment.

I: Has lots of double, double good effect.

HM: Yeah.

I: It's interesting what you were saying about kind of, you know, having electricity and you know, your parents culture for an hour and then not for a couple of hours, and then and hour, cos then you kind of have to, oh ok it's on, now I can do this that requires electricity, and I suppose with the panel, you've got you know, some electricity is free during the day, but um, so I was wondering you know, do you, as a household, do you, have you changed the way you use electricity to sort of do any electricity intensive jobs in the day time, for example like the ironing or,

HM: Um, no, um, I, I wouldn't say we do, but at the same time, we don't sit there and think, oh well, we've got the solar panels now, so let's leave the telly on, so we don't go to that extreme either!

We just we carry on using as we have been if you like, with this now, like I said, you know with that, what I'm also gonna do is put that in the living room, it's in this room, but just put that there, cos like I said it's a good indicator er, cos it's still flickering at the moment from green to amber, but I think that, that could help us be a bit more smarter, what's the name, smart meter, that could make us be a bit more smarter, and you know cut down our costs a bit more, because you know, there's time when you know, certain devices are coming on, and maybe we could switch another device off, and keep that light on green.

I: Yeah, that's what you want.

HM: That's it.

I: But I mean, so sometimes um, for example if I got up at like four o clock in the morning and it was dark, to go for a wee, I might think, ooh, I could put the washing machine on, and then when I like, it's time to get up, like, it'll be done and I can hang it out to dry. But if I had a solar panel I wouldn't, because like, I'd have to pay to use that electricity, if I did that at four in the morning, but if I did it, at you know, seven in the morning, when the sun's come up, then it'd be free. I don't know, I mean, you know if you've got people in the house in the day time who tend to do jobs in the daytime, there's nothing to change, but I'm just wondering if anybody, if anybody made any conscious effort to make sure like, like housework jobs are done when the electricity panel is,

HM: Is working and generating electricity? Umm, no I, I don't think we've started thinking like that. Because er, I think probably because er, even though me, individ, as an individual within the household, I still see the solar panels as a positive thing, and you know, er, it's something that we will benefit from in the future, my parents, er, especially my father, he's still, because you know, British Gas have taken such a, given us such a painful experience if you like, and they, you know, th-they've not registered us and now they won't give us our payments on time, they are as good as, you know, not being there if you like for the time being. Once you know, they start seeing the benefit you know, I could say hey dad, you've had another cheque, it's £60, and you know, and we've probably had a good three months where we've had good sunshine and stuff, you know, maybe I can start changing their behaviour and their attitude, once the um, panels are, have been kind of like making, you know

I: All the teething problems are gone,

HM: Yeah, all the teething problems have gone, so, I think that may have something to do with it as well.

I: Ok. So at the moment it kind of seems like you're kind of concentrating on reducing use more than necessarily shifting use.

HM: Shifting use to yeah, during the day when, so yeah, we probably yeah.

I: Still sticking to the

HM: Sticking, yeah, to our routine, yeah.

I: Ok. So um, well, I wonder do you think that other people are sort of, changing or shifting, or reducing, if they've got solar panels? Like generally in Birmingham do you think people have changed the way they've used electricity as a result of the solar panel? Or not?

HM: yeah I think, I think people would, I mean there's a, one of the other SusMo er, members who were part of the green streets project, lives, just lives on the side road here, um, we regularly speak about you know, um, the project and stuff, and he has the er, the panels the thermal panels, and he certainly had to you know, change, but theirs is a different system when you compare it to ours because, their system will generate water in a, in a tank, based on the amount of light we see in the day, and if the um, you know, it's a visual thing isn't it, with ours it's generating electricity, we don't actually see, we can still see how much we make in the day, but we're not actually taking from that if you like, you know, we, we're using electricity from the grid, whereas theirs, they're actually seeing how much water they've actually made so they, they can think oh wow, yeah, I'm gonna nip in the shower now and have a quick shower, because you know, all day today I've made er, you know,

I: They've got a full tank of hot water

HM: fifteen litres of hot water! Oh by the way the, you know, I'm, I'm also gonna do the dishes you know and stuff, you know, and, and do it like that, and and you know, that's something that, you know Mr Hashem does actually, he has mentioned that once or twice, I'd say he's certainly

got smarter in that way, in how he's using that energy, it saves him um, turning on the boiler or you know, getting the hot water through his normal channel which would cost him, if you like, so there's an example of a behavioural change if you like, as a result of having the panels on. Yeah, but apart from that, I, I, I do get a lot of people asking me about the panels on our roof, but I, you know, still haven't really kind of like, you know, I don't really talk as much with other people, and you know, get their experiences, who have PV panels.

I: yeah, I don't know that there's many around in Birmingham, in er, Moseley that have PV.

HM: No, no there's one chap who lives on this side road here again, er, he's got PV panels, but I don't really talk to him as much, yeah, and I must, I you know, I must ask him er, one of these days as to you know, how he uses and you know what his experiences are with it, but I've just never seen him out, you know, come outside at all.

I: Fair enough. Um, what do you think that other people think about solar panels generally, be they solar PV or thermal?

HM: .. I think, I think you know in general kind of like er, the feeling is that it's, the impression that I've got is that people, people think that it's a good thing, they, you know, they, they, they, they think it's, installation costs are a bit high, otherwise, many people that I come across would install the panels. But I think overall they, they think it's a good thing and it is something that they will need to get done in the future some time. Especially with the, you know, the way costs of energy are going.

I: [laughs] my boyfriend told me yesterday that British Gas have been in touch asking for our meter readings again, and my face just fell, because like, normally, this time of year I don't worry about it because it's been warmer, and I don't put the heating on but, we had it on for a whole extra month, like oh no!

HM: Yeah, exactly, you know, exactly you know there's another big bill coming

I: Yeah, and we just had to renew our passports as well this month, so that's another 80quid, ah, in your face, ow!

HM: Yeah.

I: Yeah. Cost of living, it's not cheap. So um, so what do you think about all of, you personally what do you think about all of these technologies generally, so you've got a smart meter, you've got the panels behind your radiator, you know the power downs, loft insulation, it's all the same sort of thing isn't it, like energy reducing and the solar panel. What do you think of all of these, I mean, I suppose you've kind of already said like, well yeah, costs are going up and up, they're more and more necessary!

HM: … Well, like I said, I, you know, I think these are all things that people need to, to have now, you know, erm, if it's gonna make us smarter in the way we use electricity, um, and and, you know, gas that we have, um, they're going to become things that, you know, are going to become part of our lives, things that we must have, you know, a) if we want to control you know, our budgets better and b) if you want to protect the environment um, you know, it's, it's something that, will become you know, part of every household. Like you know, a few years ago, people probably didn't feel they needed a kitchen and having a cooker in the house and stuff, but now every household you go to, you know, people have this, you know they're part of every home now, people cook at home, and how we [inaudible] meals at home rather than go out and eat, like cos you know, the cost of living, you know factors like this all play a part so.

I: Yeah, no you're right I remember reading in, er, Charles Dickens, er and feeling terribly confused that everyone was going out on Christmas Day with their dinners to get like roasted, like, like local communal ovens, and I was what?

HM: Yeah did that used to actually happen?

I: I think it was yeah, in, in Britain you used to go up the road to use like the bakery's oven, rather than having an oven in your house.

HM: In your own house, yeah, yeah, that's right.

I: Ok, um, so last set of questions, um, how um, no, have you had any further contact with SusMo since the whole green streets project?

HM: Em, yes I mean, SusMo are, I find SusMo very helpful, I mean I'm not just saying this because you know we've had the panels installed and stuff, they're a very good er, you know, community type kind of run organisation who you know, you'd be surprised with some of the

requests I make to poor old E- you know, help with you know, um, other issues, but, I mean I try and go to some of the meetings that they hold, some of the events er, the farmer's market that they have in Moseley Village and stuff, er, so my, my contact I think with SusMo, I'd like to continue my contact with as long as they're actually er, in existence, because, like I said you know, they do some wonderful work for the community for Moseley as a, you know, as an area, and you know, helping to educate people, become smarter, I mean I really admired them for when they set up this day at the local mosque, where they um, had people coming in from the community er, and talking to them about the ways in which they could er, save on energy in the household, and then offered them things like the panels behind the radiators, and energy saving sockets and kettles and stuff. Um, and you know, that, that was a very nice thing because you know, you know, people like to be given things for free but at the same time, you know, you can entice them but try and help educate them as well if you'd like.

I: Yeah, tell them how to use it properly so they get the most out of it,

HM: That's right.

I: So how do you feel about SusMo for having run this project, I mean it's all a group of volunteers at the end of the day,

HM: Yeah, yeah they're definitely giving a lot of their valuable time, you know, to a) you know, er, work with British Gas and put in the bid and win the money and then have to put in a lot of time and effort to you know, go through each one of the households and er, you know, try agree what to have measures, people, because people you know, people aren't easy to work with, it's not an easy thing to keep people happy, you know, in your household we're gonna put in so and so measures and then it's a case of, you know, oh well, so and so down the road was getting you know, a, you know, a new state of the art, you know, system installed, and having to go through, you know, each one of these people, I think they did a very good job in er, you know, in er, basically distributing the funds that they had, they provided a very good kind of service as well to people who had problems, especially like myself, um, you know, E and the other members in SusMo really kind of like helped push these issues on with British Gas and stuff, um, and overall I think you know they've done a fantastic job, and they continue to do so.

I: So I mean, what, .. I think we've probably covered some of this off, but what kind of role and responsibility do you think that, like community groups like SusMo have in sort of helping with the environment, and helping people with their bills, that kind of thing?

HM: Well it's just an education thing really isn't it? Educate the people to you know, to er, register on things, on sites like iMeasure, and you know, um, help them to kind of understand how much, how much energy they're using to start with cos like I said most of us are ignorant of the fact that you know we just come home and turn on the TV and you know, the lighting and gas and stuff and have our boilers on timers, where you know, we aren't really controlling the costs, and you know the impact we're making on the environment, it's only been recently since you know energy companies have just been whacking us with huge increases on our bills, that people have started to think, you know, er stop, let me think about how much I'm using because this is hitting you know, my budget quite heavily, so, so it's, it's been very good timing if you like for people like SusMo, because people are you know, they, they're almost kind of like waiting you know, and will listen, you know because of the financial benefit and you know, the, the, that's why I say you know, it's very good time but at the same time, you've got to think of you know, these people who are part of SusMo are doing this on a voluntary basis, they're probably doing, you know their day job and then in the evenings they are then getting more time to do, you know voluntary project, and giving their weekends up to go and sit in farmer's markets, and you know, provide people with literature and talk with people about energy and stuff, so, so I think you know, overall they are, they are very concerned with you know, our environment, you know, and the way that we live.

I: Ok. I've often wondered, I don't know, is it, does this better come better from like community groups than from some other agency or something, I don't know cos if, they're here they live with you, does it make a difference, I don't know?

HM: Yeah, I think, I think er, I think that is, er, it puts them in quite a neutral light if you like, if somebody like British Gas were doing it, people would

I: [laughs]

HM: Instantly think,
I: Why [suspicious tone]
HM: Why, exactly yeah, you, you'd think there's got to be some financial gain there for them, whereas members of the community are, people who you could probably trust a bit more if you like, you know, they, they live in the neigHMourhood, they generally will advise you on things which are probably good for you, otherwise you could go and knock their door a week later and say, hold on you told me that . .
I: [laughs] it's so true isn't it, you can't just say something and then just walk away, cos it'll come back on you!
HM: yeah! That's right, you've gotta be conscious of that, so yeah.
I: So, um, what, what role or responsibilities do you think that you personally might have in, well in the same area?
HM: Well like I said I mean, you know, the, the panels themselves are quite a big you know, kind of like advert if you like, you know, for people people generally ask and stuff, and then you know, they wanna know, about SusMo and what they do and you know the project itself and you know, I mean, I, I try and attend you know the meetings with SusMo and stuff, and you know I have a general idea of what you know, they've done and stuff, you know and educate people about the, the wonderful work they've done with the church, the school, the mosque, um, you know it's not just the households and stuff, so yeah.
I: Ok. Um, last question, um, what do you think should happen next?
HM: .. That's the million dollar question! [laughs] What should happen next. Well I I think really, there's still a long way to go you know with changing people's behaviours, you know, people still need to understand the real reason why we need to um, you know, use less energy or be smarter with the way we use energy, er, you know, we, we just take you know, this community here, we've still got, including myself, me I'm top of the list, we've still got a lot of educating to do, we've still got a lot to learn from you know, how, how we are affecting the environment that we live in, um, maybe you know all of us are still using um, little energy for the wrong reasons.
I: Ok. Do you think, I don't know, do you think it would help if, like from central government or anything, like, other initiatives, or interventions should happen, or do you think it's better coming from you know, like small communities, like your neigHMours?
HM: They definitely, definitely does need to be a bigger involvement, but you know, maybe, maybe er, more funding to local community projects,
I: Ok, yes there's a way that they should do it,
HM: Way they should do it because, you know, government, governments can, can provide the support and the resource and stuff to local community projects to educate people, er, but at the same time the government probably needs to um, you know, I don't know which way, but a bit more to kind of educate people, I definitely think there's more that they can do to help, but, you know generally, people will only listen to people they trust, if you like.
I: Yeah. And who'd trust a politician!
HM: Yeah [laughs]
I: Ok, I'll stop it there.

Organisers

Interview with EB on the 16th August 2011

Interviewer: Today is the 16th of August and I'm here with EB, E is it ok if I record this?
EB: Yes, it's fine.
Interviewer: Lovely thank you. Alright then, um, would you mind, if you could please describe your project very briefly, and I mean the green streets project, but also maybe a little bit of background about SusMo coming into being and anything else you might be working on.
EB: Um, Green streets was a project that SusMo won, I think it's um, worth probably going back just to the beginning of SusMo, which was through Moseley Forum, which is a neighbourhood forum, which is a um group which everybody belongs to who lives in the neighbourhood [unrelated discussion about recording ease], um, the Moseley Forum is a community group with on, with membership of everybody who lives here, and Moseley Forum is the group which ah helps to bring forward and support the concerns of the neighbourhood amongst other things. And one of the er, matters that was of concern to the neighbourhood is, back in 2007 was um, climate change and global warming, and we had a public meeting called Save Money and Save the Planet, and susmo grew from that, and we applied, we, er, for various awards and green streets was the first one that we, er achieved, and we really took off from then. Before then we were rather a talking shop, um, but then we had some money and we started doing things. So that's, that's where we came from.
Interviewer: Ok. And so doing things, um, could you tell me just about what actually green streets entailed, what you did there.
EB: Green streets um, provided £140,000 worth of goods and services from British Gas to improve the sustainability in terms of carbon emissions of four community buildings and we, we aimed at 20 houses but in the end we um, ended up with 17 were, w, were actually improved. Um, the, the community buildings, um, for the project we had to have one community building, um, but we decided to use four, the,
Interviewer: Can I ask why?
EB: Because partly we couldn't, no, we had public meetings and um, there seemed to be four very good cases and we thought they would be more significant in behavioural change because they would be more noticeable, and affect more people than the households. We understood the need for improving households, but we felt that involving the community was, would be more effective through community buildings, and the fact that we chose um, the parish church, and one of the mosques in the area, um meant that this was definitely the case, that we were getting communities working together who had not worked together in the past. The third community building was the primary school and because when we started off in 2007 we were very impressed by Ashton Hayes, the village which was going carbon neutral, and the whole project there really was led through the primary school. Um, unfortunately our relationship with the primary school here in Moseley hasn't worked in the same way at all, which we're a bit sad about, we're still working on that. Um, and the fourth community building is the pavilion at the allotments in Moor Green, um, which is a council owned building and the allotments have a very diverse community, and on those four community buildings we have put photovoltaic panels. The ones on the allotments haven't yet gone up but they've now got planning permission so they should go up soon.
Interviewer: Oh exciting! Um, it's interesting you, you actually just used the words behaviour change, just, so I mean would you say for you that, I'm not putting words in your mouth I'm trying to think about what you've told me before, behaviour change for you is like key to this project.
EB: Yes, climate change isn't going to happen unless people's behaviour changes.
Interviewer: [laughs]

EB: Well, no it's quite, to me a very obvious thing. It isn't going to happen because of what the government says and what the local authorities say and do, it's going to happen because people are motivated for it to happen, they realise the, the importance of it.

Interviewer: Wow.

EB: So.

Interviewer: That's interesting. So you don't really see as a strong role for the state, and state institutions as you do for,

EB: That's supportive, but unless the population believe in it, and, you know, stop driving cars round for short distances, and stop buying everything encased in plastic, and so on, um, it's not going, it's not going to, to happen. But it's obviously where the state has a part to play is to help fund things. Now the, should I go on to the, the group, the difference between us and a local authority-led group is that we are all volunteers, um, and although the green streets project provided us with um, er, objects and you know, improvements to the houses and so on, we had no money at all for, er, for the group support, so all of us have paid out of our own pockets for our phonecalls, printing costs and all of those sort of things. And, that is actually hard on a group. Um, I'm retired, and things were very different for me, but most of the group um, you know, are, are needing to save their money for their futures and so on, and not spend it all on community, but they've been amazing in the way people, it's been amazing the way people have spent their time and their um, and their personal resources, but that isn't sustainable.

Interviewer: We will come back to that, if that's alright, um, but would you describe your project to be successful, and sort of in what way?

EB: Well, it was successful in that we have achieved these, the, installations on the four community buildings, we've been less successful actually with the householders, and, to me it, that is interesting. Our main aim as a group was to help people who are in fuel poverty, to definitely um, stress that the people in need were the people who should get the insulation and, things like that. We decided therefore to go to three different groups to find the householders. Um, we went to the housing association, Moseley and District Churches Housing Association, um for them to find ten of the houses.

Interviewer: Ten? Ok.

EB: Ten, yeah, yes half the houses were, came, were um provided by Moseley and District, then five from the mosque and five from the church. Um, the church actually had very great difficulty in finding anybody. Um, certainly they found nobody in fuel poverty, um, they because they, their group, their congregation is mostly middle class and mostly aware of grants that are available, the elderly certainly about, about grant help, and they just weren't interested. Um, they did provide three, erm, three families, but as I say, not in fuel poverty, but we felt that, it was important because it, it, um, gave us the experience of doing improvements on different, um different household types and so on.

Interviewer: Ok.

EB: Em, the [phone rings, conversation stops a while] um, so yes so the mosque have huge numbers of people in, in fuel poverty, and they suggested therefore seven families,

Interviewer: Ah, ok.

EB: But two of them actually in the end dropped out, one of them, er was a West Indian family, so they weren't only er, they have an interest in the community, and, you know, they knew that there was this family, that, would benefit from it, so they didn't just um, propose their members.

Interviewer: Cool.

EB: But the, what was really interesting was that really both, people suggested by the mosque who were in fuel poverty, and all the tenants from Moseley and District, they obviously, they have expectations of the state. They have expectations of assistance. Um, so in a way we weren't something, we weren't providing that much for them, because they would have got it from the housing association, they felt they would have got it from the state anyhow, and being people, now this is, you know, please, I be careful how you [laughs] how you write this up, but they, [sigh], they were less, less

aware, many of them, not all of them, but many of them were less aware and certainly most of them didn't want to become champions in their own, you know, about behavioural change.

Interviewer: So, is that what you mean when you say that with householders the project was slightly less successful.

EB: Yes because we, what we expected was that people who had been helped would be champions for their friends and neighbours. Um, to say to, to say to them you know you really ought to have this done, you really ought to have insulation done, you really need to have draft proofing done and so on. Oh, and also there was a, because the green streets project was very um, targeted in things that they deal with themselves, there were a lot of the houses felt that they really, a lot of their problems were due to single glazing, and to drafts and to bad floor insulation, old houses with cellars, a lot of the heat loss is down to the cellar, and the green streets project didn't deal with any of those things. So there again it was a bit, well you're not offering me what we really need.

Interviewer: Yeah.

EB: So that was, so that was part of the, the project's fault.

Interviewer: Ok. Um

EB: Oh and, al, also showers instead of baths and so on, so that, that, that's another thing where a big saving could be made, and this project didn't, didn't cope with that.

Interviewer: Fair enough. Um, sorry I know you've kind of touched on it briefly but um, sort of how did you get people involved, what worked and what didn't, kind of thing, so you went to these sort of key partners, Moseley and District, the mosque and the church, and left it to them, or was there a . .

EB: No, we used their um communications to get to people, the church has a, has a newssheet each week um, the mosque um has a you know, a huge er, worshipping congregation, um, it, we could talk to, and the er, the allotments having their allotment holders, and they have open days and when, um, where SusMo went along and er, and er, talked to people. The housing association um which wasn't one that, which was a sort of partner because we were dealing with their tenants um, er we they have newsletters that we, we had er, res, they have residents days and we went along to those, and also we had meetings at the allotments and the church in the mosque and at Moseley and District, er, so that we, we became known faces and, and er, and also through simple press publicity.

Interviewer: Oh ok.

EB: We did achieve quite a fair amount of press publicity, particularly because the planning committee in the first place turned down the um, the installation on the church.

Interviewer: Yeah.

EB: And we had huge public involvement to overturn that.

Interviewer: Yeah. So did any of those methods work better than others? I mean, you know, was, for example was a face to face conversation at an open day better than say a newssheet?

EB: I think so, I think face to face is always better, oh and the other face to face bit I haven't mentioned, Moseley Forum started a farmer's market many years ago, which is now an independent group, but we had er, a presence always at the farmers market, which is once a month on a Saturday, and that we, we, talked to people and signed them up for things, and and er, but but that, in some ways is, was has been the most effective, talking to people at farmer's market was, was very good. But, you know, talking to people in the community, by, with through these other methods, has also, you know, been useful.

Interviewer: Ok. Um so, for green streets specifically then, did you get more or less people than you expected, so why did you think it was that people were dropping out or it was difficult for you to get the numbers that originally expected?

EB: On the households, it was because there was less money available for the households

Interviewer: Oh?

EB: Than there would have been, obviously if we hadn't done four community buildings. So the um, and and, the housing association properties were all insulated already, um,

so there wasn't anything to do with insulation, and in fact, the housing association wasn't terribly well organised, because one household that we had organised a boiler, a new boiler for, they um, put it in, before we got there, which was just daft, but it was lack of communication. Lack of communication in organisations has been a real problem. Um, British, lack of communication within British Gas being [laughs] being, very serious in itself. But involving people, um, we had hoped also, through having these four community buildings and also Moseley and District and also the Moseley Community Development Trust, which has been another um, er, body involved in the project, we had ho- assumed, hoped, well yes, we had assumed that things like our monthly stall at the Farmer's Market, you know, all these people would help us on those days, and in fact, that has not been the case. Um, they are too involved, well sorry, they are obviously involved in their own organisations and they didn't have the spare capacity to help us with our organisation, which we feel, still a bit sad about, because after all we have benefitted them.

Interviewer: Yeah

EB: And that isn't, quite really er, no but that hasn't had the, the extra, hasn't resulted in the extra input in in, the SusMo organisation that we had hoped for. Apart from free meeting rooms. That, that's the only thing.

Interviewer: Going back to what you were saying about break-down in communication, I wonder if you know, that difficulty with the project might have turned anybody off, I mean I was speaking to Sarah Napier some time ago and one of the people I interviewed in my earlier interviews, the way Sarah was telling it, I think, you know, almost dropped out because everything was taking so long.

EB: That, that um, has been a real problem. Um, and I don't know how much of it is due to, I, I'm sure some of it is due to SusMo, but, I'd be interested, was that person a tenant? Yes, so, and as, you know, tenants do have different expectations from, from the rest of the world

Interviewer: Yes

EB: And er, there was a really, but from the British Gas point of view there was a really horrific mess up about the installation of solar thermal panels on, on one house because, British Gas just couldn't get it together, um, they visited, they came with um, er, people and kit from Cardiff? Somewhere? I mean they didn't use local, local people and and and, I think it was, it took four visits before they actually had the right, the right kit and the right people in the right place, which was incredibly disruptive to this particular family, and really unacceptably, and you know British Gas was embarrassed, and sent them flowers and things, they're an Asian family and that really isn't part of their culture, and so you know that, that has been a problem. And it, our British Gas team leader, project manager, yes project manager, um, was in a terrible situation because he, he was not given the information, and he didn't have any direct control. He had responsibility but he had little control. And that is useless in an organisation.

Interviewer: Alright. Um, going on to behaviour change, do you think that um, the project and, yeah, I, I kind of want to focus on green streets the project, do you think it will encourage people to think more about conserving energy and why?

EB: I'm very sure that this is the case. Um, a really good um, very tangible result of this was from the allotment pavilion.

Interviewer: Oh really?

EB: Um, where the allotment, because they had to record their um meter readings every month, er all, all the householders and all the community buildings had to do that, um from early on

Interviewer: Yeah,

EB: In theory we wanted the, well British Gas wanted their readings from the previous year as well, so then er, and then to see how things were changing. And the allotments found greatly to their surprise that their electricity bill was higher in the summer than in the winter, with the heating! And they were very puzzled by this, until they realised that it was all down to their cold drinks cabinet.

Interviewer: Ah
EB: Because they have a bar in their pavilion
Interviewer: yes,
EB: And their bar is open only at the weekends, and, but the all the drinks were kept cool er, twenty four seven.
Interviewer: Oh goodness!
EB: And so as soon as they spotted this, because of course drinks don't deteriorate in the cold it's just that people like to drink them cold,
Interviewer: Yes
EB: So they switched, they started switching off their drinks cabinet and only putting it on at weekends and it immediately reversed their um, their heating bills. So taking your readings makes you aware of what you're doing, of of what you are er spending money on, and if you're, if you're actually going away for a weekend or something, if you come back and and and you find that your, your readings were still too high, it's because you left things on. And you begin to be aware of it, aware of things more. Um, with the householders, and um, generally in Moseley we have encouraged people to join a um, a site, a website called iMeasure,
Interviewer: Yep.
EB: Which people are recording their meter readings weekly, and um, I'm doing it myself, and er, I, I I do find it very interesting, er, to see as more people join the group, how, how things are changing, how our position relative to other people's is changing. Now I'll just mention one, the person who has joined recently who has by far the lowest um, score on iMeasure
Interviewer: Mmm
EB: I just cannot understand how he, how he manages to get such a low score, and he's coming round this evening,
Interviewer: [laughs]
EB: And so I'm going to ask him [laughs], so I will put something on the blog, if it's something that other people could replicate. Um, so, yes. It it, that is a general awareness raising thing, and it's bound to have an effect.
Interviewer: I mean have you noticed much of an effect so far, as far as I understand from the meetings people signing onto iMeasure has been quite, quite low really, it's been a struggle getting people to sign up?
EB: It has yes, but um, one of the ways in which we, we're encouraging people to sign up, this chap who's coming round tonight, um, er, he he, I think he, no he found us on the website, he didn't, he didn't come to see us at the farmer's market but from people coming to see us at the farmer's market, and we told them that they can have panels to put behind their radiators and energy monitors and so on, er if they get involved, and they should join up iMeasure at the same time. Um, that, it it, it's slow. Anything to do with community involvement is slow. But it, I, it's, it is, we are increasing our involvement all the time, so I'm not worried that it's all been a useless waste of time.
Interviewer: No absolutely, I think as well, I mean it's behaviour change isn't it, these things, it takes a while for behaviour to change, if you had a habit your entire life you're not going to change it overnight, so um, yeah I think, just as I'm hoping to interview beneficiaries again next year, I'll be interviewing organisers again next year to sort of see, you know
EB: What has happened during the year, yes, yeah.
Interviewer: Yes, so, my next question is do you have any evidence or idea that people are using less energy as a result of this project, I suppose iMeasure is a part of the answer to that?
EB: Yes, and also the, the allotments, is proof of that, um, I confess that I haven't been the, the um community building was sending in their results to British Gas, they were sent in to, and I haven't personally been keeping track of that. Sarah Napier who was involved in that collection more may have a bit of an idea, but yes that's something that we ought to track.
Interviewer: [laughs]
EB: Um, I, I'm writing a note about that, because that's obviously important.

Interviewer: Yeah.
EB: That, that we do that.
Interviewer: It would be interesting for me to know as well
EB: Yes, anything we find out like that it's it's, good public knowledge.
Interviewer: So how do you think that people react or to, or feel about energy technologies?
EB: By energy technologies do you mean renewable energy technologies?
Interviewer: Um, not just that, I mean renewable energy technologies yes like the solar thermal and the solar pv, but also things like smart meters, and new boilers, insulation, if that counts as a technology, how do you think people feel about those?
EB: I think they generally welcome them because they realise that they reduce their fuel bills, so, I think, yes, I think that everybody now realises now that it's important to have your roof insulated, and it's so easy to spot it in the winter when, you know when some of the roofs keep their snow and others don't
Interviewer: [at the same time] other's don't. I did point that out to my sister last winter, see how our roof is insulated but we know that next door isn't a) because when we insulated our roof we could see into theirs because there was a hole
EB: Yeah
Interviewer: And they didn't have any insulation, see, and, and they've got no snow, and we have got snow, and my sister said to me 'you've got snow beck, because you never turn your heating on, so that's why' [laughs]
EB: Oh [laughs] yes, it's interesting, over the road, there's one half of the house, SR's house keeps its snow, and – his brother next door loses his, but – says it's because it, you know because they use their top room, whilst S's top room is, is not used. So
Interviewer: [laughs]
EB: So there are different, yes, and and also, yeah, yeah there are the fuel poor and you can't, you shouldn't try to make your house too cold. That will be interesting when I talk to Richard this evening, um, how cold he keeps his house.
Interviewer: Um, and I've been asking people you know, how warm do you keep your house, and I've been getting the general idea that most people I've spoken to will go as far as putting jumpers on in the winter as opposed to
EB: Oh we do, definitely,
Interviewer: yeah, but um, but yes, it's all relative isn't it, it would be interesting to go back in the winter and actually see how warm it is.
EB: Yes
Interviewer: But there you are! So talking a bit now about your community, how would you describe the community that you're working in? So, Moseley.
EB: Obviously very diverse, we, both racially and also financially, um, when when, and through this project we have actually engaged with people right across the board.
Interviewer: Yeah
EB: Which is impressive,
Interviewer: yes.
EB: It's a very, although it's so diverse, it is a very cohesive community, um, and when, wasn't it back in the eighties with the race riots in Birmingham,
Interviewer: Yeah
EB: They were all in the north of Birmingham. There were um, and the racial mix here in the south is pretty well the same. But there were no, there were no race riots. And the fact that the mosque, um you know put forward a west indian family and so on, um, and the fact that you know we have meetings at the mosque, that that people come, the, the, muslims in the, who are the largest um, after at the moment they're the second, they're the second largest community, although the view is on the school rolls they're going to overtake us, isn't there, in so many years, but they are the second, the muslims are the second largest community. Um, the, the, they are very involved in things, and so they aren't feared by us.
Interviewer: yeah
EB: Well presumably they are by some people but it's not general.

Interviewer: It's not a problem so much in Moseley.
EB: No.
Interviewer: Ok. So um, what challenges have you had in running the green streets project in, in Moseley, if there have been any?
EB: Lack of resources.
Interviewer: [laughs]
EB: Burnout, burnout from, burnout for the people who were organising it,
Interviewer: But in terms of challenges with, insofar as working within a community like this?
EB: No challenges, everybody has been supportive.
Interviewer: Ok.
EB: Um, yes, and ok, I talk about lack of resources, the housing association has in fact been helpful um, within their, their um, their remit, in in, helping us with some photocopying and some printing and that sort of thing, um, and the community development trust, which themselves have real financial problems, they still let us meet there for nothing, and we have, we haven't mentioned our link with the project at the community development trust that sarah Napier's involved in, the Home Energy Project,
Interviewer: Yeah,
EB: WE'd hoped, actually to be more involved in that, than we were in the end, um, the, the home energy project is trying to do really for the whole of Moseley in some ways, what green streets did for, you know was able to do for twenty homes. Um and we are working together with them, and Sarah Napier who is involved in SusMo has also been doing some work for them. Um, and so, the the, the, yes, I wouldn't say that there was anybody that we met who was not supportive of the project, even though they weren't able to put their own time
Interviewer: Yeah
EB: Financial resources into it.
Interviewer: But for an example, sorry I'm being difficult,
EB: No, please do.
Interviewer: Um, so you had some difficulty in getting people from the church I don't know if, ok so Moseley's a very diverse and mixed community but it might be fair to say that people who attend the church are a higher proportion of middle class people who might not, who might not be as open to behaviour change projects because it's not such an issue for them, because they can afford their
EB: Can afford it
Interviewer: Yeah.
EB: But but, but also the challenge of not getting proper involvement with the school. That that, was sad, um,
Interviewer: I wonder why.
EB: Well,
Interviewer: You would have thought in a community like this they would have been head over heels for it.
EB: The, I think there have been issues with, between their governing body and their teaching staff.
Interviewer: Really?
EB: I, I don't know, but, the, but the reason why we went with that school, because there are lots of other schools in Moseley we could have gone with, was that um, one, the the chair of the governors at the time was very interested and he was somebody that I had met after the tornado, with the tornado relief project.
Interviewer: Yeah.
EB: And he was involved in that, and there are obvious links between tornadoes and climate change, [laughs] and he was very involved, and he wanted to get the school involved, um, but he left the project, sorry, he yes, well he left the project because he resigned as Chair of the Governors, and we never, I think there were some personal issues but I don't know what was behind it, the person who then took over was somebody, er, a young man who um, wasn't on the governing body but he was a parent who was

interested in green issues, but he just didn't have the time to spend, um, he had a young family as well and couldn't have, evening meetings and things, aren't good, but the, and also the head didn't want to involve the school until the panels were there and she could actually talk about panels with the pupils. She had this view that she didn't want to talk about something with the pupils until it actually happened. She was not confident that it would actually happen.

Interviewer: Oh

EB: I think there was that. And they've got a green group at the school, they have got, they're organising, they're involved in something called forest schools which is all to do with sustainable living and so on, um, but so far, but we are still hoping, we are still trying

Interviewer: Yeah,

EB: um, now they've got the panels up they've got absolutely no excuse to, oh and and, and also on the meeting room we had assumed that we would sort of meet at the school, but um, you know caretaker issues with that, you know they weren't, because we have evening meetings.

Interviewer: Yes. Um, I don't know if, you've mentioned this already, how have you tried to get the wider community involved or engaged in this project, I mean I suppose you mentioned already the community buildings, you see that as a big opportunity for widespread behaviour change, would that be fair to say?

EB: Yes um, and well it, through Moseley forum we, we have um, well the original public meeting, um, and I think we've had at least one more public meeting, and and and we give reports and our annual general meeting which open to the community

Interivewer: Yeah

EB: And get, get large numbers of people, and yes, I haven't mentioned use of the internet, we have a very large um, email group that we give updates to, and er, through the press, through press releases, um, and we have had as far as the, the um green streets groups, we had far more press involvement and press coverage than any other group.

Interviewer: Mmm. And your aim for that was really to get people who didn't know about it, to know about it.

EB: To make people aware and to think about, think about the issues.

Interviewer: So I mean, do you feel there is a role for the community, sort of as an entity in this kind of project, and what kind of role is that? Rather than just individuals who are benefitting.

EB: Oh yes, no, the, the community who are obviously the electorate

Interviewer: [laughs]

EB: Need to make it very clear to the politicians, both local politicians and national politicians um, that their vote depends on people, on on, the politicians um, taking all of this very seriously. It has been really really, um, disappointing in Birmingham, who have all sorts of um, policies on paper, um, that they have not, you know the turning down the er, application on the church,

Interviewer: Yeah.

EB: I've really wept for Sandy Taylor you know the, head of of, climate change that, you know, the, the understanding of council policies just doesn't go through.

Interviewer: Yeah

EB: The different organisation, the different parts of the organisation. And er, the chair of the planning committee commented that, oh I'm hopeless on remembering his words, .. I'll try and find them cos I must have them written down, the the, you know his reaction when the appeal was in favour

Interviewer: Mmm

EB: Of the thing, was was that this was going to be disastrous, because far too many churches would then want to have,

Interviewer: Is this the 'opening the floodgates' comment?

EB: That's right! Thank you, yes, that would open the floodgates, well done. Um which is exactly what we need! [laughs]

Interviewer: Yes! [laughs]
EB: Yes, s-s-so, and that a chair of the planning committee, could have that attitude, I think is horrifying.
Interviewer: Yes, yes.
EB: And now they're up, and nobody notices them, er, I really would like to get along to the church, the er, people who said it would be bright blue and disastrous and so on and so forth, just to get them to look at it,
Interviewer: yeah
EB: Even on a bright sunny day, when the sky is bright blue, the panels aren't bright blue. They might be bright blue if you're in a hot air balloon above, straight above, and you have the direct reflection, but from the ground you, nobody notices.
Interviewer: No no, and because they go the entire length of the nave, there isn't, it doesn't kind of look unnatural, it sort of flows.
EB: T-t-to me, the um, the, below the nave roof, the aisle roof, I think they're called aisles, has a band of lead, lead flashing.
Interviewer: Ok.
EB: And that is more prominent
Interviewer: [laughs]
EB: Than the er, the solar panels.
Interviewer: It's ridiculous, especially when you consider how much that churches have changed you know, one church building, or any historical building that's been there for a long time, it will have different wings from different periods, additions,
EB: Ah! And what the Victorians did to the church, to the medieval church, you know,
Interviewer: Well, yes!
EB: That the Victorian Society could slate it. I must get some you know, Jo – is in the Victorian Society to have a look with me one day.
Interviewer: [laughs] note to self!
EB: [laughs] another note, yes!
Interviewer: Um, so just, this is sort of a question on its own, um what other initiatives around energy and fuel poverty and that sort of thing do you know of that are happening in Moseley, you mentioned the fuel, the home energy project, is there anything else that has happened?
EB: Well the major thing is the er, getting going the er, .. core, which stands for Community Renewable Energy, project, which is now called CoRE 50 because it's not just Moseley, it's the, our um, neighbouring communities along the 50 bus route, being Balsall Heath, who have Balsall Heath is our planet, um, that we liaise with, um, King's Heath, who have the Kings Heath Transition Initiative, and the three, the three organisations are working together to form a community energy company, so that will enable both community and um, and householders
Interviewer: Ok,
EB: to er, get involved, install community energy, [laughs] install renewable energy!
Interviewer: Yeah. Is there anything else that's sort of happened prior, sort of, throughout SusMo's life have you done anything, or any sort of, I don't know local authority initiatives that you might know of.
EB: The, yes, the other is a, Birmingham Energy Savers,
Interviewer: Oh yeah, which is still up and coming
EB: Yes, and we as a group hope to play a part in um, in Birmingham Energy Serv- Savers to .. um direct er, the city towards the different householders that would be interested in that, and obv, obviously that the two groups, the um, community energy company and Birmingham Energy Savers will be I hope complimentary, that we won't be competitive, but but we need to be working together with um, to er, to get renewable energy into Moseley.
Interviewer: [break for loo] Carrying on! Em, so um, have you tried to engage any particular individuals in this project, to sort of facilitate it, make it easier, get more people on board, or to help with anything?

EB: Well, individuals through the community organisations, um, and, … yes, … I'm, I'm thinking of people that, there were two people in particular that I tried to engage, I thought because they'd have a slight sense of duty because of the school, one of them was the um, person who led on the Save Moseley Village campaign, has a child at the school, and the other was JC's wife, and they've got a child at the school, JC being the architect of the zero carbon house in Balsall heath.

Interviewer: Ok,

EB: And they've got, their, their son goes to the school, and I hadn't, that was a total failure, and um, really disappointing because they're both sort of active people, but the problem is that active useful people um, are already so active and engaged,

Interviewer: They don't have time

EB: and things, and they don't have time, and as I said we had hoped that more would be forthcoming from the representatives [sneeze]

Interviewer: Bless you

EB: Thank you, from the community organisations themselves.

Interviewer: Ok.

EB: And they've, three of them, have, have been good at coming to meetings, um, but not actually doing a lot between meetings.

Interviewer: Ok. Alright then, um, I think that sort of,

EB: A-a-and then, sorry, and then the householders, the, two of, two of the householders from the church did once come and help at the farmer's market,

Interviewer: Oh right, ok

EB: But they, they hadn't, they really haven't got properly involved.

Interviewer: Alright. Just, just to sort of mention the people who were in charge of the community organisations, so JD, SR and RH, did, did you end up speaking to them because they were the official representative to go to, or because,

EB: You mean right back at the beginning?

Interviewer: Yes.

EB: Um, yes, I mean SR is a neighbour of mine, and so I know him well, and he, and he has a role in the, in the mosque to do with relationship with the community, so he was the obvious person.

Interviewer: Yes

EB: JD was the church warden, um and the, I should mention it's really important that the, they had already been um in the process of applying for planning permission for photovoltaic um array on the church

Interviewer: Yeah

EB: That pre-dated susmo, and the fact that they went, they had already, you know got an architect draw, drawn up the plans and put in the application and so on, um, I think that was, that also helped us win the project because it showed that we were on the path and therefore it would be more achievable within the twelve month, the official twelve month period, of the green streets project.

Interviewer: Ok

EB: So he was obviously the person, and and R, one, one of our SusMo members is an allotment holder and R was the, I think he's the treasurer, so

Interviewer: So they all had some official

EB: They all had a role

Interviewer: capacity?

EB: Er, er yes, and and with the school it was the chair of the governors as I mentioned before.

Interviewer: Ok

EB: Who er, I knew through a previous community campaign.

Interviewer: They would have all had either some authority or some power almost

EB: Yes

Interviewer: To, to actually do something.

EB: Yes

Interviewer: And if you'd known somebody who wasn't in an official capacity you probably would have got shunted along onto the one with the official capacity.
EB: Probably, yes.
Interviewer: Ok. Um, so, onto you E! What role have you personally played in getting people to become part of this project, or, or um and or help residents use energy more sustainably? So community engagement and behaviour change.
EB: The, … From I'm trying to think what my official role was, um, I, I've, yes, I mean I've really been the driving force behind SusMo, em, I was chair for a while um, but I got feedback from people at meetings that I was too um, .. was domineering the word, I'm not quite sure what the word was, but I was too harsh with people, that um, that er, yes I, I, because I felt um so over, yes, it was the pressure thing.
Interviewer: Mmm.
EB: Since I felt personally so over-pressured by the amount of work that was needed to be done, and I was always trying to get people to sign up to do things, um
Interviewer: In SusMo generally or in the green streets project?
EB: No this was in SusMo generally.
Interviewer: Ok.
EB: Oh yes, oh oh sorry, th-th-this was definitely, this was SusMo, um, and so I stood back a bit, but my role has been you know, really, to make sure that things still happened. I became the co-ordinator for SusMo, just to make sure, a-and, I'm, have enough self-esteem to think that, really, if it hadn't been for me the whole thing would have collapsed. It needed me being a bully in the background.
Interviewer: [laughs]
EB: It needed me sending round you know, emails to all of Moseley and keeping, to keep the thing alive. Um, yes, i-I, I'm really pleased that we've now got to a stage when Moseley, SusMo is, is, now capable, you know, will continue, until we won the green streets project, that wasn't the case. Before the green streets project I was the um, team leader, so it was my responsibility to er, to keep all that going and to keep the communication going, with British Gas,
Interviewer: But what they do with it afterwards is a different matter. [laughs]
EB: Yes. That's a very different matter.
Interviewer: Yeah. Um, and did you, so that was actually managing the project, and within that role of managing, or team leading the green streets project, em, did you um, go and speak to any householders and –
EB: Oh a lot. Oh yes, yes. I, I visited a lot of the householders and I'm still regularly spoken to in the street by people and I always find it very tricky um, partly because I'm not, I'm not very good at recognising people, particularly, there is the added issue of muslim women when they're out of the home, you can only see their eyes [laughs] at least – not all of them actually even recognise that it's difficult for me, a-and they're quite surprised when I ask them to remind me who they are
Interviewer: [laughs]
EB: And er, but, they, yes, I-I I have got to know a lot of people in the community, I've lost track of the question, what was the . .?
Interviewer: Um, so, by getting to know people, you've managed to draw them into the project?
EB: Yeah, oh yes. Yes, and um, and into other things too, I mean one of, one of the Moseley and District tenants um, stopped me in the street the other day and wanted to know about fire, smoke alarms, yes, s-s-s-so you know, I'm thought of as somebody in the neighbourhood who knows about things.
Interviewer: [laughs] yeah!
EB: So, but yes, I, I have a good rapport with a lot of people in the community. And when the, I'm walking up the road and the people are coming back from prayers in the mosque, there's so many of them say hello to me.
Interviewer: That's nice.
EB: I do feel sort of, part of the community, which is really good.
Interviewer: Yeah. That is lovely. So, do you think, I have to ask the same questions of everyone,

EB: Yes of course,
Interviewer: But do you think your role was effective, why or why not? Yes, you've already partly answered this because
EB: I, I think it was effective because we've actually achieved what we were about. Ok, not to as high an extent as we hoped for, but we haven't ended,
Interviewer: Exactly,
EB: And with the um, families who had significant input from green streets, be it um, solar thermal or just one house with pv, or with new boilers, we will be back to them, we will be knocking on their door and continue to ask for their help, in promoting um, the, the um benefits that they have experienced with us, and certainly once the um, community buildings start receiving their feed in tariff, we hope that they will very definitely understand their um, er, debt to us, and with the community buildings will be contributing something towards our community energy company, and so that, th-that will be um an ongoing link with these groups.
Interviewer: Mmm. Do you know what will happen with the allotment um, PV panel, because I'm assuming the council own that roof, so
EB: Oh, yeah the council own the school roof too,
Interviewer: Well yeah, we mentioned this as the last meeting, will they therefore get the feed in tariff or will the actual school or the actual allotment organisation get the feed in tariff? Don't know if you know?
EB: The, the allotments certainly will, um, quite how things will work at the school I don't know, and this is the problem that we can't get you know, we can't get to speak to anybody, um, and um, I will be, I've got the home address of the chair of the governors, so I dropped a letter through her, her letterbox
Interviewer: Yes, you put that in the dropbox didn't you?
EB: Yes, and I've had no reply to it, I think I will, the next thing is to find out their phone number through er, directory enquiries.
Interviewer: [laughs]
EB: And start, start a regular phone call. But yes, the, .. quite how that work, will work I don't know.
Interviewer: Ok. Er, moving on, do you think that people are talking together about this project? What makes you think so if they are, or if they aren't?
EB: .. Ok, a lot of people have no awareness at all, and I'm sure there are people that don't know, but the um splash that the problems with the church um, caused means that the chattering classes at least are aware of the project, and, and we need to um, keep going with that, yes I, I really think that, I, what I'm going to try and do is get an interview with Joe Holyoak um, for the Birmingham 13,
Interviewer: Ok
EB: Moseley Birmingham 13 magazine, and er, so, so that, that's another channel that we've used, the, o-our local newspaper
Interviewer: Oh yeah.
EB: And um, we just need to keep this in the minds of people, a-a-and I think that we have, and through the, through the um, er farmer's market and so on,
Interviewer: Ok
EB: I think there is certainly a general awareness in the chattering classes and, I think with Moseley and District tenants.
Interviewer: Do you think that these, the chattering classes that are talking about it, and the tenants, I mean are they talking to their neighbours, or to their friends or their family?
EB: I suppose one can't,
Interviewer: Can't really say
EB: say without doing some sort of research into, into that.
Interviewer: Ok. Fair enough.
EB: O-o-oh and the mosque as well. Th-th-there's, there is a,
Interviewer: yeah, I'm speaking to Saifer on Wednesday, hopefully he'll have a lot to say about that.

EB: Yeah, and it would be interesting to find out whether he has yet managed to get a proper link with the chap who's name suddenly escapes me, from Kingswood road, um, who has a PV panel

Interviewer: Oh, Habad!

EB: Habad, yes, [unrelated conversation]

Interviewer: Moving on, um, so I'm going to ask you to think about susmo's project as a community led project, so when I'm asking you questions, think about, sort of in comparison to say a local authority or an agency led project, kind of thing.

EB: Yes, yeah.

Interviewer: So what do you think that your role is as a community group in trying to encourage people to behave more sustainably with their energy?

EB: I, what our role is, I mean, our aim is identical to those groups that are top down, um, but our, our role is to make sure that we achieve our aims, but simply through, from the grass roots, from, yes, it- it's a community led initiative, um, .. a lot of initiatives started as initiatives started as community led,

Interviewer: Mmm

EB: Oh no I wonder well, sorry, I-I-I'm just grasshoppering, grass-hopper minding a bit in that, you know we feel that the balsall heath initiatives are because they've had government funding from the top,

Interviewer: Yup.

EB: The-the need was there, but it wasn't a grass-roots initiative. Um, but once they are there, they can, because they have more resources, get the community involved. We don't have those resources, but it show, we hope that it means that our community realise that we are totally community led, we are there because the, the concerns were voiced in the community, um, but we have to do what we do simply through word of mouth and using personal resources, and so on.

Interviewer: Do you think that's more effective, or less effective, um, a way of getting things done than say a local authority.

EB: Well, I think we're believed far more, so that people don't think that we have any um, underground, er, you know, background um, motivation for ourselves, it's quite obvious that we have no self interest in, in promoting these things. We haven't talked about local politicians at all, um I think our local politicians are very aware that we are voicing the concerns of the public and therefore that is helpful to them, to know what people are thinking, rather than what organisations are doing, because we're closer to the voters.

Interviewer: Yeah. Ok. Um, again, I think you're – th-this next question, and last question will touch on some of the things we mentioned earlier, right back at the beginning, but sort of what are the positive aspects, and the negative aspects of running a project like this as a community group?

EB: A positive thing, personally is that people on the ground can actually have effective change. That we've actually, without any of these organisations behind us, we have actually achieved a huge amount.

Interviewer: Yep.

EB: We've got these four community buildings, with um, with PV, we've got the neighbourhood, the community aware of our existence, erm, and those of us who lived through the tornado, so we had that extra motivation, that we knew, it wasn't just pictures of parched lakes and rivers in, in other parts of the world, and rising sea levels in other parts of the world, um, that er, it actually was something that hit us here um, and so there is a real, yes, we do feel that we've got the backing of the community, the support of the community, so that's really important, we know that the whole thing started off from a public meeting in Moseley, and it's grown to the fact that we won that award, and we achieved it and now we're going on to be a recognised group within Birmingham, that Birmingham Energy Savers consults with, that we are setting up our own community energy company

Interviewer: Yep

EB: With our neighbours.
Interviewer: Ok.
EB: So, so that is effective, but the downside is um, burnout,
Interviewer: Yeah.
EB: Through, for a few individuals.
Interviewer: Yeah.
EB: Which is you know, it isn't sustainable, um, i-in our current set up. I wouldn't go through with it again. Full stop.
Interviewer: No. [laughs]
EB: [laughs]
Interviewer: It is interesting, I did wonder if um, given that it's a community group and you can do things as volunteers, I might have mentioned this before in previous interviews, you know, you're not, you're not at the behest of policy, so if a policy is dropped as a change of government, then you as community members can still go on,
EB: Oh yeah
Interviewer: with, with what you want to do, and you don't change policies like you change colour of government, but, but yes, I mean, maybe people haven't been mentioning that to me, because burnout is such a, an issue with much more salience.
EB: Yes, a-and the, obviously because you're a volunteer, you can drop in and out,
Interviewer: Yeah, you're not obliged
EB: You're not obliged to do things, ok that's a problem when
Interviewer: [laughs]
EB: As a team leader [laughs] w-w-one needs to deliver things, but it does mean that um, people can come along to meetings and, and we've had a huge range of people coming to meetings, and ok, sadly they haven't all er stayed with us [unrelated interruption], but that's the yeah. One does have a freedom, it's in the same way as you have a freedom if you work for a charity, or a voluntary organisation, compared to working for the city council. Or the government where you have to do what you're told, you have, as an employee in one of those other organisations, you have much more freedom, yes, and so yes we have huge freedom, which even groups like Balsall Heath Is Our Planet um, who have some funding through different groups, you know, they don't have, they have a certain um, objectives, measurable objectives that they have to deliver on, and we don't have measurable objectives to deliver on. Because we're not funded.
Interviewer: [laughs]
EB: [laughs]
Interviewer: Well there we are! I'm going to stop that now.

Interview with SR on 8th August 2012

I: Ok today is the 8th of August, I'm here with SR, is it ok if I record this?
SR: Yes.
I: Thank you. Ok, um, so do you want to update me on um on the project since I last spoke to you, Moseley Green Streets.
SR: Um, … where do I start, well we um, solar panels up and running, both on the church and the mosque, um, and then, since the solar panels um, we have become very interested in developing other green projects in the mosque, er, instead of doing some small things we were gonna do big things now, and um, big things we are gonna do are dig up the car park um lay in the, ground source heat pumps,
I: Oh wow
SR: Yeah, and put in some water catching tanks, for collecting rainwater, er and um, because the water bill is so high they don't have no problems sort of getting that through the committee, so we're gonna be doing some big plans, so this will be next year some time.
I: Ok, yeah cos ground source I mean, to have the go ahead for the ground source heat pump, is that quite a new development?
SR: Yeah. Yeah yeah, very.
I: Ok. Well that, that's brilliant then, and how did everybody um, the residents from the mosque get on with all of their measures?
SR: The um, the help from the um, first of all we had problems you know, getting hold of people and saying, especially with the um, .. er, what do you call them now, the, the the reflective sheets that you put behind the radiators?
I: Oh, yeah yeah yeah.
SR: Like, um, I used to talk to them and they, no, nobody was interested, so you know, oh these things aren't gonna do anything, so what I did was I um, started um, started um putting them in the mosque,
I: Oh did you?
SR: Yeah, so I got a few guys with me, and we started doing them, and when they saw me putting them in, the were ask, so everybody was asking so do you do this this and that, I say I've been explaining to you for the last three four months, and nobody was interested, so I said, now, so what happened was after I put them in, because it was winter, they, they felt the, the actual heat was coming out more,
I: Oh good! They work then!
SR: Yeah, and then, the next few days the whole things just you know everybody just was knocking on doors on my door every day, I want some of that, I want some of that! You know.
I: Oh brilliant!
SR: Yeah. So the whole of the area in the mosque, cos we had, we had thousands of them, so I think it must have been about, about oh just over a hundred people who actually um, put em, put em in,
I: Wow.
SR: Yeah, and then from then on, you know I said about of them put in the actual um, meters in as well, the energy meters. So they, and then well, soon as them still put the energy meters in, they started looking at how much they were spending, and they, they they, actually started saving after that as well.
I: Oh wow so this has snowballed then?
SR: Yeah, yeah yeah, so it's like snowballed yeah.
I: Oh congratulations Saifer I'm really pleased! So um, what do you think , ok this is kind of going back to the middle of it, sorry the beginning of the project, but what do you think motivated people to sign up to be a Green Streets beneficiary in the first place?
SR: Saving money, that's the main thing. Yeah. Um, I, I haven't met anybody who's saying, you know, everybody was, everybody was saying it saves money, in in the long run. You know, even if it's a few pence, it's still saving money.

I: Look after the pennies and the pounds will keep themselves! And has that been the motivation for the um, some of the other stuff you've just mentioned with the panels and like the, the monitors being really taken up?
SR: Yes.
I: Same thing. Ok. Um, do you think that people are using less energy as a result of having um, some of these measures?
SR: Er, yes. I wouldn't say all of them, you know I wouldn't say all of them, but you know, majority of them, yeah. There are still a few who are, you know, even, even though they've had the monitors in, they don't even look at them, you know, um, first few days it was ok but then afterwards, you know, they um, er, but in the household you've got to have somebody who's got some kind of an inkling about this saving of energy, they're the ones who actually, actually start the ball rolling in the house, there's nobody in the house and you put these measures in, and if they don't look at them then they don't, they, they don't even look at it but, I would say the majority of them have started doing it.
I: Ok. ok. Um, is behaviour change important to the green streets project?
SR: Yes.
I: Why do you think so?
SR: .. well, I mean you've gotta look at it this way that if you don't behave, if you don't change our behaviour then we don't change anything, we go down the road of, until something really major happens nobody will do anything, and, and we don't wanna go down that road, you see, we've gotta do things before actually making things happen.
I: What um, what do you think really makes people change their behaviour, people generally?
SR: Well a slap in the face actually! [laughs]
I: [laughs]
SR: You know, some, something's gotta happen you know, before they actually do the change behaviour, um, you see we have um, i-i-in our community there's two types, there's the elders and there's, there's the youngsters, youngsters are very highly um, er, in they're .. modern, modern in the way that they're up to date with everything, elders are not. Ah and it's usually the elders that actually make the decisions in the house, and er, yeah. And um, but now this changing actually because um, the youngsters are like becoming middle aged now, you know, so you know most of them are becoming elders, you know, and the elders are actually are either dying off or just um, become too old to do anything, so they are actually, um, and in our community we are, they're waking up really pretty fast now. Yeah.
I: Ok. That sounds like a different story to what you were telling me last year, and the year before I think.
SR: Yeah, things are changing quickly, er pretty much now, er pretty fast now.
I: Wow.
SR: Yeah yeah.
I: How come it's just taken off like that, you just finally got through Sa-?
SR: Yeah yeah! I finally got through, plus you know, they are, um, our imam, er, there are more youngsters actually running the household now, you know. As it was before they were just come in and they eat and they go out and sit, you know, um, er, more youngsters actually spending time at home, and er, and they getting more responsibility, some of them are, and em, because a few of them, you know, what happened was when the parents died suddenly they, you know, they have to pick up really pretty fast, and then the others just looking on saying well we've gotta do this as well in a few days or few years; time so ok, they actually youngsters are picking up now, you know pretty fast.
I: Ok, that's interesting. Um, do you think that the people that have been involved in SusMo's green streets project feel as though they're part of something?
SR: Sorry? Could you repeat that again?
I: That the people that um, have been involved in the green streets project, the beneficiaries, do you think that they feel as though they're part of something?
SR: Yes, yes. The only thing is, they're very um, proud people, proud people who when you know, when you do somebody a favour, they insist on doing a favour back, you know, yeah
I: [inaudible]

SR: Yeah yeah, so you know, we're saying up the green streets I done all this for you, you know, and um, you know they, they um, they actually, even though if they don't do anything, they actually listen now, they actually listen, when you say something when you're talking they actually listen. Say well yeah, it's good in that, um, mostly now people are just saying it's just talk talk talk, er, but you know after this green street, actually somebody had something you know, they go home, they find something in their home about green streets, so yeah. Um, um, well even British Gas as well, you see, most of them, they, they're getting their homes fr, er, er insulated free now,

I: Oh ok.

SR: And even those without the British Gas they actually actually ringing up and asking for these smart meters um, whatever you call them, other energy, energy meters.

I: Yeah. Ok. Um, did you think that people actually spoke together about their efficiency measures, like all the beneficiaries and the, the how many households did you have, seven I think?

SR: Yes, yes

I: Do you think they talked amongst themselves about the project and what they got out of it, and how it's working for them?

SR: Um, not that I know, of, but you know, er, the, they must have done something, er, I haven't, er haven't physically actually got them together you know, and er, talked to them, so I think they, this is a good idea actually, I think we should, yeah! I should get them together and sit them down and say well you know, ask them these questions.

I: See this is the difficult thing, because obviously I spoke to some people who got measures through the mosque, like the solar thermal and the solar PV and stuff, but there are some people that were part of this project that, I think S- tried to arrange interviews with me, for, but I never actually managed to them which was a shame, I just couldn't get hold of them.

SR: Yeah, yeah. Um, no, but I'll um, um, I'll have to have think on, I'll I'll, put a date aside and get them together yeah, I've got a list of them, so I'll get them to bring them together and say, you know, put them together in one room, yeah and you know put these question to them.

I: Ok. Well that's interesting, um, why did you think that susmo and its partners wanted to run the project in the way that they have, cos you know, all the other green streets projects sort of did it differently didn't they, they had um, other green streets areas, they directly benefitted whereas susmo members you know, they picked people um, who were, you know, more difficulty with their bills, they had four community buildings instead of just one like some of the other green streets projects, why, why do it in the particular way that susmo decided to do it, and what, yeah what were the benefits or disbenefits of that?

SR: Well, why, to put it, because, because, there's such a diversity in susmo and in Moseley, that it's not one, one community, you see, if, if only one community benefits, then the others wont bother about anything, you know, so it's gotta be, something has, has to happen er, big, big means a lot of people have gotta be involved and um, the different diversity of people, that's why it's that way because other people you know, lot of people will benefit from it. Four buildings, four buildings well you know it represents four communities, yeah, and um, well two, two of them actually you know, um, the school and the allotments have um, all types of people coming in, it's not just one community, all types of people there. The church and the mosque, you know like mosque solely for muslim, church only for Christians, so you have the two main, main communities there, so both of them benefit, yeah.

I: Ok. Alright. Um, how do you think that people feel about the environment? I wonder?

SR: People have been waking up pretty fast like I said, you know, yeah. Um, those weren't they, they are actually waking up, most of them are woken up about this, er, and when I um, when I, now if I do my gardening and you know, putting in flowers and things at the mosque, a lot more people turn up, you know, and come to me and say can I do a bit of this, can I do a bit of that, you know. Whereas, whereas before they used to just say why you wasting time, you know they're only going to get –

I: No, no I remember, yeah

SR: Yeah yeah, yeah. And are more people are actually taking care of their gardens now as well, so they're getting more and more things, and that's what I see, yeah.

I: That's great news!
SR: I know!
I: So that's definitely changed since you know the beginning of the project
SR: The beginning of the project yeah
I: Ok, so um, how do you think people feel about their energy efficiency measures if anything?
SR: Um,
I: Or their solar thermal panels
SR: Well um, what only one house had that this um, solar PV.
I: Yeah, one of those, yeah
SR: Yeah, er, that's been a disappointing one actually, um, one thing really does have, did have, has happened, was that most of them started coming to the mosque! You know, but um, I thought they'd be coming to the sta- first of all they weren't even coming to the mosque, they were muslims, right, they were born and bred in Moseley, but you know they weren't coming to the mosque, only on special days. But now they're all coming to the mosque, you know!
I: Really?! All the beneficiaries?
SR: Yeah, yeah, but, but they're not getting involved. I thought they was, they they'll come in, just as soon as they come in right, they'd be like born again and gonna be interested more in community work but they not getting involved, um, H-'s he lives with his parents and he's a, he's the one who benefitted most, you know, and stopped coming to the susmo meetings as well! Yeah it was a bit disappointing, you know, we'll give him a few more years and then, you know, we will still give him bad looks, so he knows, he will wake up. [laughs]
I: [laughs] ok, um, how do you think that sort of the wider population of people in general um, feel about um, you know, solar thermal and solar PV panels, and insulation all these sorts of little technologies that can help you with your bills and saving your emissions?
SR: Well um, let's put it this way, I don't know about people, but myself I'm um very interested now as well, um, I, I thought my um, my house was um, properly insulated um, until I got er, a proper person like from British Gas to come in the other day and he looked and he said yeah, it's insulated but to a minimum, not maximum.
I: Oh right, I see!
SR: Yeah? So I went, I, I thought it was good, you know the maximum, but the way I put stuff in, you know it's actually compacted down over these years, so um, you know at the moment we need to top it up, so I've got a load of stuff now to top it up, yeah. So I've done one part of the house, the other part is um, I'll do in like 2 weeks' time because there's too much stuff in the loft, it's gotta be moved out.
I: Yeah yeah, ongoing project.
SR: That's it yeah, so you know on my own I then, and then, er, and I'm seriously looking around for some er, first of all I was thinking of putting solar PV in, but now thinking about it it's gonna be solar um, solar thermal.
I: Oh you're gonna go for that?
SR: I'm gonna go for that, yeah, so, you know, in two months' time. I'm shopping around for it now, so yeah. Definitely gonna go for that,
I: Ok. I mean it's, I'm just thinking like, you know, trying to sort out buying and installing a solar thermal panel, and topping up insulation it's, you know, it can be quite inconvenient, time consuming things, but the fact that you're going for it, you know, sells to me that um, you know you prioritise it more than, it's not that inconvenient compared to what it gives you.
SR: Yeah
I: So I'm kind of wondering, you know, do you think that a lot of people feel the way you do, about that, or do you think you're quite different?
SR: Um, like I said most people are you know, the youngsters, they are, they're up to date with these things, you know, and er, they are actually looking for these you know and introducing but you know, you need somebody actually who will, somebody higher up in the community who actually when he starts moving in these things, then they, they will really pick up fast.
I: Ok.
SR: Yeah.

I: Um, how do you think that um, SusMo's green streets project and everything that's going on with the mosque, actually fits in with what's happening to do with energy at like a national level? You know if you what government's up to like on the news and stuff, do you every think oh yeah, I can see where that works without, with what we're doing or where it doesn't work? That's what I'm getting at?

SR: That's a tricky one actually. Um, nationally, yeah, nationally, um, I, I always have this feeling about government is they don't do things when you know, if there's only er, .. if there's any votes involved in it. You know politicians are like that, so they don't do it, something has to um, they have to have a lot back before they actually give something, you know, so you end up paying more than you actually should be. Um, people individually I should say, they they, they will be the ones who make the change, not the governments and, yeah, I can remember in the 70s you know when there was um, lot of hoo-ha about um, .. acid rain, the government didn't do nothing about it, most of the government oh yeah oh this happened that happened, but nobody said no, and nobody said yes, but you know, they have a clever way of walking and talking out, out of their problems yeah. So um, I don't know, government themselves they don't, that's why people individually have to make things happen.

I: Ok. Ok that's really interesting. Um,

SR: Well that's my thought actually, you know, I'm not talking about anybody else, but

I: I know, but, I mean forgive me for saying this but I think of all the people that I've interviewed from the mosque so far, like you've all kind of said that, and it's quite different from like the other people in Moseley that I've spoken to that you know, they're quite ready to tell me sometimes, what governments ought to be doing, I find it quite refreshing that people from the mosque feel that, I don't know, they can say that we're gonna do it, and they, they kind of feel like they can.

SR: Mmm hmm

I: That's, that's just my, my interpretation.

SR: That's ok. You've got a better picture than I have so.

I: [laughs] It's just something that I've noticed as I say, it's only a few who I've spoken to, but um ok, as a community group like susmo and its partners, why do a project like susmo's green streets in the first place, what, you know why, why take it upon yourselves to do it?

SR: Well me actually um, er, I didn't take it upon myself, I just joined the group and went along with it, and um found that actually you know, the diversity of people in that group, and the way they actually felt about the environment, you know, I thought I was a green! A really good green before I met them, so when I got in there I said hang on, you know, er, I'm in the stone ages, I am! [laughs] Look at these guys, you know, they, take E and most of them, they wouldn't even get in a car or a taxi, never mind you know, buying a car, or driving in car, you know, and I was like oh my god!

I: I know E- won't even use lifts!

SR: You know and I felt really really, actually you know, I, I thought I was up to date with these things, you know but I'm actually you know, not so, so it was a wake-up call for me, yeah, so, and I had to write these little things [inaudible] so yeah

I: Ok, but yeah, um, so, but I mean as a voluntary group sort of, you know, why why decide to take on all the work of doing a project?

SR: That's another tricky question, why. [laughs] um, why is well you know when you meet people like that you feel erm, more, you feel guilty about you know sitting there not doing anything, you know, for me it was actually the guilt, and say well you know, just because nobody else is doing it doesn't mean I don't have to do it, you know, so, slowly by slowly that's how I started going along and going with the group and going along with them and I learnt quite a lot off them, you know, with them, so yeah. You know just sitting around talking to them, you know, you learn a few things so, it's er, it, it was actually a proper wake-up call for me,

I: This is interesting you've covered lots of this in the last question, but the next question was why did you want to be involved in this project, and I know that you were, you were told, weren't you nominated by the mosque or something to go and work with all the community groups in Moseley?

SR: Yeah well no actually um, um, in, in the mosque and er, my major role in the mosque for quite a few years has been, has been like a community liaison officer, something like that, I go between one community and the other community, and erm, they um, where was I now, um, yeah, um so er, actually when I see things like this happen you know, it was actually me that actually goes to attend these meetings and, um, and, and then when this thing happened, and I sat them down and said look you know this thing is happening, and they said well yeah, you go ahead with it! You know, this is your job! [laughs] so um, this, this this, you know you took this over, then um, that's it. Cos all the others they, they um, they said we don't have the time, the time now, everybody has a job to do, and they do that job, yeah? And um, they, they can't take up another because um, take another that means you have to give up more time and more er resources put into it, and um, you know the life stops. Um, mean you know because I, I work in a job that is not, it's not a pressurised job, you know, it's not a career job, you know I can switch off when I come home, er, take some time off if I feel like it, you know, I won't feel guilty about it, you know, and um, so you know, that kind of pressure you know most of them they got jobs or they got, um, studies that they can't take time out of, you know, so I find a flexible life in that way, so I could fit in more things, plus I work nights, during the day I've got time, you know, most, most of them they work days and they've got no time, only at the weekends, the weekends not a lot of things happen.

I: No it's true

SR: Yeah, so that's how it is, that's how I got it,

I: Ok. Did you, um, I kind of already answered this, um, did you come to want to be involved in it, I suppose yeah when you said that susmo, most of you felt like, almost inspired or even guilty to, to do things, so. Ok! What do you think is the role of um, community, um voluntary community groups in issues to do with you know, looking after the environment and saving energy and helping people with their bills like, you know, why, why would volunteers, what's the role of volunteers in that? Or the mosque or that kind of thing?

SR: Yeah, well volunteers they do, because they, they, the there's a paid person and then there's a volunteer, a paid person when he goes to work you know he feels that he has to do things, because he's answerable to, for for, you know, because he's getting paid for it, and he's gotta do, he's got to answer for it, so he's gotta have numbers, he's gotta have paperwork to back up all these things. A volunteer you know, does it because he feels like he wants to work, yeah? So um, it's not you know, he or she has to um, you know prove, it's just proving to themselves and, and that's more you know, that's more important, and the volunteers actually um, the volunteers are beginning, to, to learn and they, they actually pick up more,

I: So do you think that people sort of react better to volunteers sometimes than to a paid person about these sorts of things?

SR: Um, yes I should think so. Because yeah, you know, it comes to again, in our community when somebody say, they say, you're getting paid for this, it's your job so you can, you know

I: So you would say that yeah,

SR: Yeah, and you know for us volunteers even sometimes at the mosque when somebody comes up and says hey, you know we're not getting paid for this, ok, so you know, we're giving up our, so, so you don't have to give up your time, so then they feel guilty, yeah? So, so, you know, usually in the mosque you know when something does happen you say no we want volunteers, we don't want volunteers actually, you know if you paid them, you know, they, they can't, they can't motivate people, volunteers motivate people.

I: [laughs] yeah. Yeah it's very easy isn't it for someone to sort of say oh yeah we've got to do this, we've got to do this when they're paid to do it, [inaudible] yeah I know what you mean. Ok, so um, do you, I don't know, how do you think that um, the green streets project fits with what's going on in the rest of the city, I don't know if, I don't know like um, if other mosques across the city are doing um similar projects or if you happen to know of anything else that's going on, not necessarily affiliated to any religion but you know, city wide projects that this feeds into nicely?

SR: No, um, er, I don't know about the city wide, I know for a fact that um, er there's some friends that I know that they actually bought a place and they're turning it into a mosque, and I, and I, and I went to them and they actually, actually bought it and um, they started um, work on it, you

know, so I actually went there and I said before you actually start spending money, things, you know, think about these things, you know. And one of them says yes I was thinking about that, you know, and I said well you know, think more!

I: [laughs]

SR: Yeah? And I said ok, you know, you, you're gonna if you go for standing thing you're gonna spend 15 thousand and if you go for this thing you're gonna be spending 25thousand, but you know, sometimes it makes sense by spending extra now, and saving more later, you know, so they said yeah, ok we'll think more on that. Um, well the other projects in the mosque, they've already spent their money, so they've already, you know, they wanna get benefit out of that, the actual thing that they've actually got, um, and um, so you know we actually, we actually say to them that it's, you know, we're here, you gotta come to us, we're not gonna come knocking on your door, you know, so if you need advice you'll have to come to us, and we're here, we and we will give you advice.

I: has anyone taken that up?

SR: Um, I don't know, no, for me know, but you know we have our own, um, um, how do you call it, contacts, um, so you know, I have a few contacts the other people who are contacts they will contact them instead of coming to me, you know yeah? So you know. Um, everybody in our community, in our um, committee at the mosque are you know, they've, they've got the actual, so, so they can actually individually give advice, you know.

I: Oh fair enough, ok. Excuse me, um, do you know, how, how is susmo's green streets project talked about sort of in Moseley, and do you think that people know about it, do people have a proper understanding of what the project was about, you know and are positive or negative?

SR: Um, I don't know actually, because um, um, I haven't, before you know when I started I had time and I could join in the Farmers' market and you know, um, all this, most, most of the public meetings that happened, because, on the during the day when I was working, so I, I missed quite a bit on that, so, um, the others will know er more on that than me.

I: Ok, fair enough. Um, last question, how do you think, like a small project like um, susmo's green streets fits in with not just national projects to do with renewable energy and so on, but just nationally in general, some people sort of seem to think there's a bit of a contention, um, you can either look after the economy or you can look after the environment and you know, obviously at the moment we've got some problems with the economy, I mean, what are your thoughts on that, do you think that you know, this project does work with what's going on nationally, or if other things that have happened have made things more difficult?

SR: I don't know, that's too heavy question for me that is! [laughs]

I: No, no, fair enough.

SR: Bit too heavy for me, I, what's happening nationally I don't know, it's just individually that I'm concerned about.

I: yeah, and in the mosque

SR: And in the mosque yeah.

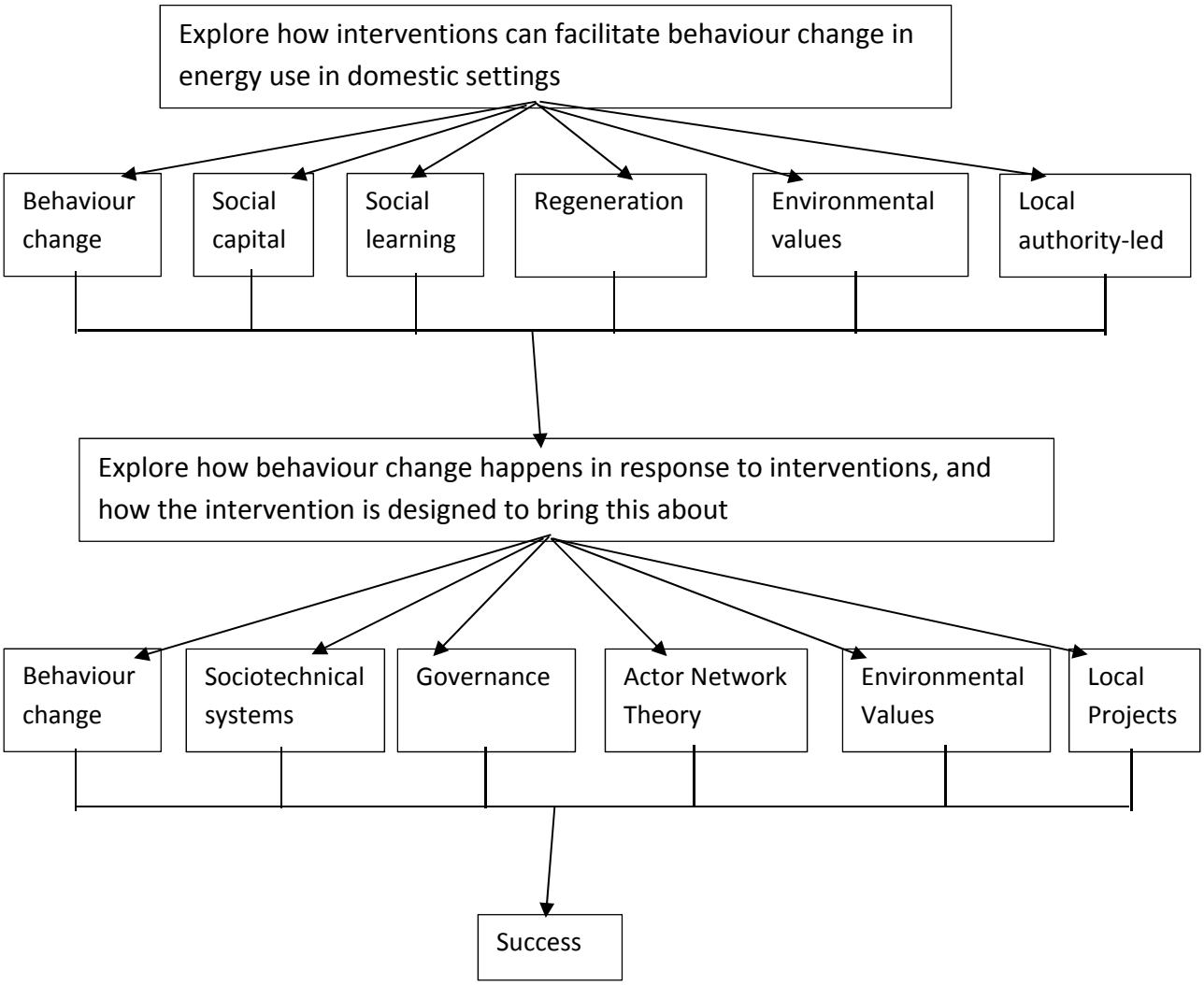
I: Well, [inaudible]

SR: Yeah, yeah.

I: Cool I'll, I'll stop it there then.

Appendix C: Research Journey

Appendix C1: Flow Diagram of Thought Process and Salient Concepts Throughout PhD Period



Appendix C2: Analysis Codes Used

Analysis Codes – Organisers

- Do organisers understand the people they're trying to 'change' (and so what is their role?)

1. Beneficiaries are economically motivated to change behaviour
2. Beneficiaries are environmentally motivated to change behaviour
3. Beneficiaries are in Fuel poverty
4. Beneficiaries don't understand energy
5. Beneficiaries are early adopters
6. People care about the look of their homes/neighbourhood
7. Beneficiaries are suspicious of technology/people selling them things

8. Role of the organisers is to help citizens
9. Role of the organisers is to help the fuel poor
10. Role of the organisers is to help the environment
11. People trust the council
12. People trust community groups
13. People trust private contractors

- How do organisers understand behaviour change? (and so what do they do to achieve it?)

14. Technology facilitates change
15. Involvement in a project facilitates change
16. Involvement in a project does not facilitate change
17. Technology gives a sense of ownership of energy (which facilitates change)
18. Community ownership of energy/b.c. projects facilitates change
19. Technology does not facilitate change
20. Price of energy facilitates change
21. Concern for the environment facilitates change
22. Panel/measures makes people think about (and conserve) their energy use
23. Information facilitates change
24. People change because they are influenced by others around them
25. Large numbers of panels -> normalisation
26. Involvement in project makes people more 'green'
27. Involvement in project does not make people more 'green'
28. Role of the organisers is to show what others are doing (so they can be influenced by them! -> change)
29. Role of organisers is to give information (which helps facilitate change)
30. Role of organisers is to engage deeply (which helps facilitate change)
31. Role of organisers is to provide leadership (which helps facilitate change)
32. Role of organisers is to engage multiple stakeholders/agendas (which helps facilitate change)
33. Non conducive to behaviour change

- Working in the wider system

34. Intervention affected by wider system concerns at local level(Cost, time, technology, buildings, size of organisers, organisers politics, the communities, policy, aims, processes)
35. Difficulties working within the wider system at local level
36. Intervention affected by wider system concerns at national level
37. Difficulties working within the wider system at national level

Analysis Codes – Beneficiaries

- What are the beneficiaries 'like'?

1. Concern for the environment motivates energy behaviour
2. Cost motivates energy behaviour
3. Family/lifestyle motivates energy behaviour
4. Comfort motivates behaviour
5. Beneficiaries are in Fuel poverty
6. Beneficiaries don't understand energy
7. Beneficiaries care about the look of their homes/neighbourhood
8. Beneficiaries are curious about energy technologies
9. Beneficiaries initially suspicious/suspicious of technology
10. Beneficiaries waste energy/uses a lot of energy
11. Beneficiaries are concerned about environment
12. People trust the council
13. Role of organisers is to help citizens
14. Role of organisers to help the environment
15. Role of organisers is to be a responsible landlord
16. Dissatisfaction with the council
17. People trust community groups
18. People trust private contractors
19. Dissatisfaction with central government
20. Intervention has helped them with something that is important to them (bills/environment/comfort)

- Have they changed behaviour and why/not?

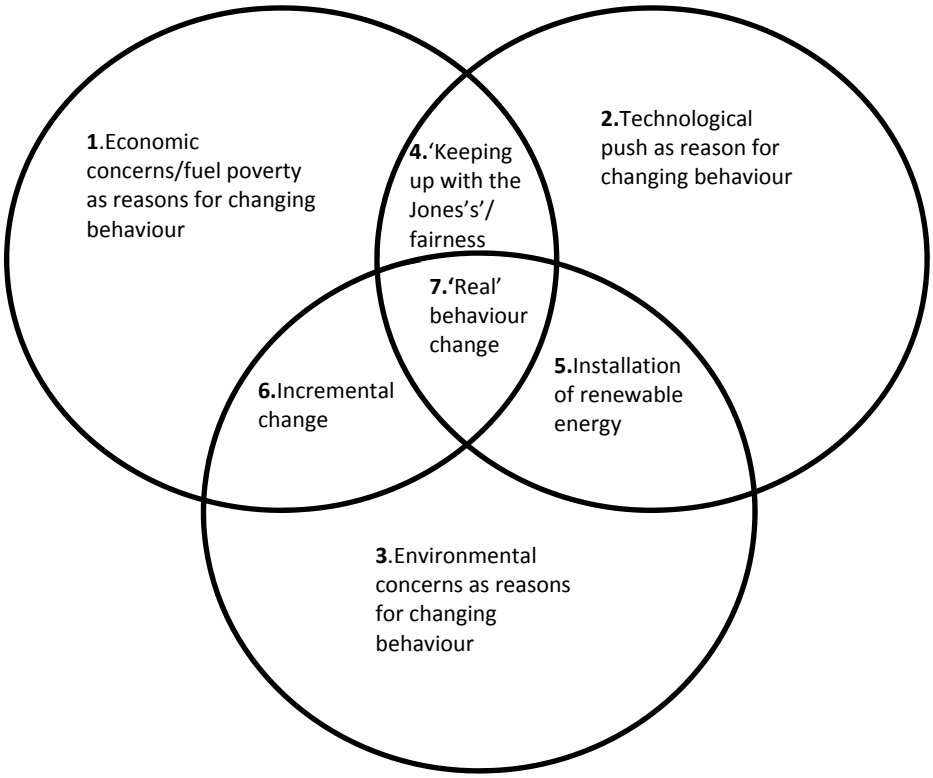
21. Behaviour change/sign up for economic reasons
22. Behaviour change/sign up for environmental reasons
23. Behaviour change because of technology (eg shifting)
24. Behaviour change because of information
25. Technology has made beneficiary think about (and conserve) energy.
26. Technology has made beneficiary feel more in control of energy.
27. Technology has not made beneficiary feel more in control of energy
28. Technology is empowering.
29. Behaviour changed because beneficiaries are influenced by other people
30. Large numbers of panels -> normalisation
31. Involvement in project has made beneficiary more green
32. Forget panel is there/take it for granted
33. No behaviour change – couldn't make any more savings
34. No behaviour change – lifestyle factors (family, health, daily life)
35. No change – technologies not prevalent enough
36. Project has not made beneficiary change their view on the environment
37. Aspect of intervention not conducive to behaviour change/sign up

38. Intervention itself was a positive experience (which helped facilitate change)
39. Intervention has helped them to see that others are changing (which helped them change
40. Intervention provided relevant information/overcame concerns

Appendix C3: Discarded Diagrams:

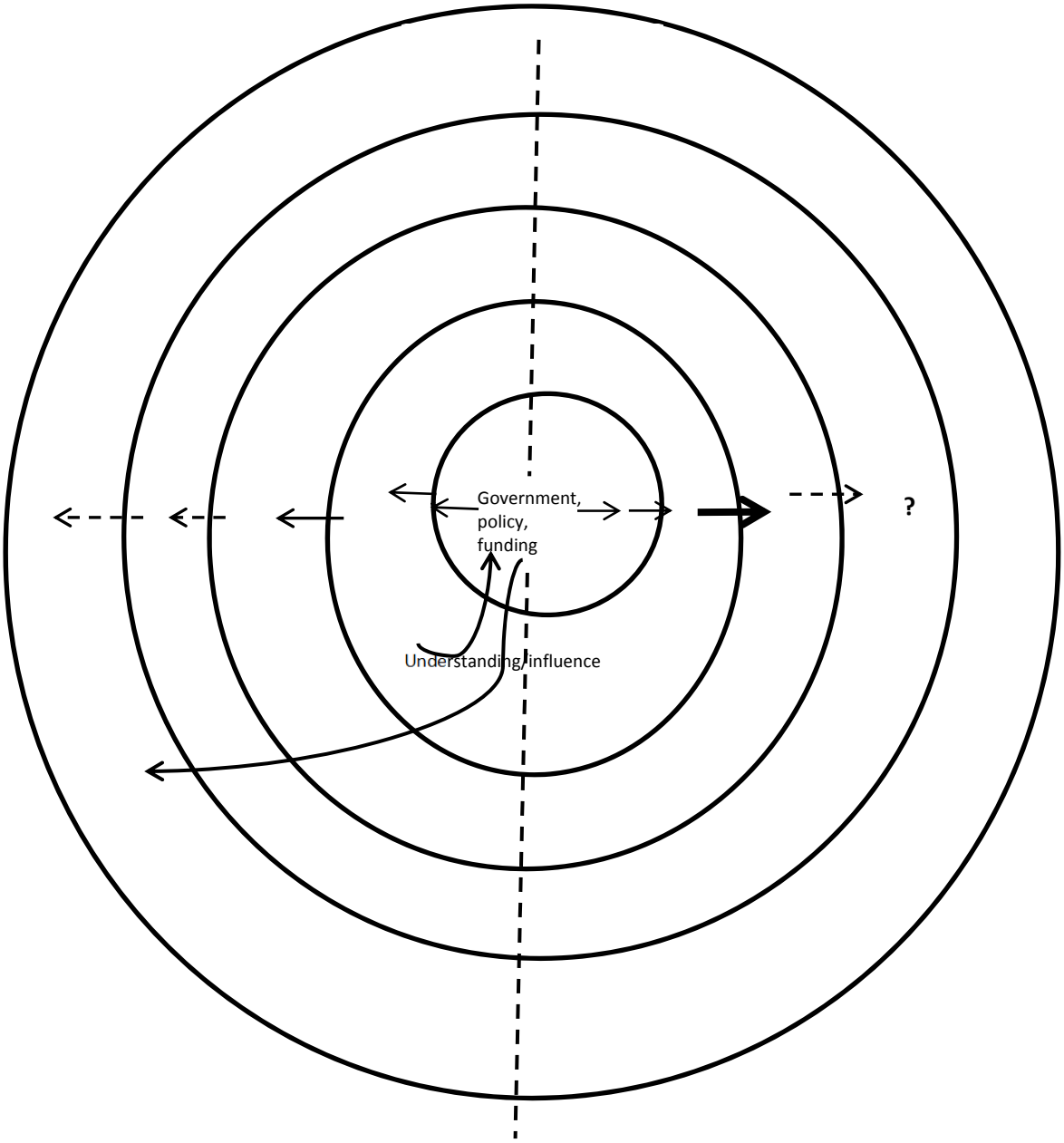
Referred to on page 108-109.

The Triple Bottom Line of Behaviour Change



APPENDIX C: Research Journey

Local authority-led Vs Community-led; the potential of different projects for change



EXPLORING DIFFERENT COMMUNITY ATTITUDES TO SUSTAINABLE TECHNOLOGIES

Presented at the Management and Innovation for a Sustainable Built Environment Conference, 19 - 23 June 2011, Amsterdam, the Netherlands

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Abstract

The adoption of sustainable technologies to mitigate high energy use by home owners has not been extensive. As a result of legislation there are a number of initiatives to help resolve this situation, some which recognise that communities could be a good site of influence to effect this change. Communities have different socio-economic backgrounds, which may constrain their choices. This affects their attitudes to sustainable technologies, and how they might go about adopting them. This paper refers to pilot research studying attitudes in two socio-economically different communities in Birmingham, aiming to inform a larger study about successful interventions. These communities underwent the adoption of sustainable technologies via different interventions, here defined as an identifiable activity bringing sustainable energy technologies into an area. The interviewees presented a positive attitude to the intervention in their area, but displayed a difference in their perception of a sense of community. Socio-economic data raises important questions about a community's capability to intervene which was supported by the interviewees. The pilot suggests that interventions can enable interactions which allow positive information transfer necessary for increasing acceptability of sustainable technologies, which will be explored in the larger study.

Keywords: communities, sustainable technologies, attitudes, intervention.

INTRODUCTION

In 2008, the UK Government passed the Climate Change Act, obliging the UK to cut its greenhouse gas emissions by 80% by 2050, to mitigate against potentially dangerous climate change. As part of this, there has been some UK policy encouraging the generation of energy from renewable technologies (DTI, 2005). There is also a role for community based generation of energy (Hain *et al* 2005).

However, change has been slow. Information campaigns have not lead to as wide an uptake of sustainable energy technologies or energy efficiency measures as governments had hoped (Owens & Driffil 2008), and it is often difficult for governments to know which will be the best intervention and best use of resources, especially in times of economic hardship.

This research is a pilot for a larger study which aims to look at the success of interventions using communities to direct change in sustainable energy behaviours in individuals, and was designed to inform the larger study. The pilot aims to identify some important areas of study, to establish what can be found out from individuals about successful interventions, and to establish whether the style of intervention is important. Individual attitudes are related to the process of an intervention; if people

have a positive attitude to sustainable technologies themselves and the process of sustainable technology interventions in their area, interventions are potentially more likely to be successful. This is important if we want to see the widespread adoption of such technologies in order to address climate change. This paper will look at the responses of individuals from two different communities: residents of Moseley, who are benefitting from a community-led project; and residents of Northfield, who benefitted from a local authority-led intervention. This pilot was useful to inform a larger study looking at how different types of intervention in different contexts can encourage positive attitudes towards sustainable energy technologies.

The Communities

Moseley is situated to the south of Birmingham city centre, and is one of the more affluent neighbourhoods of the city. It is a well educated area, with a reasonably high average income, and a skilled workforce (see figure 1). The neighbourhood has a strong sense of identity that became evident in 1978 in retaliation to the threat of a relief road that was planned to run through the centre of the 'village'. The local residents succeeded in stopping this road, and formed the Moseley Society in 1979. Since then a number of groups and associations have arisen in the area including Moseley Forum, of which Sustainable Moseley (SusMo) became a working group in 2007 (Moseley Forum 2010).

SusMo are working to cut carbon emissions across their neighbourhood. In January 2010 they became one of 14 communities across the UK to win a British Gas Green Streets award. With this they will install photovoltaic (PV) panels on a number of community buildings and one home, as well as other energy saving measures such as condensing boilers, loft insulation and solar thermal panels in other homes. For this project, SusMo formed partnerships with the local Mosque, St Mary's Church, Moseley Church of England School, and MaDAHAL Allotments, and developed close working relationships with all of them. This project will be referred to as a community-led intervention for the purposes of this paper.

	Moseley	Northfield
Education		
No Qualifications	24.06%	34.64%
Level 1 (1 -4 General Certificates of Secondary Education or equivalent)	10.09%	18.45%
Level 2 (5+ General Certificates of Secondary Education or equivalent)	14.04%	19.47%
Level 3 (2+ Advanced levels or equivalent)	8.73%	6.79%
Level 4/5 (First Degree, Higher Degree or equivalent)	39.33%	13.34%
Other (Level unknown)	3.75%	7.32%
Income		
Average weekly household income	£500	£450
Occupation		
Managers & Senior Officials	14.45%	11.19%
Professionals	28.12%	9.69%
Associate Professional & Technical	18.10%	12.63%
Admin & Secretarial	10.80%	15.91%
Skilled Trades	6.03%	12.87%
Personal Services	5.36%	8.05%
Sales & Customer Services	5.17%	7.01%
Plant & Machine Operatives	5.20%	10.35%
Elementary	6.75%	12.30%

Figure 1: *Table showing education, income and occupation statistics for Moseley and Northfield. Office for National Statistics 2011*

Northfield has a very diverse cross-section of financial situations, with pockets of deprivation and vulnerability. It has a varied education profile (with a high proportion of people with no

qualifications), a slightly lower average income than Moseley, and a more varied skill level among the workforce (see figure 1).

Birmingham Energy Savers is a large project being run by the local authority, Birmingham City Council (BCC). It aims to cut carbon emissions as well as create local jobs and help fuel poor or vulnerable households. During the pilot phase over 50 households (mostly within Northfield), 6 business premises and 2 social enterprises were fitted with PV panels, paid for by BCC. BCC will recoup the outlay by taking the Feed in Tariff – a mechanism whereby an amount (approximately 40p) is paid per kWh generated to the owner of the technology, as an incentive for generating energy renewably. This project will be referred to as a local authority-led intervention for the purposes of this paper.

LITERATURE REVIEW

There are many descriptions and theories of how society might change so that people will readily adopt more energy efficient technologies (Geels, 2005). Although change in individuals is required, the extent of the change needed to address global warming needs to be more widespread and comprehensive. Thus, the debates and theories need to address the fundamental problem of the way individual agents act in a wider social and structural situation. Theories of community (e.g. Bourdieu 1986, Wenger 1998) argue that individuals are overpoweringly influenced by history, identity and norms such that they are obliged to act in particular ways. However, theories of psychology (Ajzen 1991) see individuals as independent agents with attitudes, motivations and behaviours continually interacting with other individuals. In practice, most conceptions work with individuals, groups and their context simultaneously, and therefore we need to explore individual attitudes at the same time as exploring the way in which individuals see communities, technology and different types of intervention.

Attitudes

Attitudes and behaviours need to be modified if sustainable energy technologies are to be widely adopted. Attitudes towards these technologies will be influenced by many things, including the amount of factual knowledge a person has access to (Stutzman and Green 1982), their evaluation of the outcome of this behavioural choice, and the likelihood of that outcome (Kaiser *et al* 1999). However it is a paradox that apparently pro-environmental attitudes are not reflected in behaviour (Owens & Driffill 2008). Kaiser *et al* (1999) refer to the theory of planned behaviour (Ajzen 1985) in trying to explain this. As well as attitudes, a person is influenced by social norms (the expectations of significant others) and values when thinking about whether or not to behave in a certain way, such as adopting certain technologies. If both attitudes and social norms are conducive to this, an intention to perform a particular behaviour is formed. This intention is then affected by contextual factors outside one's control.

A definition of 'attitude' throws up another interesting point. Allport (1935) defines attitude as a learned predisposition to respond to an object in a consistently favourable or unfavourable way. Just as people may have attitudes about sustainable energy technologies, so too may they have attitudes about governance arrangements. People may have negative attitudes towards a local authority (Frith and Bennetto 2004), or towards particular community group members (McAreavey 2006, Derkzen and Bock 2009). This will affect the success of different types of interventions.

Communities

Most research on communities is focussed on their emerging internal conditions in relation to wider social norms, whether to do with crime, health or enterprise. This often relates to the breakdown in communities and the reduction in social capital (Putnam 2000). However the theory of social learning postulates that we acquire and evaluate our activities from our social context (Bandura 1977). This provides a much more positive role for community in determining meaning, identity and action of its

members, giving opportunities for action and change. The Government would like to move responsibility and empowerment to communities which would then become important locations of decision making and action (DEFRA 2008). Therefore, policy issues of subsidiarity, collaborative management and ownership in common are starting to surface (Krishna 2003). The role of communities as agents of management and ownership or as givers and receivers of social capital has been studied within the social capital discourse (Bourdieu 1986; Shorthall 2004; 2008). However some commentators are sceptical of the abilities and capacities of local communities to deliver effectively with local action being far more complex and conditional than the theory suggests (Upton 2009; Andersson and Gibson 2006).

An understanding of socio-economic status (SES) can help to understand why particular interventions (for instance, community action) are confined to certain contexts. As Liberatos et al (1988) explain: "According to Weber, differential societal position is based on three dimensions: class, status, and party (or power). Class is assumed to have an economic base. . . and is indicated by measures of income. Status is considered to be prestige or honour in the community [and implies] 'access to life chances' based on . . . factors such as family background, lifestyle, and social networks". Therefore, occupation, education and income are used most often to measure SES. Income as an indicator clearly falls into Weber's economic or class realm, influencing opportunities for education, and providing access to certain lifestyles. Occupation is a good indicator of SES since different occupations are perceived differently in terms of prestige, require different amounts of education, and give different monetary pay-offs. Education confers differential status and provides the qualifications to acquire differential occupations and income, and so is a useful proxy for economic variables (Liberatos et al 1988). The idea of social and human capital (Coleman 1988) is also useful here – resources achieved through social connections (social capital) and nonmaterial resources as education (human capital) are readily connectible to processes directly affecting well-being, and access to life's chances (Bradley & Corwyn 2002).

Thus, different communities will not respond in the same way. Interesting questions arise as to what gives communities cohesion and whether communal action can arise other than neighbourliness. Yet there are many examples of communities operating successfully in different ways, whether in top down interventions through some authority structure, or bottom up using the collective action of members. It is their 'success-in-context' in achieving the aim of sustainability that is of interest here. In particular, there is the potential for concerns about sustainability and energy issues to provide a new cohesion and meaning to communities (Wals 2007), providing a locus around which the community can work together.

Technological Change

In an attempt to conceive of the problem of the lack of transition to energy sustainable technologies, researchers have used concepts of socio-technical regimes. Theories of technical change had hitherto been based in a techno-economic view of the world, whereby the non-adoption of proven energy efficiency technologies is the result of social barriers – usually consumer ignorance or market distortions (Guy & Shove 2000). However, Rip and Kemp (1998) have shown that firms and technologies are embedded within wider *social* and economic systems: "socio-technical regimes". Smith et al (2005) show that the current socio-technical regime of energy production is dominated by rules and practices relating to long established centralised, large-scale power technology, and high voltage alternating current grid infrastructures, which make it difficult to make individual choices about how the energy one consumes is produced. In this regime, people have relinquished responsibility to gain convenience and dependability. However, transition from a regime of energy production based on fossil fuels to a different regime is necessary, given the legislation described above. This requires individuals to accept responsibility, and the technology and the way it is introduced needs to encourage this.

The interface between people and technology is therefore complex; people make choices about and use energy sustainable technologies as individuals in a social world. Owens and Driffill (2008) show that a large number of social factors come into play to influence energy behaviour, such as trust,

habits, cultural norms, as well as financial constraints and these become important concerns in any intervention.

Interventions

Local and central governments are best placed to make large changes to the contexts in which sustainable technologies may or may not be adopted. Smith et al (2005) point out that governments have a role in guiding transitions of socio-technical regimes. Foxon et al (2008) explore this further by looking at the different pathways such guided transition could take. Hischemoller et al (2006) also suggest governments as key players in governing the transition to sustainable technologies. However interventions are not always successful; Owens and Driffill (2008) point out that government messages that driving contributes to climate change are difficult to act on when price signals provide a powerful counter-incentive to getting the train (HM Treasury 2010) and these continue to remove responsibility from individuals.

However, increasingly there is a role for communities to govern that transition in their localities, sometimes with government support (Walker et al 2007), or in partnerships with other agencies (Shucksmith 2000). Partnerships often come with their own difficulties for the community members, who may feel unable to put their priorities on an equal footing as the priorities of professional agencies (Mayo and Taylor 2001). However, this is not always the case – Mackenzie (2006a, b) gives the example of the North Harris Trust, a community trust that owns the North Harris Estate, and has installed a wind turbine.

METHOD

Studies of such complex situations and their change are difficult to undertake, thus requiring detailed studies of individuals, communities and their contexts. Thus, pilot studies are needed to determine what can be found and how best to find this. This investigation sought to determine differences in attitude in the communities and the impact of the interventions on this. A social constructionist approach was adopted where social life is understood to be constructed rather than objectively determined (Easterby-Smith et al 1991). This approach was taken in this pilot study because whether or not an individual decides to sign up to a project like BES or Green Streets, and adopt a sustainable technology, is a personal choice made on the basis of personal perceptions. Thus the focus is on individuals and their experience. This approach seeks to unpack these perceptions; to better understand why individuals respond in the way they do to sustainable energy projects.

In this pilot study, in-depth interviews were used to explore how we can find out about individual attitudes, as well as they way individuals see their communities, technology and different types of intervention. Four interviews were carried out with beneficiaries of different sustainable technology projects – two Northfield residents who had benefitted from BES, and two Moseley residents who had benefitted from SusMo's Green Streets project. Of the Moseley residents, one was having PV installed on his own house; the other was speaking as a representative of the mosque which was having PV installed on its roof. The sample size was small since this was a pilot, but this allowed the attitudes and experiences of each interviewee to be properly explored. Interviewees were asked to explain how they became involved in the projects they were benefitting from, if they had noticed a change in their energy bills (where applicable) and how they felt about energy. Interviewees were then asked to discuss their views on climate change, and whose responsibility they considered it to be to do something to tackle it. They were then invited to talk about their community in general, before moving onto perceptions of and attitudes towards the agencies (SusMo or Birmingham City Council) who were delivering the projects they were benefitting from, including if there had been any change in these.

RESULTS

The Moseley residents were both involved in SusMo's Green Streets project. As the technologies were not yet installed only provisional energy attitudes were explored. One interviewee explained that his family was not wasteful with energy at all, but were looking forward to being able to spend even less on energy. The other interviewee felt that once the PV was installed on the roof of the Mosque, people would be able to see it, making it easier to educate them about saving energy. Both interviewees were concerned about climate change, and explained what they personally were doing to combat it. Both were members of SusMo; one was starting to encourage food growing initiatives at the mosque, and the other was going to attend a course on energy advice. Both interviewees noted a sense of community in Moseley which seemed to cut across ethnic and religious groups:

> *"There's a strong sense of community in Moseley, it's diverse, people get on".*

Both interviewees knew their neighbours well, as well as the wider Muslim community. They perceived the wider community of Moseley to be fairly well informed about climate change, and to be doing their bit. One interviewee was impressed with SusMo members for giving up so much of their time for Green Streets, which had in a way negated the need for any local authority initiative in the area, the other explained how SusMo had to do this kind of work, since the local authority had fewer financial resources and were moving too slowly.

> *"Nowadays, the government don't have money for anything, what can they do, just give you money to do these things, but now they haven't got any money to give, so it's up to us"*

The Green Streets project has changed the Moseley interviewees' attitudes towards themselves and their role within the community;

> *"I'm a completely different person to how I was last year. I did have all these things in the back of my mind, these are the things that you do when you retire, but this year I said, you know you don't have to wait until you retire, you do them now"*

and their attitude to sustainable energy:

> *"we have these habits [of not being wasteful], but it's nice now to incorporate the environment, and put these habits to a greater cause"*

The Northfield residents were both council tenants who were at home during the day. They both noticed a saving in their energy bills. Both interviewees thought that climate change was an important issue, and that something should be done about it. Both interviewees saw a very strong role for the council in providing facilities that allowed the opportunity for green behaviour, such as recycling facilities, water butts and composters, or PV panels, as was the case here.

> *"well things should be done about [climate change] cos it can't go on like this forever can it? . . . . but somebody's got to start the ball rolling for other people to get involved"*

They also saw a role for the local authority in helping those who could not afford to 'be green' even if they wanted to;

> *"at the end of the day if I didn't get the solar panel fitted on the roof I couldn't have afforded to do it on my own".*

Neither Northfield interviewee noted a particular sense of community in their local area, were not close to their neighbours, nor members of community groups. However there may be an opportunity to change this as a result of BES – with their experience of the technologies the beneficiaries could act as trailblazers, and discuss the technologies with other members of the community – enhancing social capital as more links are made between individuals. The interviewees mentioned the difficulty of getting started without such prior knowledge:

> *"for a community that gonna come together without the actual experience of the solar panel, it's harder, but like us as a community then that have it fit in, it's good for us to be involved"*

The interviewees mentioned that people were asking them about their PV panels since they had been installed:

> *"Oh I've had them knocking on the door! . .and stopping me in the street asking me for phone numbers and that [to find out how they can get panels aswell]"*

The Northfield interviewees do see a role for individuals, but their discussion of that role was set in the context of council facilitation;

> *"it is, [laziness] . . . it's like when you see bits of furniture and everything lying all around, they've only got to make a phone call to the bulk rubbish [a council service] and they come and fetch it, it's what you pay your poll-tax for!"*

Both interviewees were pleased with the local authority for having instigated BES, which allowed them to have the PV:

> *"They're doing something really worthwhile"*.

Both interviewees also discussed issues of trust – they trusted BCC to do a good job, to use reputable companies, and to deal with any problems that would emerge with the technology. Both feared 'dodgy' or 'cowboy' companies, and felt that a company being registered with the council was a stamp of approval.

> *"The council would never take up for instance a dodgy company to come here and do certain type of job. Normally when they came here, you know it's a proper company that register with BCC. So BCC wouldn't send like a dodgy company come to your house and stuff like that so I would feel more comfortable doing it with the council"*

DISCUSSION

According to the interviewees, both the Northfield and Moseley interventions although different, were successful. The pilot suggests that success could best be defined for the larger research study as having a positive attitude to the intervention, saving energy, and having the potential to induce a wider, community based change in behaviour. The pilot also suggests that the style of intervention is important. Thus, an in-depth study needs to investigate how the style of intervention in different contexts can lead to positive attitudes towards that intervention, and hence greater adoption of sustainable energy technologies.

Moseley residents believed that in difficult economic times, BCC must target its resources where they are most needed. Moseley, being a more affluent area, cannot benefit from BCC led interventions.

Therefore Moseley's only option is a community-led intervention. This pilot raises an interesting question about why community led interventions are possible in Moseley and directs us to look at the 'capability of the community'. This can be characterised by socio-economic status (SES), which if measured by education, occupation and income (Liberatos et al 1988), can be said to be high, certainly higher than that of Northfield. Nearly 40% of Moseley residents have a very high level of education, and nearly a third of its residents are professionals, of which nearly a half are teaching and research professionals (Office for National Statistics 2011). Bradley & Corwyn (2002) consider capital (social, human and financial) to best embody the meaning of SES. Moseley clearly has a wealth of capital (as shown by its large number of community groups made up of active, capable and resourceful individuals) particularly so within SusMo itself (many members participate in multiple groups). SusMo's committee is made up of individuals with high levels of education and sustainable technology related experience (human capital), and its members can support each other and share skills within the group (social capital). This capability enabled SusMo to inspire the two residents interviewed here, and include them within SusMo itself. This led to a positive attitude to the project between the interviewees, and therefore a willingness to adopt the sustainable energy technologies.

The community of Moseley is diverse – there is a strong Muslim community, and numerous other communities of interest based around community groups. SusMo's Green Streets project by formally partnering with the mosque, the church, the local allotment association, the school, was able to incorporate all of these communities and build a community of place cutting across faith and interest groups. Therefore the in-depth study should also investigate the potential of interventions in such areas to draw sub communities together and create 'community cohesion' which enables further activities. Moseley does indeed have a strong sense of place and having won awards for its farmer's market and 'Moseley in Bloom', it has become a place that people are proud to live in and be part of. This is reflected in the ability of SusMo's project to interest all faith and interest groups, and more generally in the large number of community groups to be found in Moseley (which provide social capital for their members). Such support enables residents to become involved in projects such as Green Streets, and act on their own initiative to tackle issues around climate change. This can also lead to human capital, further facilitating such projects as residents become more able to become involved, and learn the skills needed to organise and run them.

SusMo's intervention in this particular context (of a capable community) has clearly led to positive attitudes amongst residents amongst the Moseley residents interviewed here. The two interviewees are well informed about climate change, and saw individuals as having a key role to play in its mitigation. Both interviewees explained how they *personally* were 'doing their bit', by reducing their consumption of energy by changing their behaviour, and by becoming involved with SusMo both as beneficiaries and as committee members. It is clear that SusMo provided these residents with the opportunity to be involved in the management and running of a climate change project leading to positive attitudes towards the technologies and the process of intervention. The suggestion for an in-depth study would be to investigate how the style of intervention here can lead to positive attitudes and thus 'success in context'.

BCC's Birmingham Energy Savers is specifically aimed at communities in need and is well positioned to intervene in communities like Northfield. The SES of Northfield as a whole is diverse, and residents have a wider spread of educational attainment, but with a much larger proportion of people with no qualifications at all. Since educational achievement can influence occupational level, it is not surprising to see many residents in lower skilled jobs, with not such a large proportion of residents in one particular highly skilled area. However, the financial status of the Northfield council tenants interviewed here is straightforward – they must be of a lower socioeconomic status, and have lower financial capital in order to qualify for a council tenancy. In such circumstances, these residents would ordinarily be unable to adopt sustainable technologies, being constrained as they are by their financial context.

The two Northfield interviewees had varying levels of understanding about climate change, but saw a strong role for the local authority in mitigating its effects. This is unsurprising, these tenants would

not have been able adopt such sustainable energy technologies as PV without council aid. BES was the only opportunity these residents have to choose to do something about climate change in such a manner. As council tenants they also rely on the council for the maintenance of the technologies, as they rely on the council for the maintenance of the rest of their houses. Therefore they trusted the council over any other agent to install these panels.

This pilot gives evidence that the BCC intervention in this particular context led to a positive attitude to sustainable energy technologies in the two people interviewed here and thus 'success in context'. The residents trusted the council over other organisations to install the technologies, saw a strong role for the council in leading this type of project, and saw them as doing something "worthwhile". They were therefore willing to be a part of Birmingham Energy Savers and agree to the installation of the sustainable energy technologies. Neither Northfield interviewee noted a particular sense of community in their local area, were not close to their neighbours, nor members of community groups. This suggests that as a result, they had little structure through which they could act together with others and little opportunity to gain access to any skills or knowledge that other residents may have had about issues of climate change and sustainability.

The suggestion for an in-depth study would be to investigate how the style of intervention here (local authority-led) might be most appropriate to engender positive attitudes towards sustainable energy technologies and facilitate their uptake. The pilot also suggests that it would be interesting to further explore how a local authority-led intervention could also lead to an increase in community groups and action (social capital) and hence draw communities together in the future. The BES beneficiaries here, with their experience of the technologies could act as trailblazers, and discuss the technologies with other members of the community – thus increasing community cohesion and thereby the capability of the community as a whole.

CONCLUSION

The value of exploring attitudes to sustainable energy interventions in this pilot study has been to identify some important areas of study, to establish what can be found out from individuals about successful interventions, and to establish whether the style of intervention is important. This pilot does indeed suggest that the style of intervention is important to establish 'success in context', and this requires further study. It also raises important questions for further study about how interventions encourage 'community cohesion'; involving sub communities working together to interact and affect each others' attitudes.

The Northfield council tenants, having financial concerns and feeling less of an identity with the community, had 'success in context' from a top down intervention from a trusted body - BCC. An in-depth study would provide more conclusive evidence for whether local authority-led or community interventions are more appropriate in helping communities that are unable to act unsupported, and whether or not the local authority is the most appropriate and trustworthy body to suggest the take-up of these technologies; thereby effecting a positive attitude towards them.

The Moseley residents, being from a more affluent area, were unable to benefit from Birmingham City Council's project, but were more able to make use of their connections with friends and neighbours in the community in order to self organise. An in-depth study would provide more conclusive evidence for whether or not community interventions are appropriate in these communities since residents are skilled and can support each other to make such interventions work, and inspire the rest of the community. This is not to say that local authority-led interventions in communities like Moseley would *not* be successful. Therefore an in-depth study would also provide more conclusive evidence for whether or not community interventions in communities like Moseley (who can afford to be more critical of their local authority, being less dependent on them) can lead to *more* positive attitudes about sustainable technologies and the process of interventions, than would a local authority-led intervention. It would further refine whether the 'capability of the community' is necessary for

'success in context' here, and whether this can be developed in less cohesive communities as part of the intervention.

In a study looking for more successful interventions, it is important that we find out about individual attitudes, as well as they way individuals see their communities, technology and different types of intervention. This pilot study highlights some areas for investigation within local authority-led and community-led interventions. Potentially an in-depth study could also look at a third approach to interventions: the *facilitation* of a community-led intervention.

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DO SOLAR PANELS CHANGE BEHAVIOUR? INSIGHTS FROM A BIRMINGHAM CASE STUDY

Presented at the Urban Sustainability and Resilience Conference on 5-6 November, 2012, London, UK.

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ABSTRACT. Society and technology are intertwined in such theories as sociotechnical systems and ANT. According to ANT nonhuman objects have agency; they can script the behaviour of their users, and potentially be used to 'fix' the behaviour of unreliable humans. This paper uses this theory to assess preliminary findings from a wider PhD programme about interventions to facilitate sustainable energy behaviours, and focuses on the experiences of a number of beneficiaries of the Birmingham Energy Savers (BES) programme – a major PV retrofit project. It could be postulated that PV panels would script the behaviour of recipients and encourage them to be more energy aware. This research gives insight into this issue, and argues that the picture is more complicated. The process of change is complex, and ultimately unsustainable energy behaviours cannot be 'fixed' by technology alone.

Keywords: Technological Fixes, Behaviour Change, PV Panels, ANT

1. INTRODUCTION

Governments around the world are increasingly concerned with the problem of climate change [1-2]. For its own part, the UK Government passed the Climate Change Act in 2008, obliging the UK to cut its greenhouse gas emissions by 80% of 1990 levels by 2050. However after the perceived failure of the Copenhagen Climate Change Conference in 2010, there are concerns that dangerous climate change may yet not be prevented [3]. Changing peoples' energy behaviour is very important in the struggle to reduce carbon emissions – energy consumption in identical homes can differ by a factor of two or more depending on the behaviour of inhabitants [4]. It would seem there is a role for interventions that seek to change behaviour.

An intervention is here used to mean any regulation, policy, programme, measure, activity or event that aims to influence behaviour [5]. Wilson and Dowlatabadi [5] set out a range of different types of interventions predicated on different theoretical understandings of behaviour. Some interventions provide information or adjust price mechanisms to improve and guide decision making, predicated on rational actor and behavioural economics models of behaviour. Other interventions target innovative 'trend setting' individuals to encourage them to adopt new behaviours, predicated on an understanding generated from the insights of Diffusion of Innovation theory [6]. Other interventions may illuminate the behaviour of others, predicated on the understanding that people's behaviour is influenced by other people [7]. Yet other interventions seek to implement technologies to change behaviour (perhaps motion sensor lighting, or a public transport system), predicated on the understanding that decisions about behaviour are constructed by social or technological systems [5].

This last understanding of behaviour comes from the idea that society and technology are intertwined. The literature on sociotechnical systems [eg 8-10] describes how society and technology influence each other and co-evolve together; changing technology can change

society, and vice versa. In looking at the role of technology within society, Latour [10], in what has become known as Actor Network Theory (ANT), points to the "missing masses" in society. He argues that objects have agency, often as much agency as humans. A nonhuman object can sometimes have so much influence on the behaviour of a human that it can be said to 'script' the behaviour of that user, and force them to behave in a certain way. This idea leads to the notion of a 'moralised' technology as a possibility for environmental policy, whereby technology deliberately influences human behaviour toward more sustainable paths [11], acting as a technological 'fix' to the 'problem' of unsustainable human behaviour. These related theories give an understanding of the place of technology within society, of how technology might usefully be used in interventions to change energy behaviour. They help to understand what might occur in practice.

This paper draws on the preliminary findings from a wider PhD programme about interventions to facilitate sustainable energy behaviours, and focuses on the experiences of a number of beneficiaries of the Birmingham Energy Savers (BES) programme. At the particular phase of the programme under study, Birmingham City Council was installing solar PV panels onto the roofs of their housing tenants. Although the PV panels were not intended to directly proscribe the behaviour of tenants in the manner of Latour's descriptions of ANT, BES organisers have hoped that (additionally to their main aims of reducing fuel poverty, improving the local economy, and directly cutting carbon emissions) beneficiaries might become more aware of their energy use as a result of these panels, and change their behaviour accordingly. Previous research has found some evidence for this happening [12-13] and as such, this paper looks on these PV panels as a light technological fix.

This paper will outline some of the literature on the intertwined nature of society and technology through the concept of sociotechnical systems, and will then look specifically at the role of technology within that. In section 3 the case studies will be presented, and the methodology used. The findings are then presented in section 4, and conclusions and implications in section 5.

2. THEORETICAL FRAMEWORK

The theory of sociotechnical systems is useful in studying the interaction of society and technology because it pays close attention to the complexity of that interaction. This perspective suggests that the sociotechnical system has an overarching influence on everything within that system, but that that system is complex and its components interactive. ANT draws on this theory, providing a lens through which to view the specific role of technology in shaping the social world. By first understanding the sociotechnical systems perspective, the ontological claims of ANT are perhaps more readily accepted. Following on from these two related ideas, it is then possible to explore how technology could possibly be used to intervene to change behaviour.

2.1 Sociotechnical Systems

One of the key insights gained from an understanding of sociotechnical systems is that key societal functions, such as transportation, housing, communication, energy and feeding, are provided by systems which are comprised of technologies, supporting infrastructures, natural resources, research priorities, business models, regulations, user behaviours and cultural expectations [14-15]. Hughes [15] coined the metaphor of a 'seamless web' to describe the way in which all of these components are combined. An example of such a seamless web is

given by the UK system of electricity provision. Under the current electricity 'regime', electricity is provided mainly through the burning of fossil fuels at large centralised power stations and carried to the end user via alternating currents in electricity pylons. Electricity is mainly provided by the 'Big Six' energy companies. These companies comprise engineers and other skilled personnel. The education system as a whole provides those personnel with the necessary skills and knowledge to carry out their professions. Further knowledge is provided by R&D departments, universities and other institutions. A National Grid, transporting electricity across the country, is regulated by a number of District Network Operators. Finance is provided by banks. Materials and components are supplied by other companies within the supply chain. The energy market as a whole is regulated by the Office for Gas and Electricity Markets (Ofgem). Electricity users are both commercial and domestic customers with expectations and well defined practices to do with electricity.

This is referred to as a sociotechnical 'regime' because it is made up of stabilised interdependencies. The regime is the rule-set embedded in the above system [8, 16]. As technical components co-evolve with social elements through a process of mutual adaptation and feedback, the components become interdependent, and so the system as a whole becomes stable. Mature sociotechnical systems possess 'momentum' – a tendency towards inertia [17]. Another key feature of mature sociotechnical systems which comes about as a result of this inertia is 'lock-in' – the particular regime of function provision becomes irreversible since the technology is proven and ubiquitous, the infrastructure is set up to support it and no other technology, and users know how to use that technology. The status quo is reinforced [8,17,18].

2.2 Objects have Agency

ANT draws on the idea of the interrelationship of society and technology from the sociotechnical systems perspective, and looks more specifically at the role of technology in influencing social processes. It argues that an actor is the 'source of an action' and that this definition is not limited to humans [10:256]. These actors are linked together in a network; social life is in fact considered to be comprised of a network of heterogeneous materials; objects, texts, architectures, all of which pattern (or give shape to) social life [19]. Latour [10] gives the example of a hydraulic door; it closes itself (the action) without human intervention. He argues that it makes sense to think of 'programmes of action'; parts of which are endowed to parts of humans and parts of which are endowed to nonhumans [10]. In the programme of action of going from one room to the next through a door, the human opens the door, and the springs and hydraulic pistons close the door.

Akrich [20] introduced the notion of the 'script' of an artefact to describe how technological objects enable or constrain human actions, and the relationships between humans and nonhumans. She describes this as literally like a film script which defines a framework of action. Scripts can be closed, i.e. very prescriptive. An example is the Berlinner key. Designed as a result of undisciplined tenants forgetting to lock their doors behind them, the key has a bit at either end of the shaft. In order to open the door, the key must be inserted into the lock and turned. However once turned, and the door unlocked, it is impossible to remove the key from the lock. To do so one must push it through the keyhole and turn the key again – effectively locking the door at the same time. It is now impossible to retrieve the key on entering the door without first locking it. In this case behaviour has been prescribed; the user must lock the door. Scripts can also be more open or less prescriptive, perhaps just

suggesting a way of behaving. An example might be a sign reminding one to lock the door behind them, or an alarm that sounds in a car if the driver is not wearing a seatbelt.

2.3 Moralised Technology and Behaviour

Interventions to change behaviour are often trying to make people behave well or achieve some wider good, according to some predefined understanding of 'good' behaviour. In the context of energy behaviour, the current sociotechnical regime of electricity provision is damaging the environment [18]. Current energy behaviours are in this context 'bad'. However, as described above, the UK is locked in to a centralised system which is largely based on fossil fuels – about 75% of the UK's energy needs are met by oil and gas [21,22]. This system is hard to escape because of the reasons outlined above, and because new renewable energy technologies such as photovoltaics (PV), wind, bioenergy and so on find it difficult to compete with the regime, especially in terms of the price of the technologies, the efficiency of the regime as a whole [14, 23]. The behaviour of technology users is nevertheless still important; energy consumption in identical homes can differ by a factor of two or more depending on the behaviour of inhabitants [4]. Therefore there is an argument for attempting to change energy behaviours in order to reduce the amount of energy used, even if users are constrained in their energy choices overall as a result of the regime.

Devine-Wright [24] gives a useful insight into the psychology of energy users given the cultural expectations of the current electricity regime. He argues that energy is viewed as a commodity in the UK. This view, coupled with the fact that the regime of energy provision is a centralised one, gives rise to the representation of energy users as customers or consumers. This view coexists with a 'deficit' view of energy users – they are seen as separated and disengaged from energy systems. Their understanding of energy extends as far as flicking a switch to light up a room. There is a body of research which indicates that this view of energy users is indeed correct. There is research to suggest that energy consumption is invisible and that users take energy for granted [25-26]; that few people directly link their energy usage with costs, and instead believe cost is more related to the energy supplier [13]; that there is little understanding of how energy technologies work [27]; and that there is a general lack of awareness of the impacts of domestic energy consumption on climate change [28]. Finally, siting power stations away from population centres has left energy users minimally aware of where their electricity comes from and how the system works [29-30].

Devine-Wright goes on to argue that under a decentralised regime of energy provision, energy users might be quite different; empowered and informed citizens who participate in a system of co-provision of energy products and services [24]. However, this would represent a massive regime shift, and is as such unlikely to happen without interventions of some sort [8]. 'Moralised' technology could be one such intervention that could be used to force or encourage energy users to think about their energy, and use it in more sustainable ways. Achterhuis (quotationd in Jelsma [11]) launched the idea of deliberately influencing human behaviour through 'moralised' technology as an option for environmental policy. Latour [10:227] argues that sociologists:

> "are constantly looking, somewhat desperately, for social links sturdy enough to tie all of us together, or for moral laws that would be inflexible enough to make us behave properly. When adding up social ties, all does not balance. …Something is missing, something that should be strongly social and highly moral. Where can they find it? Everywhere … in the sociology of artifacts"

Jelsma [11] has since argued that new scripts could be designed into objects to encourage or compel sustainable energy behaviour. The problem of unreliable human behaviour in the realm of energy could be dealt with by giving part of energy 'programmes of action' to reliable technology.

2.4 Do Solar Panels Change Behaviour?

The installation of photovoltaic (PV) panels has increased greatly since the introduction of the Feed in Tariff in 2010 – in June 2010 1 household per 10,000 had a PV panel, whereas in September 2011 that number had increased to 29 per 10,000 households [31]. Behaviour change is needed to maximise the benefits from solar panels; as they only work in daylight hours it makes sense to shift energy intensive activities to the daytime. Keirstead [32] has found evidence of PV panels owners shifting their energy use in this way.

However, there is also research to suggest that PV panels can yield a double dividend – they provide renewable energy but also cause householders to think about energy use more and as such *reduce* their use of energy, beyond just shifting energy intensive tasks to times of peak energy production. Keirstead [32] reported a 6% reduction in overall electricity use for his research participants as a result of the installation of PV. Dobbyn and Thomas [13] have found significant increases in awareness of electricity use in their study, which encouraged changes in behaviour. Other research supports these findings [12, 33]. PV panels could therefore be described as having a more 'open' script; they encourage behaviour change, rather than enforce it.

3. METHODOLOGY AND CASE STUDY

A Critical Realism stance is adopted which assumes that reality exists externally to scholarly understanding of it and humanity's knowledge about the world corresponds to that reality, however this knowledge can never be certain, and will always be fallible [34-35]. Following this line of argument, all knowledge is essentially socially constructed, however some knowledge corresponds more closely with external reality than other knowledge. In a critical realist stance a qualitative research approach would be most appropriate for generating insight and knowledge into the social world. This approach points to the role of context and helps to give a complex understanding of reality which corresponds to the rich and nuanced nature of social reality. Lincoln and Guba [36] first pointed to the use of case studies to report findings as part of this approach, since they allow the generation the necessary rich and complex knowledge that can approach the contradictions of real life. Flyvbjerg [37] argues that case studies produce the type of context-dependent knowledge that is necessary to allow people to develop from rule based beginners to 'virtuoso' experts. He also argues that in the social world, the only knowledge is context dependent knowledge.

For this research, a case study is used to explore in detail the impact solar PV has had on the recipients' lives. As Mingers [38] argues, 'there are substantively different kinds of things which can be the object of knowledge to which there are different forms of epistemological access' (page 63). Although the semi structured interviews carried out here as part of this case study only gain access to the recipients' own interpretations of their situations, they nevertheless allow best access to the answers to 'why' and 'how' questions. In this way the reasons for any changes in energy behaviour and attitudes can be more fully understood.

The research presented here are some preliminary findings of a wider PhD programme which is aiming to 'determine how interventions can facilitate sustainable energy behaviour'. The PhD is comparing two case studies; a small community group who have installed solar PV and other energy efficiency measures in homes and community buildings in their local community, and Birmingham Energy Savers, a local authority-led programme which has been fitting PV panels to social housing tenants' homes as a run-up to implementing the Green Deal over the coming months. This paper uses data from the Birmingham Energy Savers case study. Birmingham Energy Savers began in 2010, aiming to cut carbon emissions as well as create local jobs and help fuel poor or vulnerable households. During the pilot phase, from which interviewees were drawn, over 150 households, 6 business premises and 2 social enterprises were fitted with PV panels, paid for by the City Council, who recouped the money from the Feed-in Tariff.

The theories explained in the theoretical framework describe large and often abstract systems. However individual energy users represent one component of the sociotechnical system, or one 'node' within an actor network, and studying them provides an opportunity to see how that one component or node might interact within the wider system. Hence the data presented here is from a small number of interviews (5) with PV recipients. During the interviews they were asked about their energy use since the installation of their panel, their feelings about electricity and their panels, and their feelings about environmental issues and also the role of Birmingham City Council in addressing these issues. These topics were explored to understand if there had been any change in understanding about or views of energy, energy behaviour itself, and concern for the environment since the installation of the panel.

Since the number of interviews is so small, the findings are sadly limited. However they provide insight into energy behaviour, changes in that behaviour and what brought those changes about, and the role of energy within the participants' lives. This insight will help shed light on the role of this particular technology in influencing energy behaviour, and thereby help assess the usefulness of the above theories in practice.

4. RESULTS

The findings will lay out the different ways the recipients responded to their PV in terms of their energy behaviour and feelings about energy. These specific examples demonstrate some of the human/non-human interactions within this one part of the energy sociotechnical system. First is described the issue of the shifting of energy use, as a change of behaviour brought about by the installation of the solar panel. The matter of a reduction in the overall energy use of participants is then briefly laid out. Finally, indications of the attitudes of some of the participants to energy, or its role in their lives will be presented.

4.1 Shifting Energy Use

There is some evidence that the householders shifted energy use to the daytime to match peak production, in the manner described in some of the above literature. This householder provides an example:

> *"I used to do all my washing on a night time . . . and then early the next morning take it out . . . but not now, . . . so obviously I'm getting my washing done free now. . ."* H1

However other participants had not shifted their energy use to match peak production:

"basically people, people will, ca- can't really change their lifestyles." H2

" I don't think to myself I won't do the washing today cos the sun's not out, I, I just carry on as normal, I don't change my routine, I do, do the washing and do the drying, I don't wait till tomorrow in, in case, I don't do that sort of thing, . . . just because . . there's so many of us that if I waited till tomorrow I probably wouldn't get into the kitchen" H3

For other participants, using electricity in the daytime did not actually represent a change of behaviour:

"I used to use me washing machine during the day anyway, so I still do that, you know I mean like, obviously me ironing I do during the day, but you know I mean, not much has changed." H4

This was the same for two other participants (H5 and H2). For these three participants, this was because they were pensioners or on long term benefits and so were at home during the day in any case.

4.2 Reducing Energy Use

One householder became much more careful with their energy use after the installation of their panel, as the below quotation shows. However, although the addition of the solar panels *may* have made the issue of energy conservation more salient to this householder, other factors were also involved in their eventual change in energy behaviour:

"I go round the house now and I make sure everything's off . . . to save electric cos, I was talking to someone and they said to me that, they used the card or the key or whatever, and they says to me um, . . they go to bed of a night, and they, they was shocked at how much the count had gone up. And they was in bed not using anything!" H1
"And that [you changed] because you had a conversation with a friend rather than, something to do with your panel?" Interviewer
"No it's just basically the, what they were saying" H1

Others have not reduced the amount of energy they use:

"I still leave them[radios] turned on, plug in . . . Yeah, the radio and the kettle, um, the telly I leave on, me telly, that's plugged in, you know, I just leave that on standby when I go to bed of a night." H4

As they said:

"I can't be bothered to go round turning everything off of a night time" H4

4.3 Thoughts about Energy

One participant (H1) had become much more aware of their energy use since the installation of the panel. Part of that was related to a conversation with a friend, as shown above, but some of that increased awareness appears to focus on the panel:

"I've become more aware of it now, I make sure everything is switched off. . . I'm always watching the clock. . . I'm looking at the numbers to see if they're going down or up." H1

However, for other participants, the panels had become almost invisible:

"I think I forget they're there almost, it's just when me bills come in, and you hear other people say oh, I had me bill in you know, and you think god, mine's a lot less than that" H5

"I just, I've just accepted it like, . . . you know, I just take no notice now. They're on there, that's it!" H4

One participant viewed the PV panel in the same way as many 'taken for granted' technologies:

"It's the more you use something, you've got a mobile phone, and whassnames, so you take it for granted." H2
"Yeah. Is that how you feel about your solar panel?" Interviewer
"Yeah that's, basically." H2

5. DISCUSSION

The sociotechnical systems perspective and ANT are both large systems views which give an understanding of how technology and society influence, and are influenced by each other. ANT particularly gives weight to the role of objects or technology as actors, influencing other (human) actors within a wider network. This paper looks at one component of the energy sociotechnical system, or node within that network – that of domestic energy users, in order attempt to understand if and how solar panels can change peoples' behaviour; how people might act when presented with the panel as an open script. The research presented here provides insight into how this relationship between two actors – energy users and PV panels – might be played out within this wider system. It finds that this interaction is much more complex than is suggested in the literature.

Shifting energy use is the easiest to perform and most obvious behavioural response to having a solar panel, given that the energy cannot be stored and therefore must be used at the time of production. However, this did not always happen in direct response to the installation, if at all. One recipient (H1) has indeed shifted their energy use to match peak demand – they saw the reason to do so and were in a position to do so. However H3 did not as any wish to conserve energy was not as strong as the need to keep the amount of dirty laundry under control, given the large family this recipient had living at home. For H2, H4 and H5, there was no change in behaviour because using electricity in daylight hours was *already* everyday behaviour as these recipients were pensioners who spent most of their time at home during the day in any case. This is a potentially key point of note for the organisers of Birmingham Energy Savers. One of the stated aims of the project is to cut carbon emissions, and clearly carbon emissions could be even further reduced if their installation is attended with appropriate behaviour change. However as Birmingham Energy Savers is at this stage focusing on vulnerable and low income social tenants, there is less potential for making very large carbon savings through the introduction of a technology which may influence behaviour. These participants already use most of their energy during the day as normal

practice, and some are already conscious of saving electricity to save money as they are on lower incomes.

As some of the literature suggests[13, 32], the installation of renewable energy technologies can lead to an overall reduction in the amount of energy used as the technologies inspire owners to conserve more energy, acting as an open script for their behaviour. H1 had indeed become much more careful about conserving energy, and part of that was possibly because the PV panel made the issue more salient to them. However when probed as to the reason for this pronounced change, the recipient pointed to a conversation with a friend as the cause. As for H4, their energy behaviour had not changed at all, and they were not particularly careful with energy.

The same body of literature [13, 32] suggests that the installation of renewable energy technology can at least raise awareness about energy use. Once again the picture was more complicated.
The recipient H1 had become more aware of their energy use, but this is as much to do with purely social influences as it is to do with the influence of the PV panel actor. Others recipients; H2, H4 and H5, have not become more aware of their usage – their view of electricity seems to be as passive and 'out of sight, out of mind' as those of users of conventionally produced electricity [24, 30, 31]. Indeed, whether the electricity was from their own decentralised PV panel, or from a centralised fossil fuel burning power station, the end result for the recipient was the same; they turned on a switch and an appliance came on. An increase in awareness of energy amongst these participants appears to rely on more than just the influence of a technological object.

6. CONCLUSION

The process of change is therefore complex. Technology and energy are an invisible part of the social world, and an intervention to install certain technology may need to be accompanied with other changes if behaviour is to be influenced. As one recipient here was so influenced by social factors, perhaps these must also form part of any intervention. Or perhaps the technical surroundings must be changed more drastically, so they can exert more influence on human actors. For example in Dobbyn and Thomas's [13] research, those social housing tenants who *most* changed their behaviour as a result of the installation of renewable energy technologies had actually recently moved into full Eco-homes, which confronted them with an entirely new way of living and the potential to break old habits. Within interventions to change behaviour there is a role for technology, but interventions must be multifaceted and suitably complex if they are to achieve change.

This paper is limited by the small amount of data and therefore further research is needed to gain a fuller understanding of the role of technology and PV panels in particular, in encouraging energy behaviour in more sustainable directions. However the data raises interesting questions about that role.

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Local Sustainable Energy Projects as part of Wider System Change; The Story of Local Projects

Presented at the European Conference on Sustainability, Energy and the Environment, 4-7th July 2013, Brighton, UK.

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Abstract

Climate change as a result of human activity is widely accepted around the world as one of the key threats of our age; caused by and leading to a number of social, environmental and economic factors. Many national and international laws now oblige the reduction of carbon emissions. Given that just under a quarter of the UK's carbon emissions are from energy use in the residential sector, much attention in the UK has been focused on domestic energy efficiency refurbishment and behaviour change projects. However, energy users are often 'locked-in' to certain energy systems and practices as part of national sociotechnical regimes. Previous studies, however, have not explored what happens in individual, localised projects as part of system transition to sustainable energy use. This research explores this; looking at two Birmingham case studies. Each installed energy efficiency and microgeneration technologies and attempted behaviour change. In both projects a multitude of causative beliefs were found relating to both the problems that each project was trying to solve the solutions to those problems, hence the nature of success. Success was interpreted differently by different organisers, depending on their own priorities in the complex interconnected issues of energy and social sustainability in a diverse and often deprived city. The research demonstrates that in many projects there are positive outcomes, although not always the one originally hoped for. None of these successes are explicitly to do with the transition of the energy sociotechnical regime, and yet the projects do contribute to such a transition. Successful projects are more likely to be built upon, allowing systemic change over a long time. Local projects can act as a 'step' in this process.

1. Introduction

Anthropogenic climate change is now accepted in the scientific community (IPCC, 2007, Cook, 2013), and governments around the world are increasingly attempting to stall or mitigate its advance. The Kyoto Protocol was the first piece of international legislation in this vein, which in 1997 set legally binding targets for signatory countries to reduce greenhouse gas emissions, by 5% of 1990 levels by 2012. The UK Government has since passed the Climate Change Act in 2008, obliging the UK to cut its greenhouse gas emissions by 80% of 1990 levels by 2050. This has primarily been done so far by focusing on carbon emissions from energy provision and use. The Energy Act followed in order to support this target by making provision for renewable energy, and other legislation introduces innovative ways to fund energy efficiency improvements in the commercial and domestic sectors (GOV.UK, 2013).

Domestic energy use is a key area to target in order to reduce UK carbon emissions, as energy use in this sector is nearly a third of total UK energy use (Swan et al., 2010). In the home, energy use can be cut significantly through behaviour change, Government has explored this in a number of reports . However, it is difficult to change behaviour as people are constrained in important ways by the surrounding technological infrastructure. People cannot turn down their heating beyond a certain level if their home is so energy inefficient that it cannot retain that heat, and the house becomes so cold that the occupants become ill.

This understanding of behaviour comes from the idea that society and technology are intertwined. The literature on sociotechnical systems (for example, Rip and Kemp, 1998,

Shove, 2003) describes how society and technology influence each other and co-evolve together. Energy is understood as being provided by a 'sociotechnical regime'; an interdependent system of technologies, regulations, business models, engineering practices, user behaviours and cultural expectations. As this system is comprised of interdependent components, it is very difficult to change. This is a serious problem, as that system is based on the unsustainable use of fossil fuels. Scholars have been interested in how an understanding of sociotechnical systems can be used to bring about a system 'transition' (Geels, 2002, Kemp et al., 1998, Loorbach and Rotmans, 2010). However, little attention has been given to the role of local projects in such a transition, particularly how they play out in practice. This research addresses that gap.

This paper draws on the findings of a wider PhD programme about local projects for sustainable energy, which explores two Birmingham-based local projects for sustainable energy. The first is Birmingham City Council (BCC)'s Birmingham Energy Savers (BES) programme, which installed photovoltaic (PV) panels on a number of households across the city. The second is the community group Sustainable Moseley's (SusMo) Green Streets project, which installed energy efficiency and micro-regeneration technologies, and worked towards addressing behaviour change. An exploration of these two projects, carried out by in-depth, longitudinal case studies, shows the role that these projects can play in a wider energy system transition.

This paper outlines the literature on sociotechnical systems in section 2, and explains the constraints this places on individual behaviour. In section 3, the case studies will be presented, and the methodology used. The findings are then presented in section 4, and conclusions and implications in section 5.

2. Theoretical Framework – Sociotechnical Systems and Transition Approaches

The theory of sociotechnical systems is important in studying the interaction of society and technology as it pays close attention to the complexity of that interaction. This perspective suggests that the sociotechnical system has an overarching influence on everything within that system. The Multi-Level Perspective (MLP) on system transition is built upon this understanding, and has led to a number of approaches to guide the transition of the current unsustainable energy system to one which is more sustainable. However, there are gaps in our understanding of sociotechnical transition, which will be explored.

Sociotechnical Systems

One of the key insights gained from an understanding of sociotechnical systems is that key societal functions, such as transportation, housing, communication, energy and feeding, are provided by systems which are comprised of technologies, supporting infrastructures, natural resources, research priorities, business models, regulations, user behaviours and cultural expectations (Geels, 2002, Hughes, 1987). Hughes (1987) coined the metaphor of a 'seamless web' to describe the way in which all of these components are combined. An example of such a seamless web is given by the UK system of electricity provision. Under the current electricity 'regime', electricity is provided mainly through the burning of fossil fuels at large centralised power stations and carried to the end user via alternating currents in

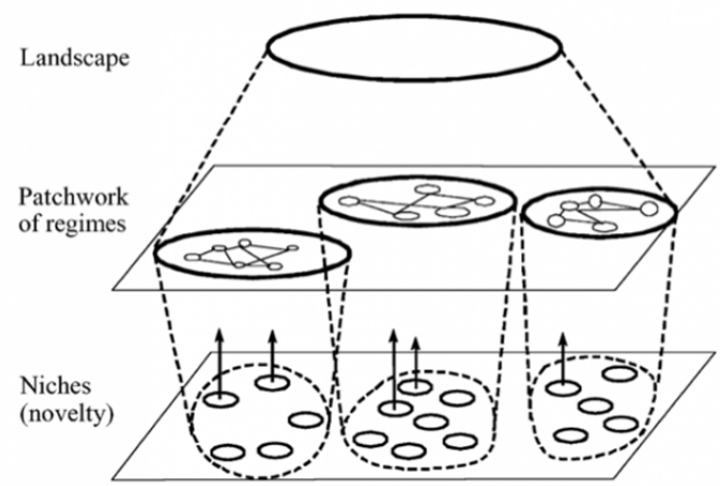
electricity pylons. Electricity is mainly provided by the 'Big Six' energy companies. These companies comprise engineers and other skilled personnel. The education system as a whole provides those personnel with the necessary skills and knowledge to carry out their professions. Further knowledge is provided by R&D departments, universities and other institutions. A National Grid, transporting electricity across the country, is regulated by a number of District Network Operators. Finance is provided by banks with risk averse lending practices. Materials and components are supplied by other companies within the supply chain. The energy market as a whole is regulated by the Office for Gas and Electricity Markets (Ofgem). Electricity users are both commercial and domestic customers with expectations and well-defined practices that imply electricity. The system is similar for heating.

This is referred to as a sociotechnical 'regime' because it is made up of stabilised interdependencies (Rip and Kemp, 1998). As technical components co-evolve with social elements through a process of mutual adaptation and feedback, the components become interdependent, and so the system as a whole becomes stable. Mature sociotechnical systems possess 'momentum' – a tendency towards inertia (Lovell, 2005). Another key feature of mature sociotechnical systems which comes about as a result of this inertia is 'lock-in' – the particular regime of function provision becomes irreversible since the technology is proven and ubiquitous, the infrastructure is set up to support it and no other technology, and users know how to use that technology. The status quo is reinforced (Lovell, 2005, Biggart and Lutzenhiser, 2007, Unruh, 2000).

The Multi-Level Perspective on Sociotechnical Transition

A key insight that comes from the theory of sociotechnical systems is the 'Multi-Level Perspective' (MLP) (Rip and Kemp, 1998, Geels, 2002), which helps to understand how sociotechnical systems change from one regime to another. The MLP describes three levels – a micro, meso and a macro level; respectively the niche, the regime and the landscape.

Figure 1 – The Multi-Level Perspective (taken from Geels 2002, page 1261)



The sociotechnical regime sits at the meso level, and is the site of incremental innovation to improve the 'dominant design of technology' (Nelson, 1995). Here dynamic games are played out within and between firms incumbent in the regime according to their rules and routines; there are user preferences for the regime's technology (and ways of using it); and regulations which suit the peculiarities of the regime. At the macro level is the sociotechnical landscape; a stabilised backdrop which exerts influence, and which it is difficult to change (Geels and Schot, 2007, Geels, 2004). Technology, or the material culture of societies is part of this landscape (for example, the road network), as are shared cultural beliefs, symbols and values. At the micro level there are technological 'niches', which some argue are the site of radical innovations with the potential to change the regime completely (Geels, 2004, Rip and Kemp, 1998, Smith, 2007, van der Laak et al., 2007). They are protected spaces which shield new technologies from the mainstream market selection of the regime. Here heterogeneous actors can learn about the technologies and experiment with them (Geels, 2004). Historical case studies have given examples of such niches going on to replace the incumbent regime; for example the replacement of sailing ships with steam ships (Geels, 2002).

Transition Approaches

Transition approaches build on the insights of the multi-level perspective of sociotechnical transitions and make suggestions for how bring about a transition to a more sustainable system. Three approaches are discussed here; Strategic Niche Management (SNM), Transition Management (TM) and Technological Innovation Systems (TIS).

SNM (Kemp et al., 1998, Witkamp et al., 2011) starts from the MLP's premise that new technologies arise in niches where the technology does not have to compete with mainstream technologies, which can give new technologies a chance to develop and grow. Niches are important for demonstrating the viability of the technology, to help build a supportive social network behind a technology, and allowing interactive learning and institutional adaptations. Kemp *et al.* (1998) suggest a process of SNM, beginning with a range of possible technologies, followed by selecting an appropriate experiment, striking a balance between protection and selection pressure. The experiment is then scaled up, and finally the protection is broken down again.

Transition management does not focus on fostering a particular innovation. Kemp *et al.* (2006) suggest Transition Management (TM) as a tool to transform society through a gradual

reflexive process of variation and selection. TM calls for continuous and iterative deliberation and assessment in a well organised discourse; for cooperation and network management to formulate joint visions; and common goals to help actors coordinate their actions. Once a guiding vision is agreed upon, 'backcasting' is used to identify strategic experiments and set goals. A portfolio of different options is used to avoid locking in to one particular solution which may not be the best in the long term. TM also must find a way to survive short term political changes, since sociotechnical systems take one generation or more to change. This approach has had some success in the Netherlands (Loorbach and Rotmans, 2010).

Technological Innovation System (TIS) (Hekkert et al., 2007, Musiolik et al., 2012) is used to understand how desirable innovations diffuse, and how facilitate that diffusion. The approach recognises that innovation is a collective activity, taking place within the context of a wider innovation system. TIS is concerned with seven functions that are important for well performing innovation systems; entrepreneurial activities, knowledge development, knowledge diffusion through networks, the guidance of the search, market formation, resource mobilisation and the creation of legitimacy. By mapping and analysing all the functions of a particular technological field or system, one can identify weaker functions, and barriers and opportunities (Jacobsson and Johnson, 2000) which can be dealt with or taken advantage of with relevant policy (Hekkert et al., 2007).

Essentially, all of these approaches are about making sure there is a good network of the right people (i.e. with some influence and power) that can work together to think outside the box, and to invent and support new technologies or experiments to begin regime change.

Difficulties with Transition Approaches

There are some difficulties with these theories. Smith et al. (2010) list some of these; exactly how the niche regime and landscape interact is much more complicated than originally thought, the fact that regimes for different societal functions interact with each other is not addressed, and the role of places and spatial scales has not hitherto been an area of concern. This research departs from this last criticism, which asks how local places attempt to transform their mobility, energy, waste and housing systems.

This research looks at the practice of individual city or neighbourhood-level projects as they unfold. What do these projects for change look like? How do they contribute to wider energy system transition? Theory makes us look at these projects in a certain way; as conscious, purposive and directional projects to specifically unlock unsustainable regimes. However, are these projects actually perceived this way in practice?

3. Methodology

A Critical Realism stance is adopted which assumes that reality exists externally to scholarly understanding of it and humanity's knowledge about the world corresponds to that reality, however this knowledge can never be certain, and will always be fallible (Bhaskar, 1978, Bhaskar, 1979). All knowledge is essentially socially constructed, although some knowledge corresponds more closely with external reality than other knowledge. In a critical realist stance a qualitative research approach would be most appropriate for generating insight and knowledge into the social world as it highlights the role of context and the nuanced nature of social reality. Lincoln and Guba (1985) first pointed to the use of case studies as part of this

approach, since they allow the generation the necessary rich and complex knowledge that can approach the contradictions of real life, and this now has much support as a research method (for example Flyvbjerg, 2006).

For this research, case studies were used to explore in detail to explore the reality of local projects for energy system change. This research results from a PhD which was originally entitled 'Interventions for Behaviour Change'; and so the projects were originally conceived of as behaviour change projects.

Birmingham City Council's BES project was the first case study. This project installed over 1300 solar PV arrays mainly on social housing throughout Birmingham, from September 2010 until December 2011. The project made use of the Feed in Tariff, introduced in 2010, to recuperate the costs of these panels. The project was intended as a fore-runner to the Green Deal; a piece of legislation allowing householders to have energy efficiency improvements carried out on their homes for no initial cost, and then repay over time using savings made on energy bills. BCC were procuring a partner organisation to help them deliver this programme, and the income from the PV 'phase' was originally intended to pay for that procurement.

The second case study was of SusMo's Green Streets project. SusMo is a voluntary community group based in Moseley, a neighbourhood in South Birmingham, which exists to help Moseley cut carbon emissions. The Green Streets project began early in 2010 after SusMo won £140,000 worth of goods and services from British Gas; one of the UK's 'Big Six' energy providers. From 2010 until the end of 2011, SusMo organised the installation of PV on four community buildings; a church, a mosque, a school and a local allotment building. Solar PV, solar thermal panels and energy efficiency measures were also installed in 17 homes. The resident beneficiaries were also asked to sign up to 'iMeasure'; an online tool which aims to help people become more aware of their energy use.

As part of these case studies, semi structured interviews were carried out with both the organisers of the projects and a sample of those who benefitted from them. This was to gain access to the project participants' own interpretations of the projects, allowing access to the answers to 'why' and 'how' questions. Observations were also made at monthly project meetings, and other documents, such as minutes, project outlines and project evaluations also provided background information.

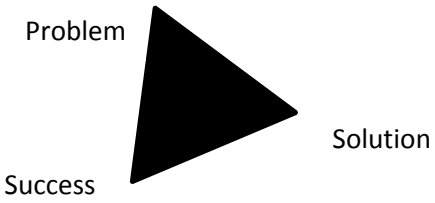
4. Findings and Discussion

'Success' emerged from the data as a key analytical concept. As a meta-concept, 'success' was found to be more important than the concept of 'behaviour change'; it subsumed behaviour change. Therefore, the data was analysed to explore in what way the projects were perceived to be successful. The first key finding was that different people had different conceptions of success. These stemmed from different beliefs about the 'problem'. These beliefs were termed 'causative beliefs', the nature of which is explained below.

Causative Beliefs

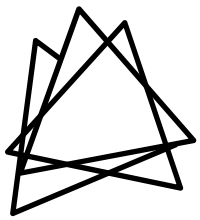
Causative beliefs concern what a person believes the problem to be addressed by a project actually is; what the solution would be and therefore what success is; i.e. the resolution of the problem as they see it. These three elements are three parts of the same mental construct; they are a triplet or triangle. When talking about these projects, participants saw them as successful if they had solved the problem as they had perceived it. If it had not, they viewed the project as a failure. This is presented below as a triangle. The triangle is presented at a slant to avoid the impression that one point of the triangle, being at its apex, is the most important.

Figure 2 – The triangle of causative beliefs



The nature of project is made more complex by the fact that there are a number of different triangles of causative beliefs in each project. Each individual emphasised one particular triangle during interviews; one particular problem their project was trying to solve, and its attendant solution. However this does not mean that they did not see other triangles; other problems and their solutions. Each individual *prioritises* particular triangles of causative beliefs. Within a project, these triangles of causative beliefs are negotiated organisationally and socially, with different triangles being emphasised at different points, according to different circumstances.

Figure 3 – negotiating triangles of causative beliefs



Causative Beliefs: the Problem and 'Success'.

The problems as perceived by the participants of the project, both organisers and beneficiaries, covered a great range. Behaviour change, the original aim of this research, was a necessary part of the solution to a number of problems, but rarely an indication of success in its own right. The main causative beliefs found in this research are given below, with quotations to provide evidence:

Problem 1: Fuel Poverty.

"most of the PV in Birmingham is on social housing, and was done for fuel poverty reasons" (BES organiser)
"I thought we'll have a go and see if it saves any money . . . Every little penny counts these days" (BES beneficiary)

The solution to this problem was to install energy saving measures and change behaviour.

> *"The PV panels were 'sold' as a mechanism for saving money"* (BES organiser)
> *"The best way of getting people to save money on their fuel bills is to make them change their behaviours that are giving higher electricity bills. For some vulnerable occupiers that is not possible"* (BES organiser)

Success under this conception of the problem was therefore reduced bills for project beneficiaries, and their alleviation from fuel poverty.

Problem 2: Too much energy is used, which is either environmentally or economically unsustainable.

> *"if you've had a terribly inefficient boiler . ..[you're] throwing good fuel after bad"*

The solution to this problem was to reduce the energy being used through either physical measures, behaviour change, price changes, or all of these.

> *"Fuel will be saved by happenchance . . That's what the technology's for, but to get the best out of something you want people to understand it"* (SusMo organiser)

Success under this conception of the problem was therefore reduced energy consumption.

Problem 3: Many people have unsustainable lifestyles.

> *"People [need to realise] the importance of not driving cars around for short distances and stop buying everything encased in plastic"* (SusMo organiser)

The solution to this problem was perceived as increasing awareness of environmental sustainability through visible physical measures, information and behaviour change.

> *"They can see the meter go backwards, they're generating, they can see that, why have I got 50watt halogen light bulbs, when I turn two of them on, that takes all the power from my PV. I should get some energy efficient ones"* (BES organiser)

Success under this conception of the problem was viewed as nothing less than a 'conversion' to environmental sustainability and advocacy.

> *"we had also hoped that our core group of people would be greatly enlarged with all these people who had been inspired by everything, and in that we were greatly disappointed"* (SusMo organiser)

Problem 4: Delivering large projects is difficult.

> *"It took a lot of work going round politicians and senior management, again and again, because it doesn't make sense in the first instance"* (BES organiser)

The solution to this problem was to manage anxiety, bring together the right people, include a number of key aims to please different stakeholders, and to create tension to get the best decisions.

> *"So you say it's only five million this time round, then [later] you approve the full business case for the pathfinder programme, that's only this much money – you have to lead them on a journey"* (BES organiser)
> *"When I set up the board for the programme, I set up three champions , a social benefit champion, an environmental champion, and an economic champion. I had a tension"* (BES organiser)

Success under this conception of the problem was therefore the delivery of a large project.

Problem 5: Few jobs and economic deprivation.

> *"We've got the highest levels of unemployment in the country! It's not good for the city!"* (BES organiser)

The solution to this problem was to work towards regenerating the city's economy, in this instance through construction for energy efficiency.

> *"If we're gonna make it happen, we've got to think big. [That way] we get all the other benefits . . We get the jobs"* (BES organiser)

Success under this conception of the problem was therefore simply to achieve more jobs.

Problem 6: Homes need to be kept up to date.

> *"They have to keep the property up to scratch"* (BES beneficiary)

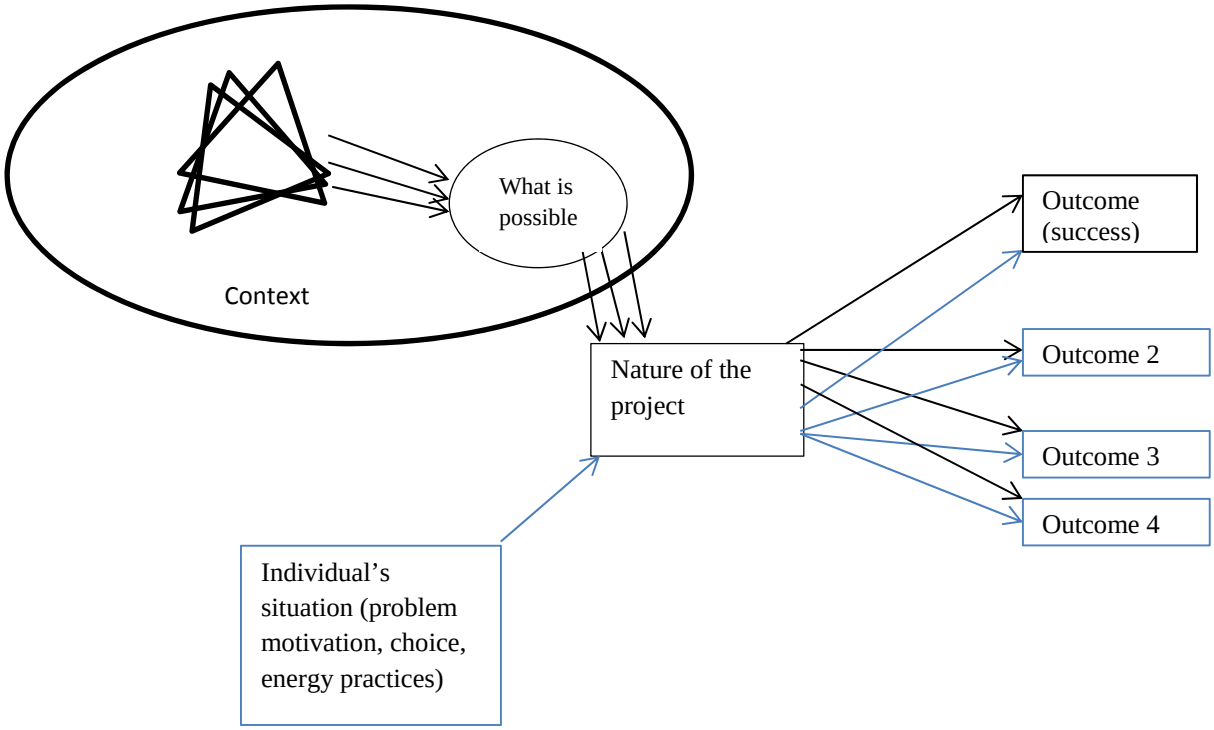
The solution to this problem is therefore refurbishment or new technology.

> *"so I said well I do rather fancy the idea of having a new boiler for nothing"* (SusMo beneficiary)

Success is therefore having new technology installed or refurbishment works carried out.

It can be seen, therefore, that there are a number of different conceptions of the problem held by both organisers and beneficiaries, and therefore a number of different conceptions of success. This is shown in the below diagram.

Figure 4. The multiple 'successes' in a local project for sustainable energy



The wider context influences the nature of the project. This includes the organisation in which the project organisers are working, as well as local and national policy, and cultural expectations and assumptions. These factors, which include resources, capacity and so on, define the sorts of projects that are possible. Context and the causative beliefs both play their part in defining the nature of the project; the mechanisms that are used to bring about change, where the project is carried out, at what scale, for whose benefit, and so on. The intervention is then expected to lead to the outcomes anticipated by those different causative beliefs about what success constitutes. This already complex picture is further complicated by the fact that organiser and beneficiary conceptions of the problem can be very different, and beneficiaries may participate in projects for different reasons than those intended by project organisers.

None of the problems given above specifically state that the 'energy system needs changing', in the language of sociotechnical systems. The two case studies described here were projects for fuel poverty alleviation, for energy behaviour change, for economic regeneration, for environmental awareness. None of them were to contribute to energy system transition in the way described by the transition approaches above. And yet, they can still contribute towards movement in the right direction. They can still change the regime and the landscape in such a way as to make future projects more thinkable, and more possible.

5. Conclusion

In summary, success was interpreted differently by different participants in the case study projects. This depended on each participant's own priorities in the complex interconnected issues of energy and social sustainability in a diverse and deprived city. Success was spoken about in terms of alleviating fuel poverty, raising awareness about energy sustainability, creating jobs and delivering ambitious or difficult projects. These were the problems as seen by the participants of these projects, not the problem of an unsustainable sociotechnical regime. And yet these projects can still make a contribution to unlocking that regime as they

change cultural expectations, install new technologies and give project organisers an opportunity to learn.

Essentially, the reality of local projects for wider energy sociotechnical system transition, certainly in the UK is that they do not look like projects for energy sociotechnical system transition. They look like projects which tackle local and immediate problems, and/or general projects for sustainability. However, they can act as a small step in the process towards regime change. 'Success' is key. If a project is perceived to be successful, it is more likely to be built upon. Project following project, just as step following step, can create a trajectory of change over time.

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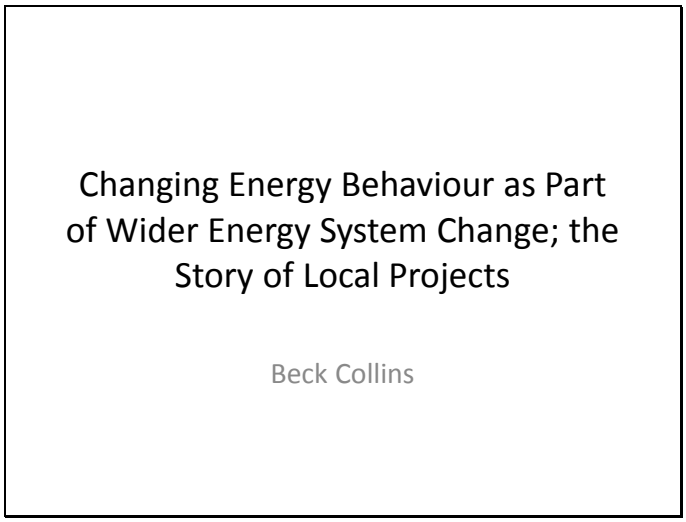
ECSEE Conference Presentation

Slide 1



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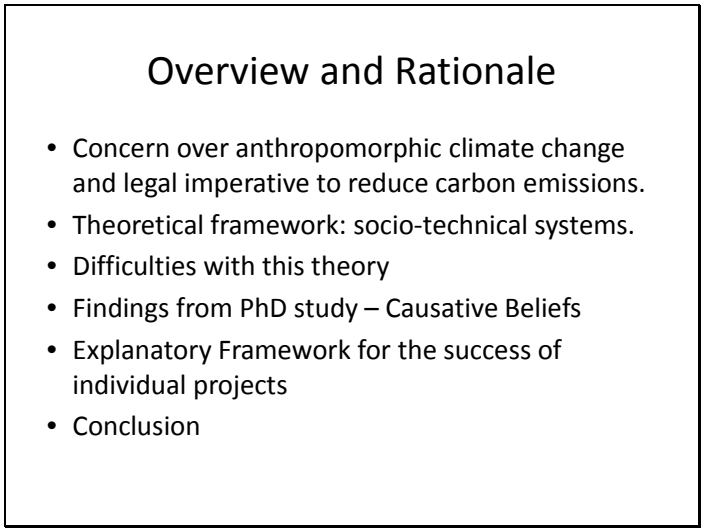


Slide 3

The Need for Sustainable Energy Behaviour

- Anthropogenic climate change: IPCC (2007) concludes that the recent warming is 'very likely' due anthropogenic greenhouse gas (GHG) emissions. UK is tenth largest CO_2 in the world (IEA 2011).
- International treaties and UK law provide an imperative to reduce GHG emissions: Kyoto Protocol, UK Climate Change Act.
- Importance of reducing energy use in domestic sector: Emissions result from energy use, and between a quarter and one third of total UK energy is spent in the residential sector.
- Importance of changing the way we use energy in the home

If we're causing it, we can do something about it. If we can, we should!

There have been lots of UK Gov't initiatives looking at energy behaviour, books community groups, etc.

Slide 4

But how easy is it to change behaviour?

Slide 5

Socio-technical Systems (STS)

- Intertwined nature of society and technology.
- Key functions (transport, housing, energy, food) are provided by systems of interlocking components of infrastructure, business models, regulations, cultural expectations and technology.
- Often, functions are provided by socio-technical *regimes*: eg energy is provided by centralised power stations exporting to the national grid for consumption in individual properties.
- "Locked-in", difficult to change.
- *Therefore energy behaviour is also difficult to change*

Slide 6

Transition Theory

- Uses insight of STS to suggest approaches to managing transitions towards more sustainable regimes
- Importance of Multi-level Perspective (MLP): Niche, regime and landscape, pressures from niches and/or the landscape can destabilise the regime and force change.
- A number of different approaches: Strategic Niche Management, Transition Management, Technological Innovation System, etc.

The point of all approaches is about making sure there is a good network of the right people (i.e. with some influence and power) together to think outside the box, and to invent and support new technologies or experiments to start regime change.

Slide 7

Difficulties with STS theory

- There are lots of interesting difficulties with these theories (see Smith *et al.* 2010).
- However, in practice, in individual projects at one moment in time, what do projects for change look like? How do they contribute to change?
- Theory makes us look at these problems in a certain way. Are they perceived this way in practice?

Is change purposive and directional, as STS *implies*?

Slide 8

The Research

2 case studies were carried out for presenter's PhD; "Interventions for Behaviour Change"

- Birmingham Energy Savers
  - 1300 solar PV arrays installed mainly on social housing, throughout Birmingham.
  - City Council project.
- SusMo's British Gas Green Streets
  - Solar PV installed on 4 community buildings. Solar PV/Solar Thermal/energy efficiency measures installed on/in ~17 households, in Moseley. Attempted use of iMeasure.
  - Sustainable Moseley is a voluntary community group.

Interviews with project organisers and beneficiaries

Slide 9

Findings

The Importance of "Success".

- 'Perceptions of success' emerged from the data as an important category. This was more important than 'behaviour change'; it subsumed behaviour change.
- In what way were the projects 'successful'?
- Different people had different conceptions of success.
- Different conceptions about success stem from different beliefs about the 'problem'.
- 'Causative Beliefs'

Slide 10

Triangles of Causative Beliefs

Different people prioritise different problems, and hence different conceptions of success.

Individuals of course understand there are multiple problems, and themselves prioritise different problems at different times.

Success is difficult to determine as people define success differently, depending on their causative beliefs.

Those beliefs relate to what the most important problem is, the solution, and the mechanisms for bringing that about.

Slide 11

Causative Beliefs

Problem	Solution	Success
Fuel Poverty "most of the PV in Birmingham is on social housing, and was done for fuel poverty reasons" "I thought we'll have a go and see if it saves any money . . . Every little penny counts these days"	Energy saving measures and behaviour change "The PV panels were 'sold' as a mechanism for saving money" "The best way of getting people to save money on their fuel bills is to make tem change their behaviours that are giving higher electricity bills. For some vulnerable occupiers that is not possible"	Reduced bills Alleviation from fuel poverty
Too much energy is used (environmentally/economically unsustainable) "if you've had a terribly inefficient boiler . . .throwing good fuel after bad"	Reduce the energy being used through physical measures, behaviour change, or price changes. "Fuel will be saved by happenchance . . That's what the technology's for, but to get the beset out of something you want people to understand it"	Reduced energy consumption
Environmentally unsustainable lifestyles "People [need to realise] the importance of not driving cars around for short distances and stop buying everything encased in plastic"	Increase awareness through physical measures or information, behaviour change "They can see the meter go backwards, they're generating, they can see that, why have I got 50watt halogen light bulbs, when I turn two of them on, that takes all the power from my PV. I should get some energy efficient ones"	'Conversion' to environmental sustainability and advocacy.

Slide 12

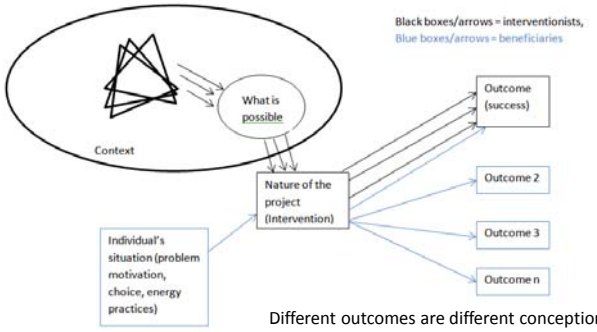
Causative Beliefs

Difficulty of delivering large projects "It took a lot of work going round politicians and senior management, again and again, because it doesn't make sense in the first instance"	Manage anxiety, bring the right people together, multiple aims for multiple stakeholders, create tension to get the best decisions "So you say it's only five million this time round, then [later] you approve the full business case for the pathfinder programme, that's only this much money – you have to lead them on a journey" "When I set up the board for the programme, I set up three champions , a social benefit champion, an environmental champion, and an economic champion. I had a tension"	Delivery of major project
Few jobs "We've got the highest levels of unemployment in the country! It's not good for the city!"	Regenerate the city's economy (through construction for energy efficiency) "If we're gonna make it happen, we've got to think big. [That way] we get all the other benefits . . We get the jobs"	More jobs
Home must be kept up to date "They have to keep the property up to scratch"	Refurbishment/new technology "It's their property to look after. . That's what it is really, the solar panels, it's part of modernisation"	New technology in house
The energy system needs changing	Capitalise on the seeds of change	Movement 'in the right direction'

The last is my own interpretation of these projects – I use language of sociotechnical systems and transition to a sustainable energy 'regime'. Project organisers used different terms to talk about more immediate problems as they saw them. Doesn't mean these projects cannot be viewed in this way.

Slide 13

The Process of an Intervention for Change



Different outcomes are different conceptions of success for the organisers AND the beneficiaries!!

Slide 14

Conclusions

- Success was interpreted differently by different organisers. This depended on their own priorities in the complex interconnected issues of energy and social sustainability in a diverse and often deprived city.
  - There were positive outcomes for most individuals, although this was not always the outcome originally hoped for.
  - What might be the negative outcomes of this?
- System transition happens over a generation through a series of small steps. This research demonstrates what a single step might look like. What are the implications of this for system transition?

My views are – if the projects are perceived negatively in some way, will they be built upon, to create the trajectory of change? If they are viewed successfully, are they more likely to be built upon? What about other issues?